ISSN 1918-7211 (Print)
ISSN 1918-722X(Online)

International Journal of Psychological Studies

Vol. 4, No. 3 September 2012

CANADIAN CENTER OF SCIENCE AND EDUCATION

Editorial Board

Contents

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Challenges of the Fennema-Sherman Test in the International Comparisons

Jari Metsämuuronen[1]

[1]Faculty of Behavioral Sciences, Helsinki University, Finland

Correspondence: Jari Metsämuuronen, Faculty of Behavioral Sciences, Helsinki University, Siltavuorenpenger 5 A, P.O.B. 9, FIN-00014, Finland. E-mail: Jari.Metsamuuronen@methelp.com

Received: May 3, 2012 Accepted: May 21, 2012 Online Published: July 16, 2012

doi:10.5539/ijps.v4n3p1 URL: http://dx.doi.org/10.5539/ijps.v4n3p1

Abstract

The shortened version of Fennema-Sherman test is used to measure attitudes toward mathematics in several international testing settings like TIMSS and PISA. On the basis of Classical Item Analysis and Confirmatory Factor Analysis in the different achievement levels and sets of countries, it is suggested that there are two items on the Fennama-Sherman test which should be discarded due to cultural and achievement considerations. Items "Mathematics is more difficult for me than for many of my classmates" and "Mathematics is not one of my strengths" are too complicated for test takers who belong to the lowest quartile of achievement. These items also seem to carry culturally sensitive elements especially in East Asian countries where fairly good students answer illogically due to such negative wordings. Alternative possibilities for test items are recommended.

Keywords: student attitudes, item analysis, test reliability, confirmatory factor analysis, mathematics achievement, international testing, international assessment, international comparison

1. Introduction

The correlation between mathematics achievement and attitudes toward mathematics is widely studied (e.g., House & Telese, 2008; Shen& Tam, 2008; Kadijevich, 2006; 2008). Some researchers have noticed remarkable differences in correlation between countries (e.g., House &Telese, 2008; Kadijevich, 2006; 2008; Wilkins, 2004; Shen, 2002; Papanastasious, 2000; 2002; Stevenson, 1998): in some countries, the correlation between attitudes and achievement may can be near zero, like in Macedonia (Kadijevich, 2008), Philippines (Wilkins, 2004), Indonesia (Shen, 2002) or in Moldova (Shen, 2002) whereas in some other countries, the correlation can be as high as 0.60 (e.g., in Korea, Shen, 2002).

A shortened version of Fennema–Sherman Mathematics Attitude Scales (Fennema & Sherman, 1976) are used in several international comparisons, like in Trends in International Mathematics and Science Study 2007 (TIMSS, Mullis, Martin, & Foy, 2008) and its predecessors 1995, 1999, and 2003 as well as in Programme for International Student Assessment (PISA). Original scales include nine dimensions but in these international comparisons only three dimensions with four items in each (see Table 1) and two negative items in each of the first two dimensions are used. The names of the factors can be "Liking Math", "Self-concept in Math", and "Experiencing utility in Math" (compare naming in, e.g., Kadijevich, 2006; 2008). This kind of "Expected factor structure" can be found in all Western countries including European countries (except in Bulgaria and Romania), Australia, Canada, Israel, the United States and Russia. However, after performing exploratory factor analysis (EFA) with Principal Axis Factoring, 3 factors, and Promax rotation with Kaiser Normalization separately in all countries, it is notable that in several countries, this structure cannot be found. Instead, an unexpected factor structure ("Totally unstructured", see Table 2) characterized by one factor of pure negative items can be found in almost all countries in the Middle East and several countries in East Asia. A "Moderately unstructured" factor structure characterized by fragmentation of the factor "Experiencing Utility in Math" (see Table 3) is found in Bahrain, Bulgaria, Georgia, Iran, Japan, Korea, Romania, Singapore, and Turkey. Note that three of the countries are highly performing East Asian countries.

Table 1. Factor structure in North America (combined N = 22278) in TIMSS 2007 (Expected factor structure)

Pattern Matrix[a]			
	Factor		
	1	2	3
MATH IS MORE DIFFICULT FOR ME…	-.804[b]		
MAT IS NOT ONE OF MY STRENGTHS	-.778		
USUALLY DO WELL IN MATHS	.768		
I LEARN THINGS QUICKLY IN MATH	.725		
I HATE MATH		-.878	
I ENJOY LEARNING MATHEMATICS		.865	
MATH IS BORING		-.740	
WOULD LIKE TO TAKE MORE MATH		.615	
NEED MAT TO GET INTO THE <UNI>…			.706
NEED MAT TO GET THE JOB I WANT			.698
NEED MAT TO LEARN OTHER SUBJ			.555
WILL HELP IN MY DAILY LIFE			.552
Extraction Method: Principal Axis Factoring.			
Rotation converged in 5 iterations.			
Loadings > .30 are seen			

Table 2. Factor structure in Syria in TIMSS 2007 (Totally unstructured)

Pattern Matrix[a]			
	Factor		
	1	2	3
I ENJOY LEARNING MATH	.846[b]		
I HATE MATHEMATICS	-.783		
WOULD LIKE TO TAKE MORE...	.588		
I LEARN THINGS QUICKLY IN…	.442		
USUALLY DO WELL IN MATHS			
NEED MAT TO GET INTO THE…		.659	
NEED MAT TO GET THE JOB I…		.609	
NEED MAT TO LEARN OTHER…		.494	
WILL HELP IN MY DAILY LIFE		.396	
MAT IS NOT ONE OF MY…			.696
MATH IS MORE DIFFICULT …			.662
MATH IS BORING	-.312		.364
Extraction Method: Principal Axis Factoring.			
a. Rotation converged in 5 iterations.			
b. Loadings over .30 are seen			

Table 3. Factor structure in Korea in TIMSS 2007 (Moderately unstructured)

Pattern Matrix[a]			
	Factor		
	1	2	3
USUALLY DO WELL IN MATHS	.883[b]		
MATH IS MORE DIFFICULT FOR…	-.832		
MAT IS NOT ONE OF MY…	-.774		
I LEARN THINGS QUICKLY IN…	.676		
I ENJOY LEARNING MATH		.663	
WOULD LIKE TO TAKE MORE…		.636	
I HATE MATHEMATICS	-.359	-.634	
MATH IS BORING		-.619	
WILL HELP IN MY DAILY LIFE		.589	
NEED MAT TO LEARN OTHER…		.520	.335
NEED MAT TO GET THE JOB I...			.789
NEED MAT TO GET INTO THE...			.764
Extraction Method: Principal Axis Factoring.			
a. Rotation converged in 7 iterations.			
b. Loadings over .30 are seen			

Instead of cultural matters, this article finds the answer to the fragmentation in the factor structure from the characteristics of the Fennema-Sherman test itself. Two items are shown to be too difficult for the students at the lowest achievement level. Additionally, the test is culturally biased. This is shown by answering four research questions:

1) How the item discrimination differ between different achievement levels and different cultures?

2) What kind of connection there is between the test reliability and achievement level of the respondents?

3) How the expected factor structure of Fennema-Sherman test fits for different cultural settings?

4) How well does the structure fit for the different achievement levels and cultural settings of the test takers?

Finally, some exemplar items from the relevant test battery used in Finland are suggested in order to replace two poorly behaving items from the original Fennema-Sherman test.

2. Data and Methods

2.1 Data

All the countries in TIMSS 2007 (N = 57) were combined into a dataset consisting of a total of 248,160 eight grader students. For analysis, the dataset was divided into 20 percentiles (N ≈ 12, 000 in each) on the basis of the first plausible value of Mathematics achievement (Table 4). In some analyses, the quartiles are also used; obviously the lowest quartile includes percentiles 1–5 and highest quartile includes percentiles 16–20. Two points of the data and percentiles are worth noting: 1) the range in 1st and 20th percentile is much wider than with other groups because of representing the tail populations and 2) none on the percentile shows normal distribution; in percentiles 2–19 the population is merely uniform than normally distributed. There may thus be some estimation error in the parameters of CFA and EFA. However, because of the robust procedures with large sample sizes (Principal axis factoring with EFA and Maximum likelihood estimation in CFA), the results can be taken stable.

Table 4. Descriptive statistics for 20 percentiles

Percentile of Achievement[1]	N	Mean1	Minimum[1]	Maximum[1]	Range	Std. Deviation	Skewness	Kurtosis
20	12241	674.4	632.1	898.4	266.3	37.2	1.376	2.126
19	12358	611.4	594.3	632.1	37.8	10.8	0.193	-1.147
18	12372	580.9	568.6	594.3	25.7	7.4	0.092	-1.19
17	12347	558.4	548.8	568.6	19.8	5.7	0.061	-1.197
16	12356	540.0	531.4	548.8	17.4	5.0	0.017	-1.189
15	12349	523.6	515.9	531.5	15.6	4.5	0.039	-1.232
14	12352	508.5	501.3	515.9	14.6	4.2	0.016	-1.19
13	12336	494.1	487.1	501.3	14.2	4.1	0.018	-1.178
12	12334	480.2	473.2	487.1	13.9	4.0	-0.002	-1.209
11	12315	466.1	459.0	473.2	14.2	4.1	0.013	-1.198
10	12329	451.9	444.6	459.0	14.4	4.1	-0.021	-1.195
9	12327	437.1	429.5	444.6	15.2	4.4	-0.019	-1.201
8	12306	421.9	414.2	429.5	15.3	4.4	-0.02	-1.202
7	12319	406.2	398.1	414.2	16.1	4.7	-0.011	-1.219
6	12287	389.4	380.5	398.1	17.6	5.1	-0.036	-1.201
5	12272	370.8	360.8	380.4	19.6	5.6	-0.05	-1.187
4	12269	350.0	338.4	360.8	22.5	6.5	-0.06	-1.198
3	12251	324.9	310.2	338.4	28.2	8.1	-0.078	-1.192
2	12198	291.5	269.1	310.2	41.1	11.8	-0.194	-1.154
1	12190	222.5	5.0	269.1	264.1	40.9	-1.378	2.143

1. 1st plausible value (PV) of mathematics in TIMSS 2007

2.2 Fennema-Sherman Test in TIMSS 2007

Usually in the internationally setting the shortened Fennema-Sherman Mathematics attitude scale is divided into two sets of questions (in TIMSS 2007 questions 8 and 9) with the same question: *"How much do you agree with these statements about learning mathematics?"* The statements in Question 8 are as follows:

a. I usually do well in mathematics,

b. I would like to take more mathematics in school,

c. * Mathematics is more difficult for me than for many of my classmates,

d. I enjoy learning mathematics,

e. * Mathematics is not one of my strengths,

f. I learn things quickly in mathematics,

g. * Mathematics is boring,

h. *I hate mathematics.

The items with asterisk (*) are opposite to the scale, and thus they are reversed before scoring. The last question in the set "I hate mathematics" was originally negative but the item was reversed ("I like mathematics") before releasing the data. For the analysis it was reversed back to reach the original structure of the test: two negative and two positive items for both Dimension 1 and 2. The statements in Question 9 are as follows:

a. I think learning mathematics will help me in my daily life,

b. I need mathematics to learn other school subjects,

c. I need to do well in mathematics to get into the <university> of my choice,

d. I need to do well in mathematics to get the job I want.

Later shortened versions of the items are used to shorten the narrative, and texts on tables and figures. The abridged versions are obviously recognized. As seen on Table 1, three dimensions are constructed as follows:

1) Liking MATH: Question 8, items b, d, g*, and h*,

2) Self-concept in MATH: Question 8, items a, c*, e*, and f, and

3) Experiencing utility in MATH: Question 9, items a to d.

Alpha reliabilities for the scales are respectively 0.72, 0.70, and 0.74 in the whole dataset. In what follows, it is seen that reliabilities for the scale "Self-Concept in MATH" are very low in the lowest achievement groups.

2.3 Statistical Methods

Four research questions were set concerning 1) the item discrimination at different achievement levels and cultural settings; 2) the test reliability at different achievement levels of the students; 3) the expected factor structure of the Fennema-Sherman test in different cultural settings, and 4) the fit of the test structure at the different achievement levels and cultural settings. Correspondingly, the Fennema-Sherman test in TIMSS 2007 dataset is analyzed four ways in different ability groups specified as 20 percentiles of mathematics achievement: 1) with Classical Item Analysis (CIA), 2) with reliability estimates, 3) with traditional Exploratory Factor Analysis (EFA) and factor loadings, and 4) with Confirmatory Factor Analysis (CFA).

To answer the first research question, the test items are evaluated on the basis of CIA, particularly with the index to item discrimination. A procedure suggested first by Henrysson (1963) and discussed by Cureton (1966) is to calculate the item-rest correlation ρ_{gXC} (C for "Corrected") rather than the item-total correlation ρ_{gX} (that is, the traditional Pearson product moment correlation between an item and the score). Classically, the lower boundary for item-total correlation is given as $\rho_{gX} = 0.20$ because when the item is either extremely easy or demanding, the mathematical procedure cannot produce much higher values even though the item itself would be perfectly discriminating. However, this low value can be accepted only for extreme items (in achievement testing for extremely demanding or extremely easy items); when an item has somewhat average difficulty level, much higher values (near 0.40–0.60) should be expected for an item to show a discriminative power. In practice, such items with $\rho_{gXC} < 0.20$ are usually discarded because of lack of accuracy.

The second research question is tackled by using the Classic Alpha reliability (Kuder & Richardson, 1937; Gulliksen, 1950; Cronbach, 1951). When the values for item discrimination for single items are high, on the basis of Lord and Novick (1968, formula 15.3.8, where the item-total correlation is in-built in the formula of alpha reliability), the reliability of the score is high. Though it is known that Alpha reliability always underestimates the real reliability (Gulliksen, 1950; Lord & Novick, 1968; Vehkalahti, 2000), it is, in practice, the most used indicator for the general reliability (Hogan, Benjamin, & Brezinski, 2000). The challenge with the classical reliability is that when knowing the overall reliability of the score, it is not possible to know how good the test is in the *extremes* of the scale. This is an important matter because we tend to be interested in the lower performers (as well as the high performers) with negative attitudes. If an attitude test is not reliable in the low-performer's group, then the attitude results for these low performers do not mean anything. When the reliability of the score is lower than $\alpha = 0.60$, it is traditionally taken as too low to indicate sufficient test reliability. Two types of reliabilities are used: first, the reliability for the total sum of the attitude scale (combining all the 12 items) and second, the reliability for single dimensions. For the total sum, Alpha model gives certainly too low an estimation because it cannot utilize the information of the structure in the test; Alpha model always assumes unidimensionality (see critical discussion about the assumptions, e.g., in Tarkkonen, 1987; Vehkalahti, 2000).

To answer the third research question, the traditional Exploratory Factor Analysis is used and factor loadings are extracted. Because it is theoretically expected to find a factor solution of three factors (see Table 1), Principal Axis Factoring (PAF) with the 3-factor solution is selected at each achievement level; the analysis is done in SPSS environment. During the process, it was easily seen that the factors correlate moderately with each other. Thus an oblique rotation (Promax) is used.

The fourth research question is tackled by using Confirmatory Factor Analysis (CFA) in AMOS environment (Arbuckle 2007). The modern CFA is based on Karl K. Jöreskog's early works in the late 1960s (Jöreskog, 1967; 1969; 1970) and later his (Jöreskog, 1973), Keesling's (1972) and Wiley's (1973) works (see Bollen, 1989a, 6). CFA and SEM analysis are known by its own notation (see e.g., Jöreskog et al., 2003; Bollen, 1989a; Bentler, 1995; Byrne, 2001; Ullman, 2001) and several – even confusing number of – indices for model fit. The only statistical test, however, for testing a null hypothesis concerning the model fit is the Chi Square test comparing the observed and expected covariance structures. One simple test is to divide the Chi Square coefficient by its degrees of freedom (CMIN in AMOS). In practice, though, the Chi Square test is sensitive for large sample size; when sample size is larger than 300–400, the Chi Square test rejects the hypotheses of the model fit too easily. In this massive dataset ($N > 240000$), Chi Square test definitely rejects the hypotheses of a good fit. Thus in the case, the incremental fit indices are more preferable to use. In AMOS outputs, the following incremental fit

indices for the model fit are in use: Normed Fit Index (NFI, Bentler & Bonett, 1980), Relative Fit Index (RFI, Bollen, 1986), Incremental Fit Index (IFI, Bollen, 1989b), Tucker-Lewis Index (TLI, known also as Non-Normed Fit Index, NNFI, Bentler & Bonnet, 1980), Comparative Fit Index (CFI, Bentler, 1988). AMOS also uses the Root mean square error of approximation (RMSEA, Steiger & Lind, 1980; Browne & Cudeck, 1993) and several indicators based on information criteria. Except RMSEA, the rule of thumb in evaluating the goodness-of-fit between the theoretical and the observed covariance structure is that the values for the incremental fit indices should be over .90 (Bentler & Bonnet, 1980); values below .90 indicate that the dataset does not match the model and thus the model should be developed. The rule of thumb for RMSEA is that the values below .05 show good fit, values .08 and less show moderate discrepancy for the model and data, and values over .10 show the models which should be rejected (Browne & Cudeck, 1993). The upper boundary of RMSEA = .05 is tested in AMOS (in what follows, PCLOSE). Item-wise accuracy or item reliability is measured by Squared Multiple Correlation coefficients (SMC); the higher value the better. In the analysis, Maximum likelihood estimation method is used.

3. Results

3.1 Item Discrimination of the Negative Items of Fennema-Sherman Test

On the basis of the TIMSS data it is obvious that there are some challenges in the negatively expressed items of the Fennema-Sherman test especially in the East Asian countries. Incrementally growing values for the item discrimination of the negative items in different achievement levels (see Figures 1 and 2) reveal several things. First, the short and strict negative statement *"I hate Mathematics"* behaves nicely at all the achievement levels. However, all the other negative statements seem to embed challenges in the lowest achievement level. Second, because of the low item discrimination (less than .20) in the lowest quartile (Figure 1, here East Asian dataset as an example), two negative items *"Mathematics is not one of my strengths"* and *"Mathematics is more difficult for me than for many of my classmates"* are not recommendable to be used in a test that is intended for the low performing students. These items would most probably be discarded if the test was originally constructed with international scope. The latter item seems to discriminate consistently in the North American dataset and moderately well in European and Middle Eastern datasets (Fig. 2). Thirdly, though the item *"Mathematics is boring"* has also quite a low value for item discrimination in the lowest percentile, otherwise it behaves quite well, albeit not as well as the item *"I hate mathematics"*. Fourth, the different levels of item discrimination seen in Figure 1 are in the same vertical order also in North American, European and Middle Eastern datasets: the highest item-rest correlations are attained with item *"I hate Mathematics"*, the second highest with *"Mathematics is boring"*, the third highest with *"Mathematics is not one of my strengths"* and the lowest with item *"Mathematics is more difficult for me than for many of my classmates"*. This seemingly gradual increase of complexity is discussed in the final section.

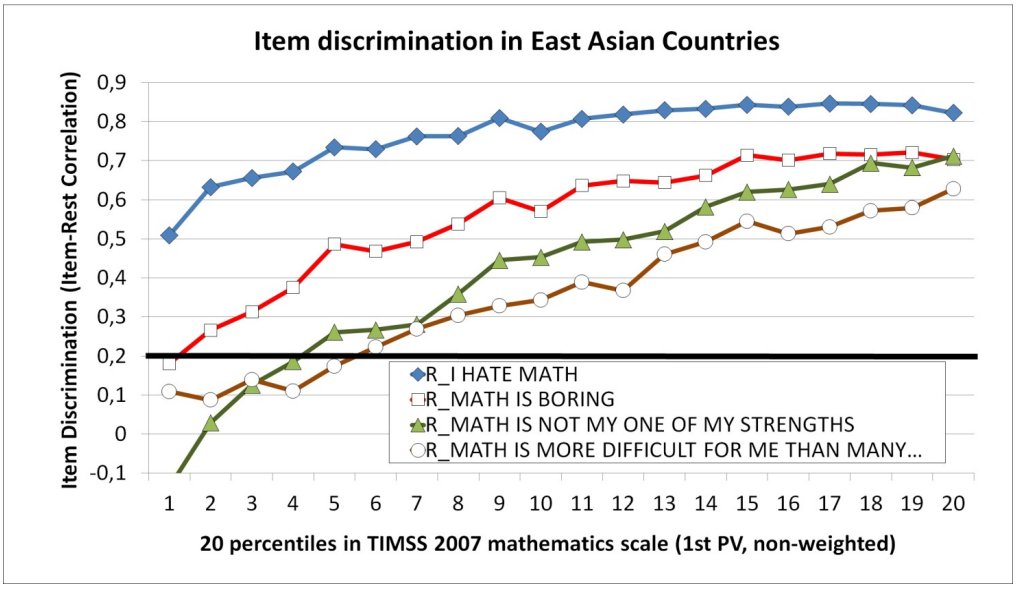

Figure 1. Item discrimination for negative items in the East Asian sub-dataset

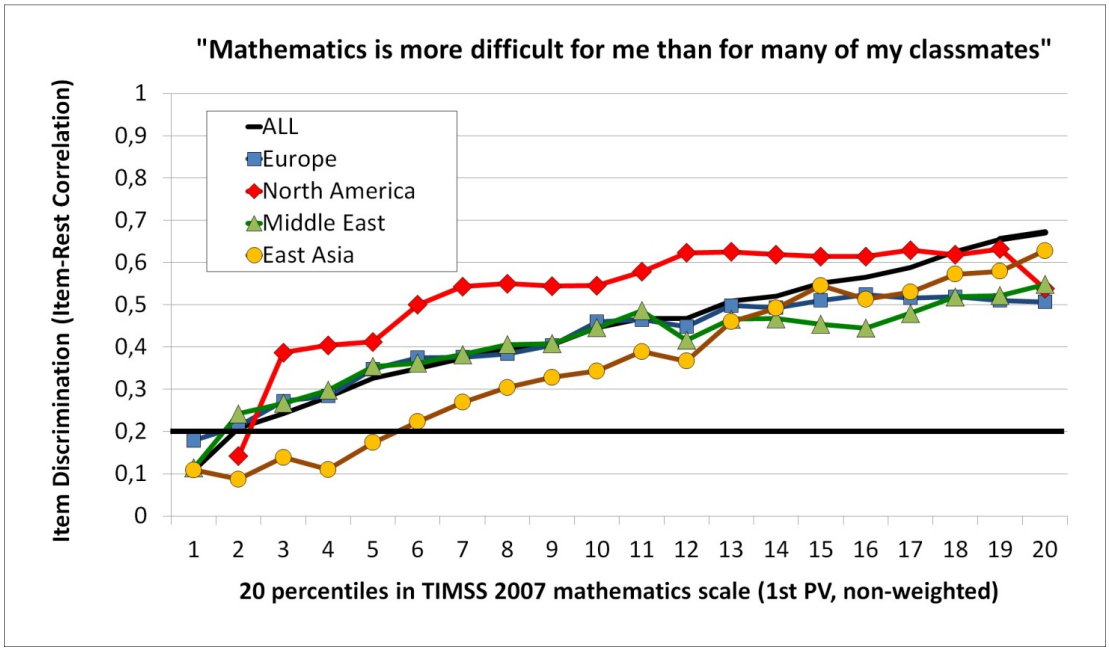

Figure 2. Item discrimination for item "Mathematics is more difficult for me than for many of my classmates" in different sub-populations in different achievement groups

3.2 Reliability of the Attitude Test in Different Achievement Levels

Two out of three dimensions – "Liking MATH" and "Experiencing Utility on MATH" – do not appear to contain any serious problems in test accuracy in the group of the lowest level students. Contrarily, it is evident that the reliability of the scale of "Self-Concept in MATH" is very low when it comes to students in the lowest quartile (Figure 3): reliabilities are remarkably below .60 whereas with the other dimensions reliabilities stay steadily over .70 even in the lowest ability groups.

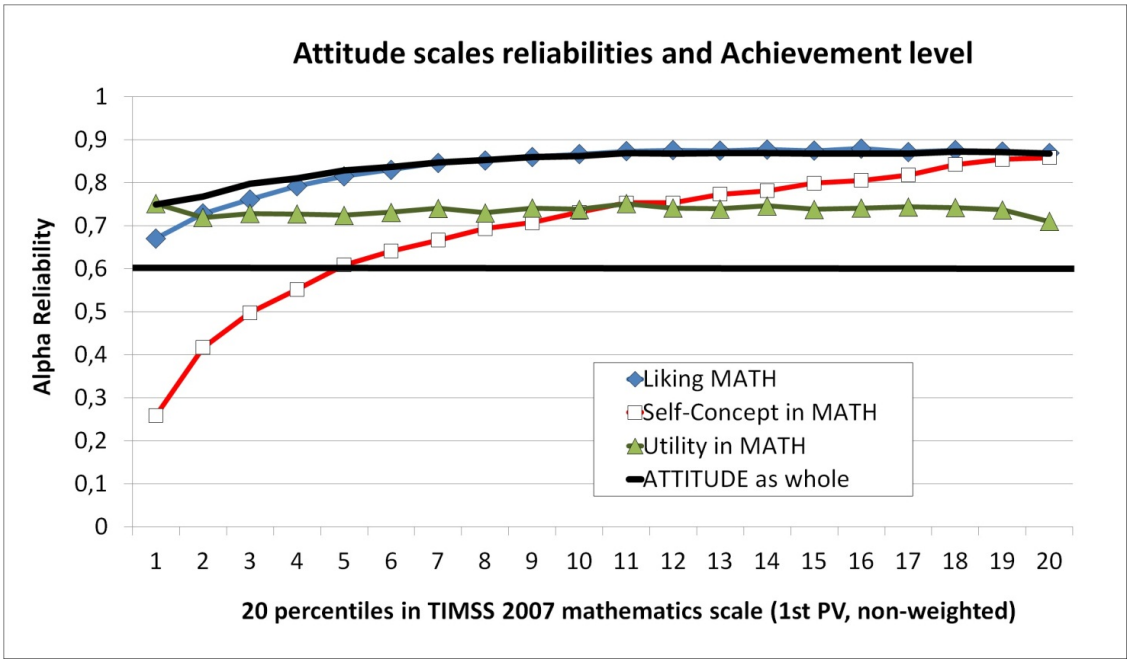

Figure 3. Reliabilities of Fennema-Sherman test scores in different achievement levels

From the international viewpoint, the score for "Self-Concept in MATH" appears to be very problematic: the score is less reliable in East Asian countries, Middle Eastern countries and in Europe than in North America (Figure 4). Especially in the East Asian countries, even the mediocre students (in percentiles 6–8) are not tested accurately: reliabilities in the lowest quartile are lower than 0.50 and in percentiles 6–8 reliabilities are 0.60 or less. It seems that the score of "Self-Concept in MATH" is the most coherent in North America where the test has been developed (and pretested).

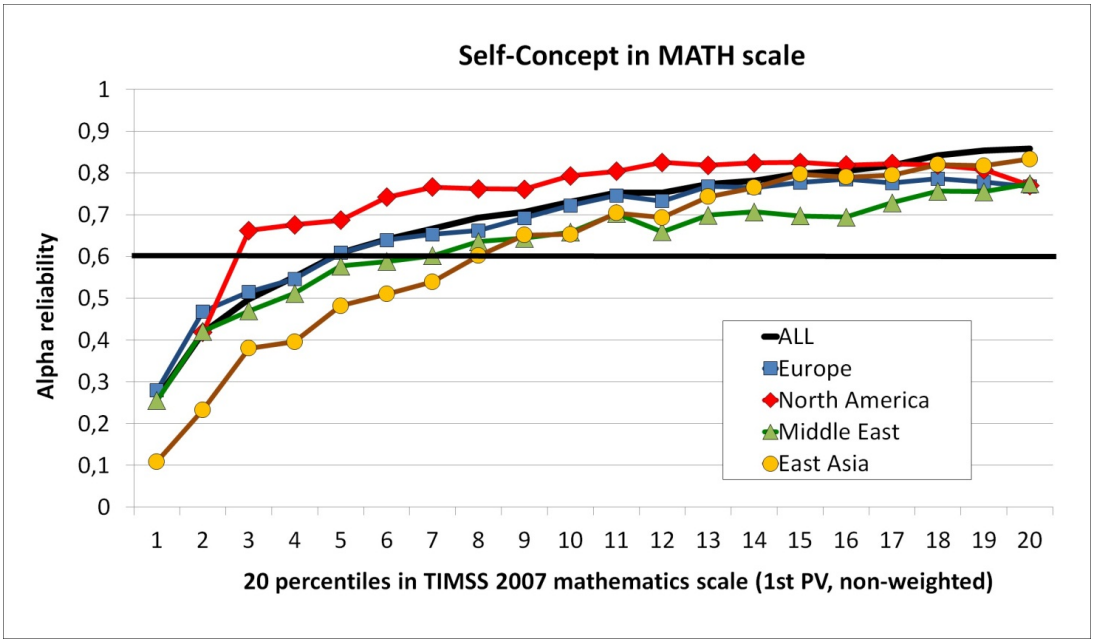

Figure 4. Reliabilities for score of "Self-Concept in MATH" in different achievement levels in different sets of countries (N > 240000)

3.3 Factor Structure of the Fennema-Sherman Test in Different Achievement Levels

A standard EFA with three factor solution reveals one reason why the factor structure deconstructs as seen earlier in Table 3. The factor structure is strictly dependent on the achievement level of the test takers and there seems to be logical phases of a kind of abstract thinking (Table 5).

Table 5. Factor loadings of selected items in the different achievement level groups

Achievement level in Math[1)]	Loading[2)] of "HATE"[3)]	Loading[2)] of "BORING"[4)]	Loading[2)] of "DIFFICULT"[5)]	Loading[2)] of "WEAK"[6)]	Loading[2)] of "I LEARN"[7)]	Loading[2)] of "I DO WELL"[8)]
20	-0.844	-0.794	-0.782	-0.818	0.719	0.813
19	-0.848	-0.782	-0.781	-0.784	0.738	0.811
18	-0.851	-0.786	-0.770	-0.752	0.747	0.788
17	-0.858	-0.784	-0.752	-0.713	0.716	0.754
16	-0.856	-0.775	-0.742	-0.696	0.69	0.735
15	-0.854	-0.755	-0.748	-0.677	0.694	0.705
14	-0.876	-0.741	-0.733	-0.646	0.668	0.669
13	-0.856	-0.73	-0.749	-0.603	0.664	0.654
12	-0.888	-0.695	-0.717	-0.618	0.628	0.579
11	-0.864	-0.683	-0.735	-0.616	0.606	0.540
10	-0.875	-0.672	-0.699	-0.593	0.592	0.531
9	-0.897	-0.649	0.699	0.586	-0.492	-0.429
8	-0.878	-0.580	0.688	0.574	-0.449	-0.366

7	-0.901	-0.554	0.658	0.553	-0.329	a
6	-0.917	-0.502	0.639	0.554	a	a
5	-0.849	-0.440	0.609	0.512	a	a
4	-0.842	-0.363	0.560	0.536	a	a
3	-0.841	0.349	0.547	0.575	a	a
2	-0.810	0.403	0.437	0.637	a	a
1	-0.751	0.491	0.426	0.536	a	a

1) 20 percentiles on the basis of unweighted 1st Plausible value (PV) in TIMSS 2007 dataset

2) The extraction method: Principal Axis Factoring; the rotation method: Promax with Kaiser Normalization; 3-factor solution

3) – 8) Variables: "I hate math" as original (negative), "Math is boring", "Math is more difficult for me than for many of my classmates", "Math is not one of my strengths", "I learn things quickly in Math" in expected factor, and "I usually do well in Maths" in expected factor

a) loading < .30 in the expected factor

At the lowest level of achievement, the factor structure is characterized by *one clear factor of negative items*. Technically speaking, at this level all the negative items—except "I hate mathematics"—correlate with each other more than with the expected positive counterparts. The loadings of the negative items are highly positive. At this level of achievement, the absolute value of the bilateral correlation coefficient of variable "*Math is not one of my strengths*" and its positive counterpart "*I usually do well in mathematics*" is r = 0.12 or less, and for variables *"Math is boring"* and *"I enjoy learning mathematics"* it is r = 0.30 or less. At this level, the reliabilities for the score of "Self-Concept in MATH" are less than $\alpha = 0.50$ as also seen in Fig. 1. One plausible reason for low correlation is that the *general reading comprehension of low-ability level students may be inadequate for them to understand the statements.* This may also be connected with their poor mathematics skills: they were not able to read the stems of the test items. Another explanation may be that at this low level of achievement, the students' *level of abstract thinking may be low:* many of the lowest ability level test takers seem to comprehend the negative wordings inadequately. One may hypothesize that these students have enough general ability to understand the positive sentence and react adequately, but not enough abstract level thinking to understand the relevance of the negative wording and to judge whether they have a positive or a negative opinion of this negative sentence. Thus, this lowest level of abstract thinking is called *Concrete level.*

The second-lowest achievement level is, technically speaking, characterized by the fact that the variable *"Math is boring"* has a growing loading in the correct factor—and thus, the intended factor structure has started to develop. Reliabilities for the score of "Self-Concept in MATH" range $\alpha = 0.55–0.64$, which shows very low reliability for the test. However, the other negative variables are still correlating positively with each other without corresponding positive variables in the same factor. This level of abstract thinking is present in the percentiles 4–6. This second-lowest level of abstract thinking is called *Developing level.*

The third level is called *Formed level* because all the factors are formed but they are still immature in comparison with the expected structure. Technically speaking, the factors "Liking MATH" and "Experiencing Utility in MATH" are formed as they are intended. However, the third factor with negative items, "Self-Concept in MATH", is characterized by negative loadings for the positive items and positive loadings for the negative items; hence, the negative items are dominating the factor loadings. This level of abstract thinking is present in the percentiles 7–9. Reliabilities for the score of "Self-concept in MATH" in these percentiles range $\alpha = 0.67–0.71$.

The *Matured level* of abstract thinking is characterized by the expected factor structure: the higher the achievement levels, the higher loadings and correlations between the corresponding variables in the expected factor. This level includes percentiles 10–20 and it requires around 445 points or more in TIMSS mathematic scale to achieve this matured level of abstract thinking. Reliabilities for the score of "Self-Concept in MATH" range $\alpha = 0.73–0.86$.

These four levels of abstract thinking—Concrete, Developing, Formed, and Matured—are readily observed from a large number of international students. The categories seem to have a slight connection to Jean Piaget's theory of growing abstract thinking (Piaget, 1970) with concrete and formal operations. Though it would be tempting to generalize the results to individual growth, the design gives no possibilities to draw conclusions that the individual maturation of the abstract thinking would follow these steps. Nevertheless, these different levels of

abstract thinking have a strict connection to deconstruct of the expected factor structure and it may also explain why the Fennema-Sherman test does not work in certain countries. The deconstruction of the factor structure (seen at Tables 1−3) is not limited to differences in academic achievement but seem also be due to cultural differences. There may be an inseparable connection of cultural-based and achievement-based factors behind fragmentation in factor structure.

Because the factor structure is strictly dependent on the achievement level of the test takers, the version of Fennema-Sherman test used in TIMSS-and PISA settings is evidently biased so that the attitudes of the lowest achievement groups cannot be measured in a reliable way.

3.4 Model Fit in Different Sets of Countries and in Different Achievement Levels

Generally speaking, the Confirmatory Factor Analysis suggests that the model of three factors with four items on each, explains quite well the covariance in the data. Figure 5 demonstrates the simplest factor model created on the basis of the expected factor model in North American data. The loadings and SMCs are seen in the graph. Note that in this simple model, the error terms are assumed to be non-correlated. The factor loadings are quite high (Ranging .60 — .87) and the item reliabilities are sufficient or high (SMCs range .36—.83). Reliability for the total sum is α = .845. Normed Fit Index (NIF = 0.96) tells that the model is 4% away from the most perfect model, that is, the model is acceptable, as indicated also by the other incremental fit indices (IFI = .96 and CFI = .96).

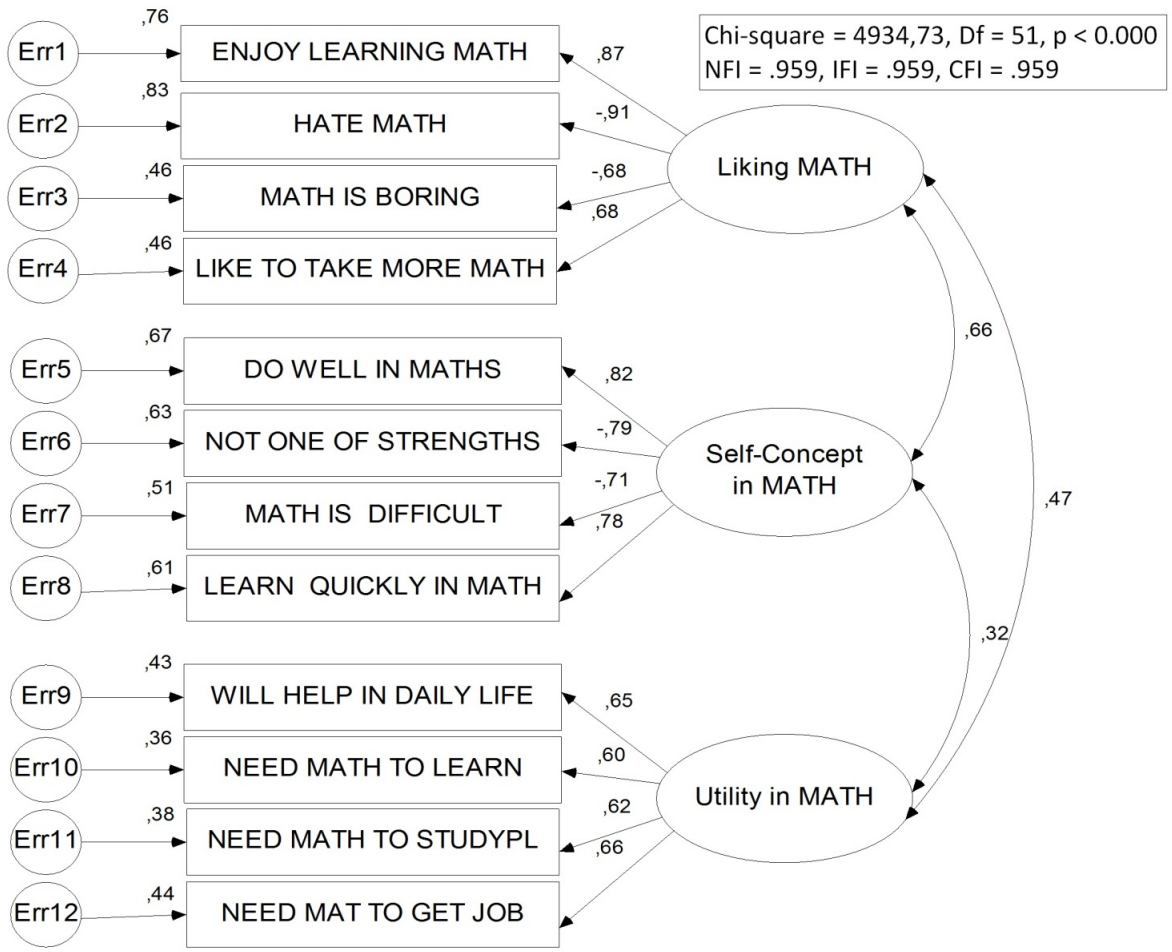

Figure 5. Measurement model of mathematical attitudes of eight-graders in North America (N = 27 711) in the TIMSS 2007 Dataset – "Expected model"

From the international viewpoint, this general model can be accepted very well in Europe and to some extent in East Asia though in the East Asian set of data some indicators (RFI = .87, TLI = .87 and RMSEA > .08) hint that there are notable discrepancy between the data and the model (Table 6). The model does not fit the Middle

Eastern data (all values of goodness of fit indices fall below .90 and RMSEA > .08). This alone indicates that the Fennema-Sherman test should be revised for international comparisons. On the basis of Section 3.1, the problematic items are already known; in Section 4, some recommendations are given to on the basis of experiences from the Finnish version of the test.

Table 6. Baseline comparisons for "North American", "European", "Middle Eastern" and "East Asian" models (All students)

	Goodness of Fit Index						
	NFI	RFI	IFI	TLI	CFI	RMSEA	PCLOSE
North America	.959	.937	.959	.937	.959	.065	.000
Europe	.953	.927	.953	.928	.953	.064	.000
Middle East	.889	.831	.890	.831	.890	.082	.000
East Asia	.915	.870	.915	.871	.915	.095	.000

There is no vast discrepancy between the model and the data when it comes to the highest performing eight graders (the highest quartile, percentiles 16–20, Table 7) though some indicators for Middle Eastern population are just below the thumb rules (NFI = .89 and TLI = .89). On the contrary, the discrepancy of the model and data is drastic when focusing on the lowest quartiles in different sets of countries (Table 8): in Europe and East Asia, the model can be said to fit the data to some extent – otherwise practically all the indicators show the need for remodeling the construct.

Table 7. Baseline comparisons of high-achieving students in North American, European, Middle Eastern and East Asian populations (highest quartile)

	Goodness of Fit Index						
	NFI	RFI	IFI	TLI	CFI	RMSEA	PCLOSE
North America	.959	.937	.960	.939	.960	.062	.000
Europe	.961	.940	.962	.941	.962	.059	.000
Middle East	.926	.886	.927	.889	.927	.073	.000
East Asia	.940	.908	.940	.909	.940	.085	.000

Table 8. Baseline comparisons of low-achieving students in North American, European, Middle Eastern and East Asian populations (lowest quartile)

	Goodness of Fit Index						
	NFI	RFI	IFI	TLI	CFI	RMSEA	PCLOSE
North America	.887	.827	.902	.848	.901	.084	.000
Europe	.922	.881	.926	.886	.925	.065	.000
Middle East	.887	.828	.888	.829	.888	.077	.000
East Asia	.922	.881	.925	.885	.925	.076	.000

When focusing on the most suspicious part of the construct, "Self-Concept in MATH" (see Fig. 4 above), it can be noted that there is no problem when it comes to measuring students' attitude in the highest performing quartile: the model fits almost perfectly with the data (NFI = .996, Figure 6, Table 9). There is some unexplained variability in Middle Eastern and East Asian models (RMSEA > .15). However, on average, the fit is good.

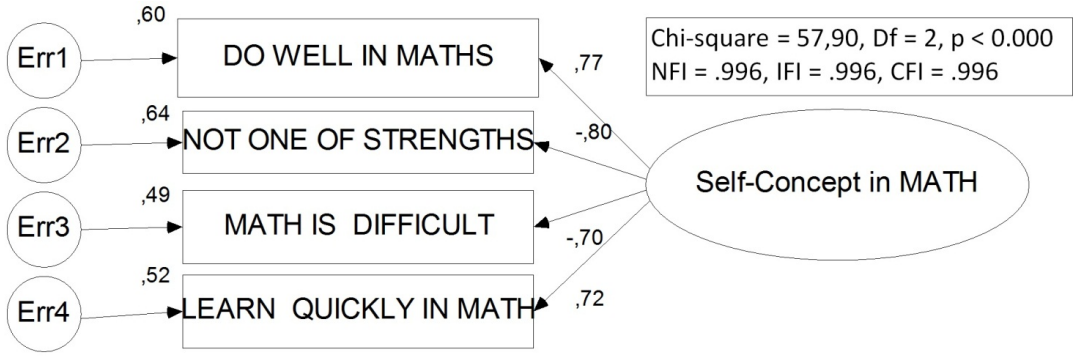

Figure 6. Measurement model of "Self-Concept in Math" of HIGHEST quartile eight-graders in North American sub-population (N = 9700) in the TIMSS 2007 Dataset

Table 9. Baseline comparisons for "Self-Concept in Math" of HIGHEST quartile (highest-performing) students in different sets of countries

	Goodness of Fit Index						
	NFI	RFI	IFI	TLI	CFI	RMSEA	PCLOSE
North America	.996	.980	.996	.981	.996	.052	.282
Europe	.992	.958	.992	.959	.992	.071	.000
Middle East	.965	.826	.965	.827	.965	.118	.000
East Asia	.983	.913	.983	.913	.983	.115	.000

The lowest end of the achievement scale shows an opposite fact. The model does not fit at all in the datasets of the lowest quartile students (Figure 7 and Table 10). The apparent reason, based on Figure 7, is that two negative items, *"Mathematics is not one of my strengths"* and *"Mathematics is more difficult for me than for many of my classmates"*, show very low SMCs (in European sub-population 0.04 and 0.06) indicating very low item reliability. In the Middle Eastern dataset, some indices for fit are negative. Also, in the East Asian dataset, there appears to be negative variance for variable Err4, indicating extremely poor model structure.

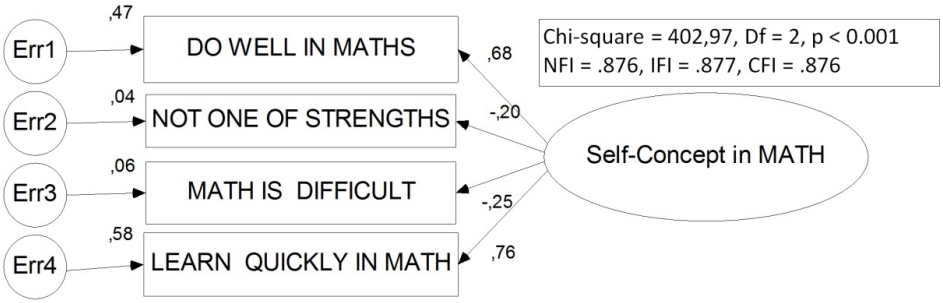

Figure 7. Measurement model of "Self-Concept in Math" of LOWEST quartile eight-graders in European sub-population (N = 4 620) in the TIMSS 2007 Dataset

Table 10. Baseline comparisons for "Self-Concept in MATH" of LOWEST quartile (lowest-performing) students in different sets of countries

	Goodness of Fit Indices						
	NFI	RFI	IFI	TLI	CFI	RMSEA	PCLOSE
North America	.893	.466	.897	.475	.895	.175	.000
Europe	.876	.380	.877	.382	.876	.156	.000
Middle East	.659	-.706	.659	-.707	.659	.189	.000
East Asia	.823	.114	.824	.115	.823	.184	.000

The bottom-line is that on the basis of Classical item analysis (Section 3.1), Reliability estimates (Section 3.2), EFA (Section 3.3), and CFA (Section 3.4), the structure of Fennema-Sherman test is challenged. Especially arguable is its use in international comparisons and especially when using the test to measure the attitudes of the lowest performing students.

4. Alternative Items on the Basis of the Finnish Version

The shortened Fennema-Sherman test has been used in all four TIMSS and PISA rounds and thus it has its own value in giving the trend information on changes in the attitudes toward mathematics. The factor structure seems attractive and justifiable: without any doubt, the dimensions of "Liking MATH", "Self-Concept in MATH", and "Experiencing Utility in MATH" are important elements of the construct. However, on the basis of Sections 3.1 – 3.4, there seems to be some challenges in the structure which evidently have to do with the abstract thinking of the students as well as with cultural issues. First issue is the use of *too complicated* negative items. Second, there seems to be *too many* negative items for international testing purposes. Third, it may be possible that concentrating on a *too general concept* of "mathematics" rather than, e.g., more concrete "mathematics lessons" or "mathematics as a school subject" may be too abstract to many of the low performing students. Alternative test items to consider are given to on the basis of Finnish experiences. Though the Finnish version of the test is described in detail in this Section, it is not necessarily advisable to change the whole test construction in TIMSS- and PISA settings.

In the Finnish national achievement testing, student attitudes are an essential part – as in TIMSS and PISA. A modified Fennema-Sherman test with the same dimensions as in the international settings has been used in numerous assessment questionnaires in several subjects (e.g., in Mathematics, Mother tongue, Science, Languages, Arts, and Physical education tests) in different grades (grades 4, 6, 7, and 9). The original Fennema-Sherman test has been amended with the following principles: 1) to include less negative items (just one for each dimension), 2) to include simpler wordings and 3) to focus – not in "mathematics" but – more concrete "mathematics lessons" and "mathematic as a school subject". The first point is based on the observation that some of the items in the original Fennema-Sherman test are ethically and morally questionable. For example, the item *"I hate mathematics"* was changed to a positive form of *"I like mathematics lessons"* and *"I like to study Mathematics"*, because it is not intended to take a stand for the fact that the students could "hate" some school subjects. The second point is based on the need to use the test also with younger children below eight- or nine grades. For example, instead of wording *"Mathematics is more difficult for me than for many of my classmates"* much shorter and perhaps more straightforward alternatives are in use: *"Many things in Mathematics are difficult"* and *"Mathematics is an easy subject"*. The third point is intended to help students to think of situations in the classroom more concretely. For example, instead of *"Mathematics is boring"*, more concrete alternatives such as *"Mathematics is a boring subject"* and *"Mathematics is one of my favorite subjects"* are in use. Though the dimensions are the same, the item-wise changes are so radical that the Finnish test is no more Fennema-Sherman test but rather "loosely based on Fennema-Sherman test" as described by Metsämuuronen (2009, 20). While the TIMSS- and PISA versions use four point Likert scale without value 0 (scale is actually −2, −1, +1, +2 though the numbers 1 to 4 are in use), in the Finnish test, the 5-point Likert scale is in use (−2, −1, 0, +1, +2).

The characteristics of the Finnish test are not discussed in depth in this article. Instead some ideas are laid out as to what kind of changes could be done to raise the quality of the Fennema-Sherman test for international testing settings. The indicators for the construct validity (measurement model and the related indicators for the model fit) are briefly shown, and the values for the item discrimination of negative items are compared in different achievement levels on the basis of fractions of European students' achievement in TIMSS 2007. The items and

the basic factor structure in the Finnish attitude test are found in Table 11. Alpha reliabilities for the dimensions seem to vary somewhat between different samples; in Mattila (2005) they were 0.90 (Liking Math as a school subject), 0.87 (Self-Concept in Math), 0.79 (Experiencing Utility in Math), and 0.915 for the total score.

Table 11. Items and factor loadings in the Finnish attitude test based on the Fennema-Sherman attitudes test (Mattila 2005, Metsämuuronen 2009, N = 4511)

Pattern Matrix[a]			
	Factor		
	Liking Math as a school subject	Self-Concept in Math	Experiencing Utility in Math
5. I like Mathematics lessons	.898[b]		
14. I like to study Mathematics	.732		
4*[c] Mathematics is a boring subject	.720		
8. Usually we have interesting tasks in Mathematics lessons	.701		
6. Mathematics is one of my favorite subjects	.696		
10. I think I'm good in Mathematics		.883	
12. I can manage even the difficult tasks in Mathematics		.762	
1. Mathematics is an easy subject		.748	
3.*[c] It is impossible for me to get good results in Mathematics		.700	
11.*[c] Many things in Mathematics are difficult		.573	
13. I believe I need Mathematical knowledge and skills in my work-life			.848
7. Mathematical knowledge and skills are important in everyday-life situations			.721
15. I think that Mathematical skills are important			.696
2. I will need Mathematics in my studies to come			.622
9.*[c] In the future, I will not need the matters I have learned in Mathematics			.514

Extraction Method: Principal Axis Factoring.

Rotation Method: Promax with Kaiser Normalization.

a) Rotation converged in 6 iterations.
b) Loadings > .30 shown
c) Items with *-sign are negative

From the technical viewpoint, the test construction of the Finnish version is as good as the TIMSS 2007 version (Figures 8 and 9); indicators for the model fit show a good fit with the model and data. Especially noteworthy is the fit of the data with the model in the lowest quartile. Although Finland did not participate in the TIMSS 2007, it can be assumed that the Finnish student's achievement in mathematics does not differ radically from the average European population, considering that the PISA results in mathematical literacy have been quite high. Where the fractions of the European students in TIMSS are known, these fractions are used to divide the Finnish population into 20 percentiles in the national test. The item discriminations of the Finnish test are then estimated for in these fractions. Table 12 shows the fractions, reliabilities, and item discrimination for selected items which could be used as alternative substitutes for low discriminating, negative items in the TIMSS 2007 set of questions. Note that the reliability of the construct "Self-Concept in MATH" is clearly more constant (0.68 − 0.82) over the ability levels compared with the construct used in TIMSS 2007 setting (Alpha reliability ranges 0.26 − 0.86). When comparing the construct and indicators of the ultimately lowest performing Finnish students,

(the lowest quartile on the basis of European fractions in TIMSS 2007, see Table 12) the construct of "Self-Concept in MATH" fits quite much higher in the Finnish version than in TIMMS 2007 test for the European students (Fig. 7).

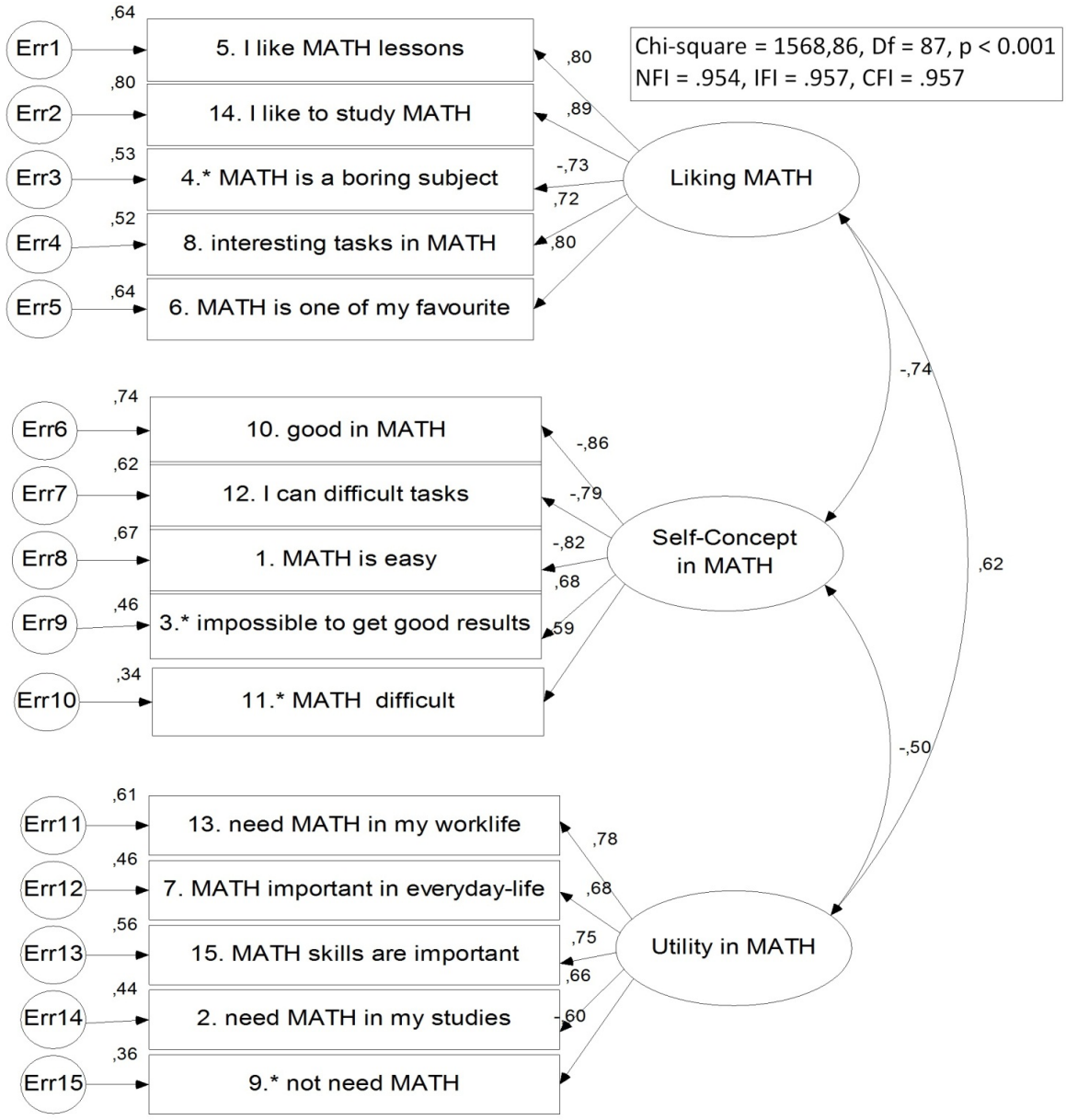

Figure 8. Measurement model of the Finnish version of Fennema-Sherman test in the Finnish population (N = 4511)

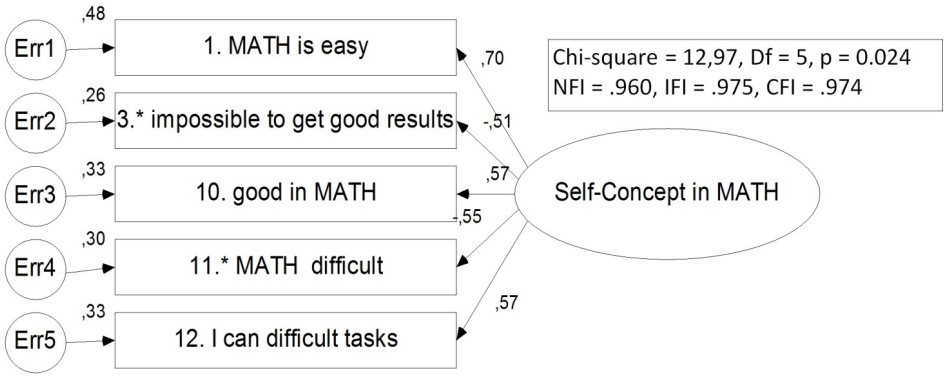

Figure 9. Measurement model for the Finnish version of "Self-Concept in MATH" in the LOWEST quartile of the Finnish population (N = 379)

Table 12. Item discrimination for low-discriminating items of Fennema-Sherman test and their alternatives in the Finnish version

20 percentiles of International European fractions	Fractions for Europe as a whole (%)	Finnish student population[1] N = 4 511	Reliability for "Self-Concept in Math"	European benchmark R_NOT STRENGTHS[2]	12. I can manage even with difficult…[3]	3.*[2] It is impossible to get good results… [4]	European benchmark R_MORE DIFFICULT[2]	1. Math is easy subject[5]	11.*[2]Mathis difficult subject [6]
1	0.5	23	0.73	-0.01	0.40	0.34	0.15	0.66	0.53
2	1.1	49	0.75	0.20	0.48	0.58	0.20	0.62	0.42
3	1.7	77	0.68	0.26	0.68	0.32	0.28	0.60	0.37
4	2.2	99	0.75	0.21	0.49	0.45	0.28	0.53	0.26
5	2.9	131	0.69	0.31	0.22	0.29	0.34	0.41	0.34
6	3.5	159	0.76	0.35	0.53	0.32	0.39	0.57	0.35
7	4.2	190	0.75	0.41	0.58	0.37	0.38	0.64	0.15
8	4.7	212	0.79	0.38	0.58	0.44	0.38	0.54	0.33
9	5.6	254	0.80	0.45	0.55	0.52	0.41	0.63	0.40
10	5.9	267	0.76	0.48	0.52	0.39	0.48	0.62	0.32
11	6.5	293	0.80	0.50	0.57	0.41	0.46	0.59	0.37
12	6.9	313	0.82	0.52	0.57	0.52	0.45	0.65	0.34
13	7.2	325	0.80	0.56	0.56	0.39	0.51	0.59	0.38
14	7.6	344	0.81	0.59	0.55	0.47	0.49	0.62	0.38
15	7.4	335	0.77	0.60	0.54	0.38	0.51	0.65	0.41
16	7.7	348	0.80	0.61	0.57	0.40	0.53	0.62	0.44
17	7.5	339	0.77	0.61	0.48	0.40	0.52	0.61	0.41
18	6.9	311	0.77	0.63	0.51	0.36	0.53	0.52	0.41
19	6.2	279	0.75	0.63	0.58	0.36	0.51	0.59	0.33
20	3.6	163	0.71	0.62	0.57	0.36	0.51	0.42	0.35

1) 9th graders 2004 (Mattila 2005)

2) Reversed items, Benchmarking items: "Mathematics is not one of my strengths", "Mathematics is more difficult for me than for many of my classmates".

3) – 6) 12. I can manage even with the difficult tasks in Mathematics, 3* It is impossible for me to get good results in Mathematics, 1. Mathematics is an easy subject, and 11.* Many things in Mathematics are difficult.

Figures 10 and 11 illustrate three features from Table 12. First, especially in the lowest quartile, both the positive and negative version of the alternative items discriminate the students much better (item-rest correlation > .40) than the original items (.00 −< .30). Second, the item-rest correlations of the alternative items are much more stable in each achievement group compared with the original items. Third, the positive alternative is consistently higher discriminative than the negative alternative. Obviously, there is no evidence that the alternative items would operate in different cultures. Thus, there will be a need for a pre-test process in different cultural settings if the proposed changes will be considered.

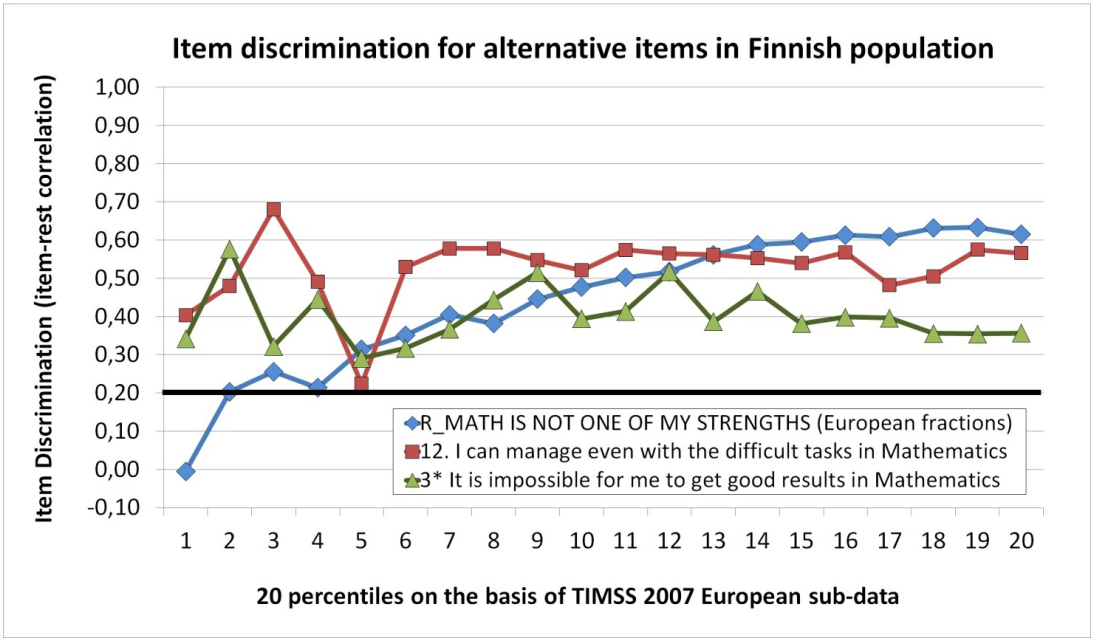

Figure 10. Item discrimination for item "Math is not one of my strengths" and its possible alternatives in the Finnish version

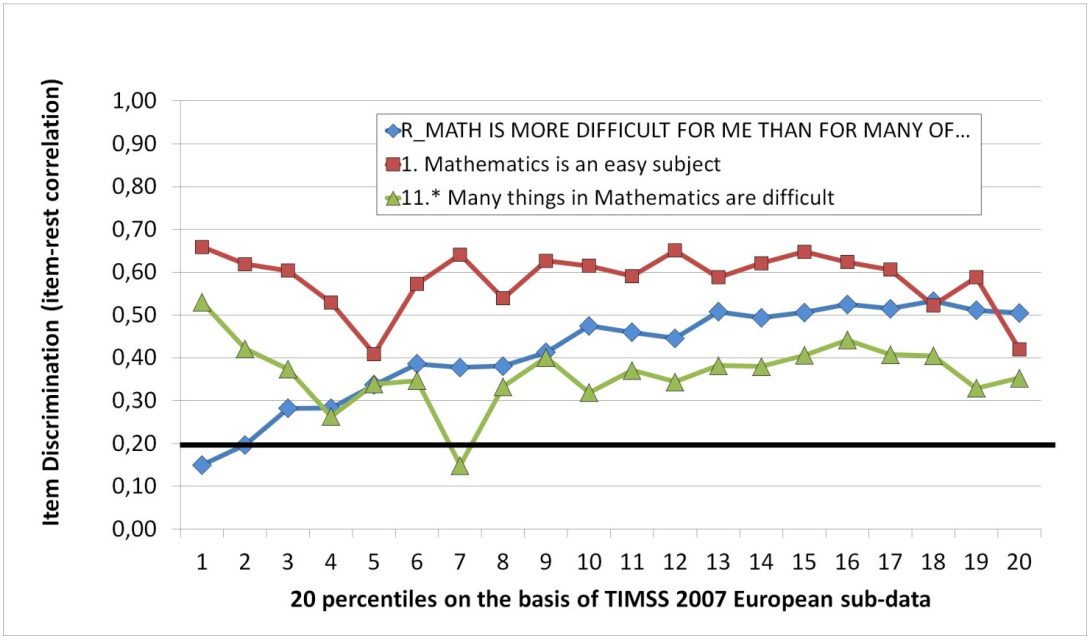

Figure 11. Item discrimination for item "Math is more different for me than for many of my classmates" and its possible alternatives in the Finnish version

The Finnish data suggests two alternatives: instead of the item *"Math is not one of my strengths"*, either a positive one *"I can manage even the difficult tasks in Mathematics"* or a negative one *"It is impossible for me to get good results in Mathematics"* may be used. Both operationalize *"not my strengths"* and both are consistently better in the lower achievers' groups. Out of two alternatives, the positive one is recommendable from the accuracy perspective. Instead of the item *"Mathematics is more difficult for me than for many of my classmates"*, the data suggests either a positive one *"Mathematics is an easy subject"* or a negative one *"Many things in Mathematics are difficult"*, which are simpler and would generate the same kind of information.

5. Discussion and Suggestions

If there were no differences in the test characteristics between different cultures and achievement levels, the test can be seen culturally and achievement-wise unbiased. However, in several countries more than 25% of the students will get an inconsistent and biased test result because the test does not fit the intellectual level or culture of the students. On the basis of the results, it is evident that the shortened version of Fennema-Sherman Mathematic Attitude test as it is in use in TIMSS- and PISA datasets was found to be achievement-levelly and culturally biased. The low item-rest correlations (gXC< .20) and reliabilities (< .60) in score of "Self-Concept in MATH" as well as the low values of the model fit indices (e.g., NFI < .90) in CFA and fragmented factor structures in EFA suggest strongly to modify the Fennema-Sherman test when using it in the international testing settings. Notably, two complex negative items, "Mathematics is not one of my strengths" and "Mathematics is more difficult for me than for many of my classmates", should be changed in order to maintain the good standard of testing. The items seem to be too complicated for the students in the lowest achievement groups.

Though the results are based on large data and the analysis has been quite detailed, they carry three weaknesses. First, the data includes oversampling in some countries. For example, compared with the sample sizes in Taiwan (N = 4, 046) and Hong Kong (N = 3, 470) in the original set of data there are actually three samples from Canada (British Columbia, Ontario, and Quebec, N = 11, 660) and three samples from USA (USA, Massachusetts, and Minnesota, N = 11, 051) which produces strict over-sampling in dataset for some countries. This evidently has an effect to the results. Second, as discussed in Section 2.1 it is worth noting that when dividing the original dataset into 20 percentiles, none on the percentile shows Normal distribution; in percentiles 2–19 the population is merely uniform than normally distributed and the range in 1st and 20th percentile is much wider than with other groups because of representing the tail populations. There may thus be some estimation error in the parameters of CFA and EFA. However, because of the robust procedures with large sample sizes, the results can be taken stable. Third limitation in generalizing the results of the Finnish version of the test is that the Finnish version uses five-point Likert scale and the TIMSS- and PISA versions use four point scale. This causes that the measurement error in the Finnish version is lower than in the original version. This is not a drastic challenge because in any case there is need to pretest the new items before using them.

The results raise some ideas for further development. First, on the basis of the systematic order of the item discrimination values analyzed in Section 3.1 (see Fig. 1), it seems that there is a kind of a hierarchy of complexity in negative items which could be utilized when constructing attitude tests in the international settings. A simplistic analysis of the differences between the items suggests a classification of negative items into five categories on the basis of their complexity:

1) The simplest type of negative attitude item is a *short and straight negative statement with extreme wording,* such as "I hate mathematics". It is notable that this item correlates quite well with the expected factor structure even in the lowest ability groups (see Table 5 in Section 3.3). These types of items are pure opinions with simple wordings and thus easy to judge even by the reasonably low level of abstract thinking.

2) Somewhat more complex statements are such where there is a *short and straight negative wording with a more abstract non-extreme expression,* such as "Mathematics is boring". Though the stem is short, the item includes an ambiguous word of "boring": What is boring? How does one discriminate and evaluate the level of "boring"? Mathematics in school can be boring for those who are extremely *good*; on the other hand, mathematics can be boring for those who are extremely *poor* in understanding what is taught. Teaching can be boring; exercises can be boring – what are we seeking with an ambiguous term? Compared with the simplest stem, there is a need for more intellectual processing to judge whether the opinion is the same or the opposite.

3) The third level complexity comes when the statement is *short but includes ambiguous wordings and opposing trigger "not"* like in "Mathematics is not one of my strengths" which really is a complex statement. How to measure strength? What actually is meant by "is NOT strength"? Is it weakness? Or is it in the middle range of my abilities? To make the judgment, there is a need for several decisions whereas the same kind of information can be gathered from much simpler sentence constructions, such as "I am weak in mathematics" or "I am (not)

good in mathematics". Other options are discussed in Section 4.

4) The fourth level complexity is found in the most complex and intellectually demanding wording in the TIMSS 2007 attitude test; *a long sentence with contradicting double expression and ambiguous wording* coining a positive expression (such as "more") with a negative expression (such as "difficult") like in "Mathematics is more difficult for me than for many of my classmates". Complexity comes first, from comparative trigger "more than" which needs ability to high level comparison, second, from several ambiguous words, such as, "difficult", "many", "more", and their combinations which need several cognitive processes, and third, the long sentence which requires good working memory. The item would certainly be much more unambiguous to respond though giving the same information with just a straightforward wording "Mathematics is difficult/easy to me". Some other alternatives are discussed in Section 4.

5) The fifth level complexity is not in Fennema–Sherman scale as suggested, for example, in Mehrens and Lehmann (1991, 108, 201―202 and originally Edwards, 1957). This level complexity could be found in a *double negative statement with ambiguous wording* such as "Mathematics is not one of my weaknesses"—which obviously would have been at rick or quip, rather than a real statement.

This hierarchy is, obviously, just a civilized guess of psychological processes in human brains. It would be interesting to try to verify the logic by an experimental design – or set of designs; the tools of cognitive psychology could be used in the process, for example.

Another area to develop is more urgent: to amend the two ill-behaving negative items in the Fennema-Sherman test used in the international settings. In Section 4, relevant empirical evidence is given, on the basis of comparable modified Fennema-Sherman test, of items which could be used when replacing the challenging items. Above, some heuristic suggestions are also given. The alternatives are collected here.

In the international testing settings, simpler items seem to operate better than complex ones. The following principle might be worth consideration as a basic rule of thumb: in the international testing settings, items from complexity Categories 1 or 2 should be used instead of items from Categories 3 and 4 (see description of categories above). When following the rule, the item "Mathematics is not one of my strengths" could be replaced by

1) "I'm weak in mathematics" or

2) "I'm (not) good in mathematics" discussed above, or by

3) "I can manage even with the difficult tasks in Mathematics", or

4) "It is impossible for me to get good results in Mathematics" suggested in Section 4 on the basis of tested Finnish items.

The item *"Mathematics is more difficult for me than for many of my classmates"* could be replaced by either

1) "Mathematics is difficult for me" or

2) "Mathematics is (not) easy for me" as discussed above, or by

3) "Mathematics is an easy subject" or

4) "Many things in Mathematics are difficult" as suggested in Section 4 on the basis of tested Finnish items.

All eight alternatives belong to complexity categories 1 or 2. It is understood that any serious changes require that the suggested items be pre-tested with the international data. It is especially recommended that *the pre-testing begins in East Asian- or Middle Eastern countries* because the discrepancy between the models is largest in those areas. Another suggestion is that at least some of *the negative items should be changed to positive ones.* However, from the contemporary (North American-European?) psychometrical viewpoint, the negative items are important to ensure the consistency of the respondent. Though the positive alternatives to substituting the poor behaving items seem to be more discriminative (see Fig. 10 and 11), it is therefore recommended to reduce the number of negative items as low as possible—in practice to one negative item per dimension.

Third possible area of further development is to perform deeper study of cultural issues behind the results – here only the technical aspect of the test was addressed. Especially, the East Asian well-performing countries (Korea, Japan, Taiwan, Hong Kong, and Singapore) would be interested focus of further analysis: what kind of connection there are between the cultures and mental processes of the students in these countries where the learning results do not explain the possible unexpected fragmentation on the factor structure.

The results raise two serious issues. First, the results challenge the whole idea of using one common test across

the globe to test mental structures. It especially challenges the idea of using an excessive number of negative items in the international attitude tests. No problem appears when testing and comparing students from the same types of cultures—like in students in the United States and in Europe. However, caution is wisdom when it comes to the comparison and inferring something over the datasets of Asia and Middle East or of Europe and Africa. Second, the connection of achievement level and factor deconstruction raises question of testing and reporting the results of the lowest achievement level students. If the respondent does not understand the abstract meaning in the attitude statement, or there are some (unknown) cultural elements connected to the pattern of response to the attitude items, the score does not mean anything when reliability remains low. When the reliability of the score is lower than $\alpha = 0.60$ (as it is in the lowest achievement groups), one could use any Internet test to achieve the same, if not better, consistency than by using well-tested and well-documented Fennema–Sherman test. In any case, closer analysis is needed in interpreting the correlations between attitude scales and achievement scales in international comparisons; a more in-depth analysis of lower group connections should be carried out.

References

Arbuckle, J. L. (2007). *AmosTM 16 User's Guide.* Amos Development Corporation. USA.

Bentler, P. M. (1988). Comparative fit indexes in structural models. *Psychological Bulletin, 107*(2), 238–246. http://dx.doi.org/10.1037/0033-2909.107.2.238

Bentler, P. M. (1995). *EQS: Structural Equations Program Manual.* Multivariate Software Inc, Encino, CA.

Bentler, P. M., & Bonnet, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin, 88*(3), 588–606. http://dx.doi.org/10.1037/0033-2909.88.3.588

Bollen, K. A. (1986). Sample size and Bentler and Bonett's non-normed fit index. *Psychometrika, 51*(3), 375–377. http://dx.doi.org/10.1007/BF02294061

Bollen, K. A. (1989a). *Structural Equations with Latent Variables.* John Wiley & Sons, New York.

Bollen, K. A. (1989b). A new incremental fit index for general structural equation models. *Sociological Methods and Research, 17*(3), 303–316. http://dx.doi.org/10.1177/0049124189017003004

Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.) *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage Publications.

Byrne, B. M. (2001). *Structural Equation Modeling with AMOS. Basic Concepts, Applications, and Programming.* Lawrence Erlbaum Associates, Publishers. London.

Cronbach, L. J. (1951). Coefficient alpha and the internal structure of tests. *Psychometrika, 16*(3), 297–334. http://dx.doi.org/10.1007/BF02310555

Cureton, E. F. (1966). Corrected item-test correlations. *Psychometrika 31*(1), 93–96. http://dx.doi.org/10.1007/BF02289461

Edwards, A. L. (1957). *The social desirability variable in personality assessment and research.* New York: Hols, Rinehart & Winston.

Fennama, E., & Sherman, J. A. (1976). Fennema-Sherman mathematics attitude scales: Instruments designed to measure attitudes toward the learning of mathematics by females and males. *Journal for Research in Mathematics Education, 7*(5), 324-326.

Gulliksen, H. (1987/1950). *Theory of Mental Tests.* Hillsdale, New Jersey: Lawrence Erlbaum Associates, Publishers.

Henrysson, S. (1963). Correction of item-total correlations in item analysis. *Psychometrika, 28*(2), 211–218. http://dx.doi.org/10.1007/BF02289618

Hogan, T. P., Benjamin, A., & Brezinski, K. L. (2000). Reliability methods: A note on the frequency of use of various types. *Educational and Psychological Measurement, 60*(4), 523–531. http://dx.doi.org/10.1177/00131640021970691

House, J. D., & Telese, J. A. (2008). Relationships between Student and Instructional Factors and Algebra Achievement of Students in the United States and Japan: An Analysis of TIMSS 2003 Data. *Educational Research and Evaluation, 14*(1), 101—112. http://dx.doi.org/10.1080/13803610801896679

Jöreskog, K. G. (1967). Some contributions to maximum likelihood factor analysis. *Psychometrika, 32*(4), 443–482. http://dx.doi.org/10.1007/BF02289658

Jöreskog, K. G. (1969). A general approach to confirmatory maximum likelihood factor analysis. *Psychometrika, 34*(2), 183–202. http://dx.doi.org/10.1007/BF02289343

Jöreskog, K. G. (1970). A general method for analysis of covariance structures. *Biometrika, 57*(2), 239–251. http://dx.doi.org/10.1093/biomet/57.2.239

Jöreskog, K. G. (1973). A general method for estimating a linear structural equating system. In A. S. Goldberger & O. D. Duncan (Eds.), *Structural Equation Models in the Social Sciences* (pp. 85–112). New York: Academic Press.

Jöreskog, K. G., Sörbom, D., Du Toit, S., & Du Toit, M. (2003). *LISREL 8: New Statistical Features* (3rd Ed.). Lincolnwood, IL: Scientific Software International.

Kadijevich, Dj. (2006). Developing trustworthy TIMSS background measures: A case study on mathematics attitude. *The Teaching of Mathematics, 9*(2), 41-51. Retrieved from http://elib.mi.sanu.ac.yu/journals/tm/17/tm924.pdf

Kadijevich, Dj. (2008). TIMSS 2003: Relating Dimensions of Mathematics Attitude to Mathematics Achievement. *ZbornikInstitutazapedagoskaistrazivanja, 40*(2), 327-346. http://dx.doi.org/10.2298/ZIPI0802327K

Keesling, J. W. (1972). Maximum Likelihood Approaches to Causal Analysis. Ph.D dissertation. Department of Education. University of Chicago.

Kuder, G. F., & Richardson, M. W. (1937). The theory of the estimation of test reliability. *Psychometrika, 2*(3), 151–160. http://dx.doi.org/10.1007/BF02288391

Lord, F. M., & Novick, M. R. (1968). *Statistical Theories of Mental Test Scores.* Reading, Mass.: Addison – Wesley Publishing Company.

Mehrens, W. A., & Lehman, I. J. (1991). *Measurement and evaluation in education and psychology* (4th ed.). Fort Worth: Harcourt Brace College Publishers.

Mattila, L. (2005). National Achievement Results in Mathematics in Compulsory Education in 9th grade 2004. Oppimistulostenarviointi 2/2005.Opetushallitus. Helsinki: Yliopistopaino. [In Finnish.]

Metsämuuronen, J. (2009). Methods Assisting Assessment; Methodological solutions for the National Assessments and Follow-Ups in the Finnish National Board of Education. Oppimistulosten arviointi 1/2009. Opetushallitus. Helsinki: Yliopistopaino. [In Finnish.]

Mullis, I. V. S., Martin, M. O., Foy, P., Olson, J. F., Preuschoff, C., Erberber, E., Arora, A., & Galia, J. (2008). TIMSS 2007 International Mathematics Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grade. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College. Retrieved from http://pirls.bc.edu/timss2007/mathreport.html

Papanastasiou, C. (2000). Effects of Attitudes and Beliefs on Mathematics Achievement. *Studies in Educational Evaluation, 26*(1), 27-42.

Papanastasiou, E. (2002). Factors That Differentiate Mathematics Students in Cyprus, Hong Kong, and the USA. *Educational Research and Evaluation: An International Journal on Theory and Practice, 8*(1), 129—146. http://dx.doi.org/10.1076/edre.8.1.129.6919

Piaget, J. (1970). *The principles of genetic epistemology.* London: Routledge & Kegan Paul.

Shen, C. (2002). Revisiting the relationship between students' achievement and their selfperceptions: A cross-national analysis based on the TIMSS 1999 data. A*ssessment in Education: Principles, Policy & Practice, 9*(2), 161—184. http://dx.doi.org/10.1080/0969594022000001913

Shen, C., & Tam, H. P. (2008). The Paradoxical Relationship between Student Achievement and Self-Perception: A Cross-National Analysis Based on Three Waves of TIMSS Data. *Educational Research and Evaluation, 14*(1), 87-100. http://dx.doi.org/10.1080/13803610801896653

Steiger, J. H., & Lind, J. C. (1980). Statistically-based tests for the number of common factors. Paper presented at the Annual Spring Meeting of the Psychometric Society, Iowa City.

Stevenson, H. W. (1998). A Study of Three Cultures: Germany, Japan and the United States - An Overview of the TIMSS Case Study Project. *Phi Delta Kappan, 79*(7), 524-529.

Tarkkonen, L. (1987). On Reliability of Composite Scales. An Essay on the measurement and the properties of the coefficients of reliability-an unified approach. Tilastotieteellisiätutkimuksia 7. Helsinki: Finnish

Statistical Society.

Ullman, J. B. (2001). Structural Equation Modeling. In B. G. Tabachnick & L. S. Fidell, *Using Multivariate Statistics* (4th Ed.) (pp. 653–771). Boston: Allyn and Bacon.

Vehkalahti, K. (2000). Reliability of Measurement Scales. Statistical Research Reports 17. Finnish Statistical Society. Retrieved from http://ethesis.helsinki.fi/julkaisut/val/tilas/vk/vehkalahti/

Wiley, D. E. (1973). The identification problem for structural equation models with unmeasured variables. In A. S. Goldberger & O. D. Duncan (Eds.), *Structural Equation Models in the Social Sciences* (pp. 85–112). New York: Academic Press.

Wilkins, J. L. M. (2004). Mathematics and science self-concept: An international investigation. *The Journal of Experimental Education, 72*(4), 331—346. http://dx.doi.org/10.3200/JEXE.72.4.331-346

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Fundamental Measurement of Perceived Length and Perceived Area

Sergio Cesare Masin[1]

[1]Department General Psychology, University of Padua, Padua, Italy

Correspondence: Sergio Cesare Masin, Department General Psychology, University of Padua, 35131 Padua, Italy. Tel: 39-049-827-6670. E-mail: scm@unipd.it

Received: May 7, 2012 Accepted: May 31, 2012 Online Published: July 16, 2012

doi:10.5539/ijps.v4n3p23 URL: http://dx.doi.org/10.5539/ijps.v4n3p23

Abstract

Using the method of counting mental units the study explored whether judged lengths and area in right triangles, squares, and disks were consistent with the geometric relationships in these surfaces. Judgments were found to consist with these relationships supporting the idea that they were fundamental measures of perceived extents. Fundamental measures obtained by mental counting differ from corresponding measures obtained by magnitude estimation, rating, and nonmetric scaling. Reasons are suggested as to why these other methods may be biased.

Keywords: fundamental measurement, mental counting, magnitude estimation, rating, nonmetric scaling

1. Introduction

The fundamental measurement of a value of a physical or mental attribute is the counting of how many constant fundamental units of the attribute must be concatenated to reproduce the value being measured (Campbell, 1920). Units of measurement are fundamental when they cannot be described as a function of other units. In physics, examples are units of physical length, time, or mass. In psychology, examples are units of qualitatively different perceptual attributes such as loudness, brightness, length, etc.

Krantz (1972) suggested applying fundamental measurement to perceived length and area since people would be able to count units of perceived length or area in linear or areal extents, respectively. The following tests support this suggestion. Participants who had made magnitude estimations of length of test lines reported concatenating an image of the standard line along the test lines (Hartley, 1977). This concatenation predicts that response time increases with the length of test lines and as the length of the standard line decreases. Both predictions have been empirically verified (Hartley, 1977, 1981; Reed, Hock, & Lockhead, 1983). Uhlarik, Pringle, Jordan, and Misceo (1980) found similar results for magnitude estimation of frontal size.

Physical fundamental measurement arguably dates back to Euclid (Michell, 2003; Zudini, 2011) and has been formalized through axioms most notably by Hölder (1901). Reese (1943) applied this axiomatic formalization to psychology (Guilford, 1954, pp. 8–11). Subsequent variants of it are discussed in Falmagne (1985, ch. 2). It has been noted that the significance of these formalizations in psychology has been virtually nil (Cliff, 1992; Estes, 1975; Schönemann, 1994). Before these formalizations are made, one needs to test whether people can properly concatenate a constant mental unit. The present study provided this test for perceived length and area.

Indeed, it is an open question whether mental units of length or area used in direct judgments are constant while they are being concatenated. Another open question is whether this concatenation occurs correctly. Judgments of length or area made in mental units can be fundamental measures if these mental units are constant and correctly concatenated. One way to test this hypothesis is the following.

Pythagoras' theorem applies to the concept of right triangle. Suppose one is looking at a right triangle on a frontal parallel plane with this triangle sufficiently away from the borders of the visual field such that shape distortions are negligible. Pythagoras' theorem applies to this visible triangle since this visible triangle has the geometrical properties that define the concept of a right triangle (Giaquinto, 2007). This consideration means that one can use Pythagoras' theorem as a normative model to test judgments of area or side length of triangles. The idea to use the concept of surface area or Pythagoras' theorem as normative models to study area or length judgment was proposed first by Anderson and Weiss (1971) and Weiss and Gardner (1979), respectively.

If judgments of side length expressed in mental units turn out to be consistent with Pythagoras' theorem, the idea that the mental unit is constant is supported. Analogous reasoning applies to the concept of surface area.

Let the judgments in mental units of the height, base length, hypotenuse length, and area of a frontal-parallel right triangle be J_A, J_B, J_H, and J_{Area}, respectively. If mental units of length and area are constant and properly concatenated and if mental units of length are the same for the legs and the hypotenuse, one has that

$$J_H = \sqrt{J_A^2 + J_B^2} \tag{1}$$

and

$$J_{Area} = k \cdot J_A \cdot J_B \tag{2}$$

with k a constant of proportionality.

The following experiments explored these relations. The participants were instructed to judge length in perceived centimeters (Stevens & Galanter, 1957). Parenthetically, it may be useful to consider that laymen believe that the method of judging length in perceived centimeters measures physical length in the physical domain. However this method measures perceived length in the phenomenal domain. For example, it allowed determining that the inverted-T illusion consists in a large phenomenal lengthening of the vertical line and in a somewhat smaller phenomenal shortening of the horizontal line (Masin & Vidotto, 1983). This new finding of a shortening of the horizontal line was robust in that it was later replicated using the method of constant stimuli (Rentmeister-Bryant, Slotnick, & Parker, 2000).

The following experiments also served to test how the measurement of perceived length and perceived area by mental counting compared with the widely used methods of magnitude estimation, rating, and nonmetric scaling.

2. Experiment 1

2.1 Method

2.1.1 Participants

The participants were 24 university students. They were divided into three equally numerous groups, Groups 1, 2, and 3.

2.1.2 Test and Standard Stimuli

Test stimuli were black right triangles with one leg horizontal and the hypotenuse slanting down to the right. The values of height and base length were 1, 5, 9, 13, or 17 cm. Each test stimulus was presented continuously in the middle of a white frontal-parallel 37.5 × 28.5 cm monitor screen (Philips Brilliance 190B) until the respective trial terminated. Viewing distance was 165 cm. The illumination level was 150 lx. The set of 25 test stimuli with different combinations of leg lengths may be called the basic set. Table 1 lists these lengths for the basic set.

The sets of test stimuli formed by 9 and by 3 copies of the basic set may be called the Sets A and B, respectively. For each stimulus, Set A was used to obtain three judgments of length of each leg and of the hypotenuse and Set B to obtain three judgments of area. The resulting 300 test stimuli were presented in randomly intermixed order.

The stimuli of Set A were presented at the onset of the corresponding trial. The stimuli of Set B were presented 1.5 s after the offset of one standard stimulus, or of two simultaneous standard stimuli, presented centrally for 1.5 s.

The single standard stimulus was used for Groups 1 and 2: a red disk with diameter of 5 cm. The two standard stimuli were used for Group 3: two horizontally-aligned horizontally-based red isosceles right triangles separated by a gap of 7 cm, with legs of 0.2 and of 20 cm, hypotenuse slanting down to the right, and smaller standard on the left.

The monitor screen was set on a table at 55 cm from the table border closest to the participant. A horizontal 40-cm measuring tape with markings for centimeters and millimeters was stuck on this border for viewing by the participant.

2.1.3 Procedure

For each test stimulus a 12-point letter in the upper left corner of the screen indicated whether to judge height, base length, hypotenuse length, or area.

Groups 1–3 were instructed to judge length in perceived centimeters and fractions thereof. They were invited to refer to the measuring tape stuck on the border of the table in front of them.

Groups 1–3 were asked to judge area as follows.

Group 1 (mental counting) was asked to count how many times the area of the smaller of the test and standard stimuli could be contained in the area of the other including possible fractions. This number was taken as the response when the standard stimulus was judged to be equal or smaller than the test stimulus, and the reciprocal of this number was taken as the response when the test stimulus was judged equal or smaller than the standard stimulus.

Group 2 (magnitude estimation) was asked to assign a number to the area of the test stimulus given that the area of the standard stimulus was 100 with the examples of a stimulus area 3 times larger or 3 times smaller than that of the standard stimulus.

Group 3 (rating) was asked to rate the area of the test stimulus with the areas of the smaller and larger standard stimuli being 1 and 100, respectively.

3. Results for Length

Table 1 presents the results. The three middle columns report mean judged height, base length, and hypotenuse length. The three columns on the right report mean counted numbers of units, magnitude estimates, and ratings of area from Groups 1–3, respectively.

Table 1. Dimensions of test stimuli and mean judgments of length and area from Experiment 1

	Leg length (cm)		Mean judged length			Mean judged area		
Stimulus	Height	Base	Height	Base	Hypot.	Group 1	Group 2	Group 3
1	1	1	1.1	1.2	1.6	.12	12.2	3.9
2	1	5	1.1	5.3	5.6	.25	28.3	6.9
3	1	9	1.2	8.8	8.9	.33	37.0	9.5
4	1	13	1.1	12.9	12.6	.41	35.8	10.5
5	1	17	1.2	16.4	17.0	.42	49.2	11.6
6	5	1	5.3	1.1	5.6	.31	26.9	6.8
7	5	5	5.3	5.2	6.9	.86	76.7	15.9
8	5	9	5.6	8.7	9.6	1.37	113.8	18.2
9	5	13	5.4	12.0	12.5	2.03	158.8	21.2
10	5	17	5.4	16.0	15.5	2.17	199.0	23.4
11	9	1	9.3	1.1	9.3	.36	35.4	8.8
12	9	5	8.7	5.4	10.0	1.40	110.8	19.1
13	9	9	9.0	9.2	11.6	2.01	164.2	24.2
14	9	13	9.1	12.5	14.2	2.75	225.0	31.0
15	9	17	8.9	15.6	16.3	3.53	306.3	32.2
16	13	1	13.4	1.1	13.2	.37	42.3	10.4
17	13	5	12.7	5.4	13.6	1.90	157.5	22.2
18	13	9	12.8	8.9	14.6	3.15	231.7	28.3
19	13	13	12.8	12.6	16.3	4.23	340.8	38.2
20	13	17	12.6	16.6	18.1	5.02	375.8	46.0
21	17	1	17.4	1.1	17.3	.46	54.8	12.6
22	17	5	17.0	5.2	17.2	2.09	194.6	24.0
23	17	9	16.2	8.9	17.7	3.77	301.7	34.0
24	17	13	16.1	12.4	19.1	4.96	406.3	50.3
25	17	17	16.6	16.3	20.2	6.67	510.4	62.0

3.1 Legs

The following analyses support the hypothesis that participants judged height (J_A) and base length (J_B) using virtually the same mental unit. A 2 (orientation) × 5 (judged leg) × 5 (non-judged leg) analysis of variance showed the effect of orientation was significant with that of non-judged leg not significant, $F(1,23) = 4.7$, $p < .05$, and $F(4,92) = 2.1$, respectively. The effect of orientation occurred essentially only for long and thin stimuli. With stimuli with the shortest leg excluded from analysis, all factors except judged leg and all interactions were not significant, $F(1,23) = 3.3$, $F(3,69) = 0.4$ or 2.1, $F(4,92) = 1.5$, and $F(12,276) = 1.6$ or 1.7.

In Figure 1, to visually emphasize the negligible effect of orientation, mean judged leg length was plotted against physical length. The line shows a least-squares fit to a mean straight line with slope not significantly different

from 1 and positive intercept significantly different from 0, $t(23) = 1.35$ and $t(23) = 4.11$, $p < .001$, respectively. The quadratic trend of judged leg length was not significant, $F(1,23) = 2.4$.

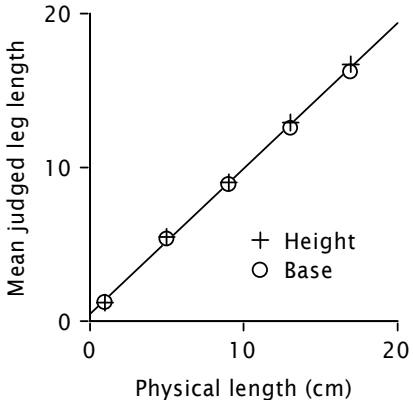

Figure 1. Mean judged height and base length of right triangles plotted against physical length

3.2 Hypotenuse

The following analysis shows that the mental unit for the hypotenuse was not constant. In each of 10 pairs of stimuli, hypotenuse length was the same and the longer leg was vertical in one stimulus and horizontal in the other. A 2 (orientation) × 10 (hypotenuse) analysis of variance showed that orientation and the interaction were significant, $F(1,23) = 26.9$, $p < .001$, and $F(9,207) = 2.8$, $p < .005$, respectively. These results agree with those of Weiss and Gardner (1979) and with the finding that produced line length varies with line inclination (Hartley, 1977).

3.3 Pythagoras' Theorem

Figure 2, left diagram, shows mean judged hypotenuse length (J_H) plotted against mean perceived hypotenuse length calculated by Equation 1. With mental units constant and properly concatenated, Equation 1 predicts that data points lie on the straight line with slope 1 and intercept 0. Obtained data points progressively deviated from this line as hypotenuse length increased, RMSD = 1.13.

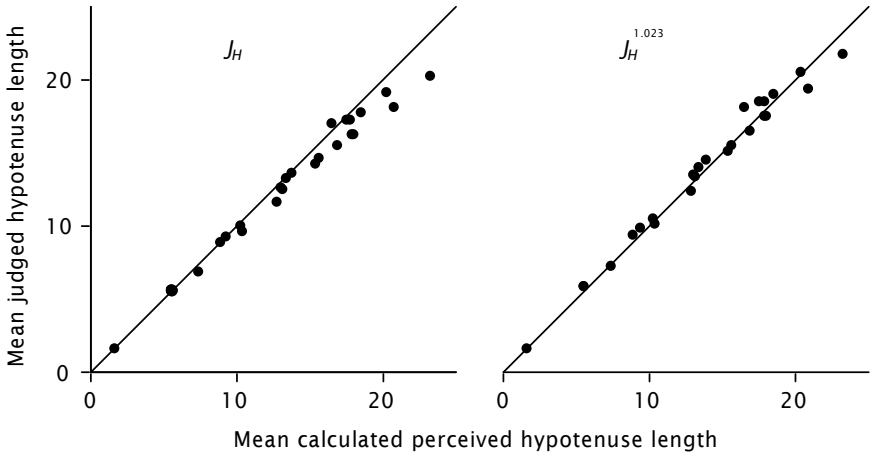

Figure 2. Mean judged hypotenuse length (left) and mean judged hypotenuse length raised to the power of 1.023 (right) plotted against mean calculated perceived hypotenuse length

This deviation may be due to the nonconstancy of the mental length unit for the hypotenuse. This nonconstancy can be compensated by transforming judged hypotenuse length from J_H to J_H^q. In Figure 2 the right diagram shows mean J_H^q with $q = 1.023$ plotted against mean calculated perceived hypotenuse length yielding the minimum RMSD of 0.68. Transformed data points lie fairly well on the straight line with slope 1 and intercept 0.

3.4 Conclusion

The results support the possibility that J_A and J_B were fundamental measures of perceived length expressed in virtually the same constant mental unit with J_H expressed in a nonconstant mental unit. If J_A and J_B are fundamental measures then the transformed judgments of hypotenuse length, J_H^q, also are fundamental measures.

4. Results for Area

Figure 3 shows mean counted numbers of units, magnitude estimates, and ratings of area plotted against mean perceived area calculated by the expression $J_A \cdot J_B / 2$. The curves show least squares fits to a standard power function with exponent 0.91, 0.84, or 0.68.

The near-unity exponent for the method of counting mental units indicates a nearly constant mental unit of area.

For judged area of the 10 pairs of stimuli considered above, orientation and the interaction were not significant for Groups 1–3, $F(1,7) = 0.5$ and $F(9,63) = 0.5$, $F(1,7) = 0.3$ and $F(9,63) = 0.3$, and $F(1,7) = 0.2$ and $F(9,63) = 0.5$, respectively.

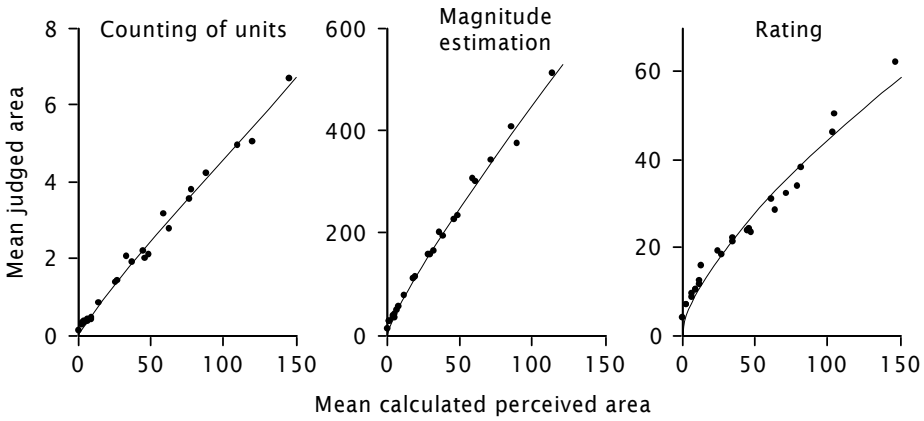

Figure 3. For different judgment methods, mean judged area plotted against mean calculated perceived area of right triangles

5. Experiment 2

The curvature in the data in Figure 3 may depend on the shape transformations required to mentally concatenate a disk in triangles or triangles in a disk. This hypothesis was tested using a square as the standard stimulus for judging the area of squares and disks. It was assumed that it was easier to concatenate a square in a square or in a disk rather than for example a disk in a triangle.

5.1 Participants

Ten university students participated in each of two sessions, Sessions 1 and 2. Session 2 took place few minutes after Session 1.

5.2 Method for Session 1

5.2.1 Stimuli

Stimulus presentation and viewing conditions were identical to those used for Experiment 1. Each test stimulus was a horizontally-based black square or was a black disk presented continuously in the middle of the screen until the respective trial terminated. Table 2 lists the sides and diameters used for the stimuli.

The standard stimulus was a horizontally-based red square with side of 4.5 cm. Its left and bottom sides were at 0.4 cm from the respective left and bottom sides of the screen. For each side and each diameter of test stimuli, the standard stimulus either appeared 3 s before the test stimulus for 1.5 s with interstimulus interval of 1.5 s or appeared 1.5 s before the test stimulus remaining visible until the trial terminated. (Test stimuli used in Session 1 were used in Session 2 without the standard stimuli. In Session 1, the successive and simultaneous presentations of standard stimuli served to test whether the perceptual presence of the standard stimuli significantly influenced the participants' judgments. The statistical analysis reported below showed that it did not.) There were a total of 32 trials. The set of these 32 trials was presented 5 times consecutively with trials in random order.

5.2.2 Procedure

The participants were asked to report the number of times the smaller stimulus surface could be contained in the larger one, including possible fractions.

5.3 Method for Session 2

5.3.1 Stimuli

Stimuli, presentation conditions, viewing conditions, and number of randomly presented trials were identical to those used in Session 1. No standard stimulus was used.

5.3.2 Procedure

The participants were asked to judge the lengths of side and perimeter of stimulus squares and of diameter and circumference of stimulus disks in perceived centimeters and fractions thereof. Hereafter these lengths are called *side*, *perimeter*, *diameter*, and *circumference*, respectively. On the upper left corner of the monitor screen a 12-point letter indicated for each stimulus which length to judge.

6. Results and Discussion

Table 2 reports mean judgments of side, perimeter, diameter, circumference, and square and disk area. A 2 (shape) × 2 (mode of presentation of standard) × 8 (area) ANOVA showed that all factors except area and all interactions were not significant, Fs(1,9) = .09 to 2.9 and Fs(7,63) = 1.0 to 1.7.

Table 2. Dimensions of test stimuli and mean judgments of length and area from Experiment 2

Physical length (cm)		Mean judged length				Mean judged area	
Side	Diameter	Side	Perimeter	Diameter	Circumference	Square	Disk
1.5	1.69	1.49	5.72	1.69	4.44	0.13	0.14
3.0	3.39	2.86	10.00	3.44	9.98	0.48	0.55
4.5	5.08	4.24	15.49	4.73	14.40	0.98	0.88
6.0	6.77	5.43	21.14	6.20	17.62	1.53	1.43
7.5	8.46	6.71	25.60	7.43	19.66	2.50	2.10
9.0	10.15	8.36	30.44	9.26	23.40	3.64	3.16
10.5	11.85	9.67	35.95	10.27	28.00	4.85	4.71
12.0	13.54	10.81	41.58	12.34	31.74	6.20	6.07

6.1 Psychophysical Functions

Figure 4 shows mean judgments of side and diameter and of square and disk area plotted against physical length and physical area, respectively. In each diagram a curve represents a least-squares fit to a mean standard power function with additive offset and with exponent of 1.

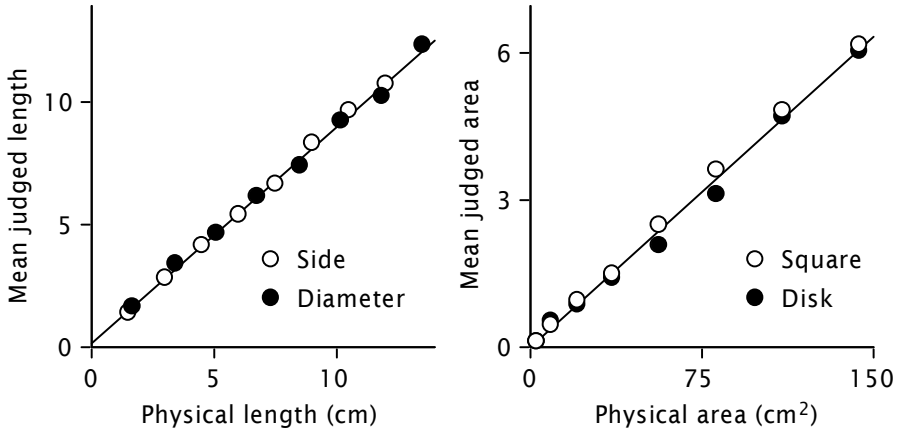

Figure 4. Mean judged lengths of side and diameter and mean judged areas of square and disk plotted against physical length and area, respectively

6.2 Calculated Perimeter and Circumference

Figure 5 shows mean judged perimeter and circumference plotted against mean perceived length calculated by the expressions $4 \cdot J_L$ and $\pi \cdot J_D$, with J_L and J_D being the mean judged side and diameter, respectively. Two lines represent the straight line with unit slope and zero intercept. The results support the hypothesis that mental units of length were nearly constant for relatively short perimeters and circumferences, progressively increasing with perimeter or circumference for relatively long lengths.

By magnitude estimation with no designated standard and no assigned modulus, Teghtsoonian and Teghtsoonian (1971) had participants judge diameter and circumference of circles. The judged circumference was less than the circumference calculated from the respective judged diameter, but in this case it is very possible that participants used different moduli for diameter and circumference.

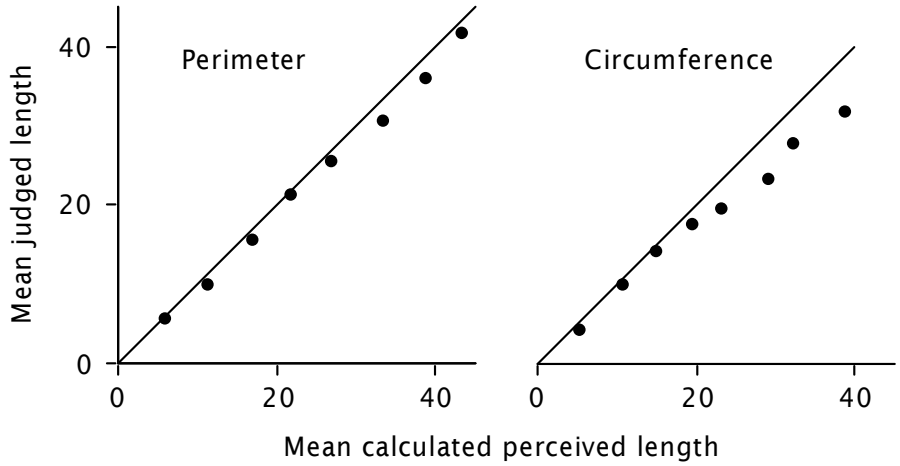

Figure 5. Mean judged lengths of perimeter and circumference plotted against the corresponding mean calculated perceived length

6.3 Calculated Area

Figure 6 shows mean judged square and disk areas plotted against mean J_L^2 and mean $\pi \cdot J_L^2 / 4$, respectively. The left and right curves represent least-squares fits to a standard power function with exponent 0.99 and 1.03, respectively. These exponents show that counts of mental units of length or area were fundamental measures.

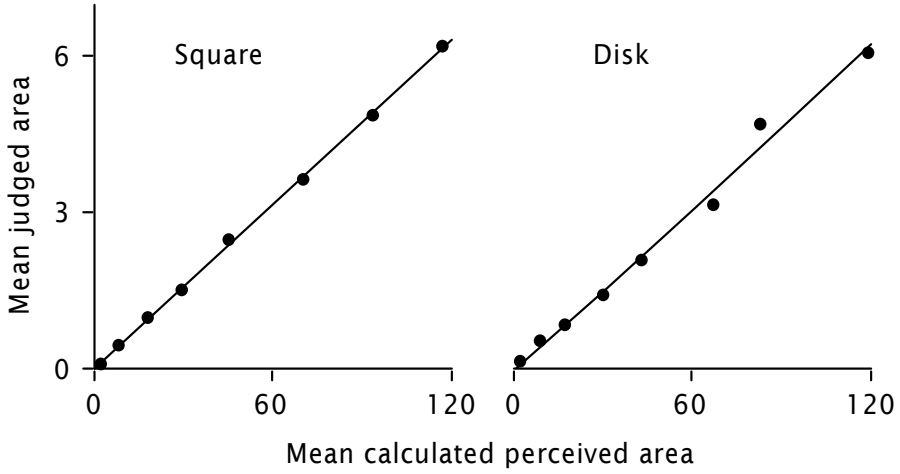

Figure 6. Mean judged areas of square and disk plotted against mean calculated perceived areas of square and disk, respectively

6.4 Introspective Reports

6.4.1 Length

At the end of the experiment, all participants reported that they judged the perimeter by multiplying judged side by 4. Eight participants reported judging the circumference by first imaginally straightening the circumference and subsequently counting the centimeters contained in it. Five reported straightening the entire circumference, one straightening half of it multiplying its judged length by 2, and two straightening 1/4 of it multiplying its judged length by 4. The remaining participants reported concatenating one centimeter along the circumference without mentally straightening the circumference. Participants can compare distances along curves by mentally tracing the curves (Jolicoeur, Ullman, & Mackay, 1991; Pringle & Egeth, 1988). It is undecided whether the participants in the present study tried to verbalize mental tracing or a mental operation specific to the judgment task such as mental straightening.

6.4.2 Area

At the end of the experiment, nine and eight participants reported not knowing the formulas for calculating the circumference and area of a disk, respectively. Three participants recalled the formulas after a relatively long effort of memory. This effort and the related nonverbal behavior indicated that they did not recall these formulas during the experiment.

7. General Discussion

7.1 Verification of Fundamental Measurement

Concatenating a mental unit of measurement requires transformations of information: linear extents varying in inclination must be mentally rotated, curved extents must be mentally traced or straightened, and unit surfaces must be mentally transformed to be fit in the test surfaces. The present results show that mental transformations of information may impair the constancy of mental units during concatenation depending on extent length and surface shape.

If judgments of hypotenuse length are fundamental measures, Equation 1 predicts that the straight line with slope 1 and intercept 0 describes the relation between these judgments and perceived hypotenuse length calculated from judgments of leg length. In Figure 2 the left diagram shows that this prediction was closely confirmed only for relatively short hypotenuse lengths while the right diagram shows that this prediction was closely confirmed for all lengths of the hypotenuse when the nonconstancy of the mental unit for the hypotenuse was compensated by transforming J_H to $J_H^{1.023}$.

If judgments of leg length and area are fundamental measures, Equation 2 predicts that judgments of area are related linearly to perceived area calculated from corresponding judgments of leg length. In Figure 3 the left diagram shows that this prediction was closely confirmed when mental shape transformations were difficult. When this difficulty was minimized, Figure 6 shows that the prediction was more satisfactorily verified.

The results allow one to conclude that judgments of frontal length and frontal area made by mental counting are fundamental measures, at least approximately.

7.2 Comparison of Methods

7.2.1 Magnitude Estimation and Rating

Counting of units, magnitude estimation, and rating are distinct methods. For area, they yield exponents of the psychophysical power function of about 1, 0.8, and 0.4 as shown in Figure 4, Wagner (2006, p. 87), and Stevens & Guirao (1963), respectively. These differences in exponent may be interpreted as follows.

Complexity of numerical processing affects judgments (Baird, Kreindler, & Jones, 1971; Barth & Paladino, 2011; Booth & Siegler, 2006; DeCarlo, 2005; Duda, 1975; Ekman, Hosman, Lindman, Ljungberg, & Åkesson, 1968; Jones & Marcus, 1961). Mental counting required minimal numerical processing. Magnitude estimation required at least multiplying counts of units by the modulus of the standard, calculating the reciprocal of these counts for test stimuli smaller than the standard, and processing the numerical information in the introductory example to the method. Rating required a more complicated numerical processing. Magnitude estimation and rating could have also involved the evaluation of quantity relations not required in the counting of mental units.

7.2.2 Nonmetric Scaling

The exponent of the psychophysical power function found by fundamental measurement is about 1 for length and area (Figures 1 and 4) and that found by nonmetric scaling varies from 0.46 to 0.87 for length and from 0.65 to 0.89 for area (Markley, Ayers, & Rule, 1969; Parker, Schneider, & Kanow, 1975; Petrusic, Baranski, &

Kennedy, 1998; Petrusic & Jamieson, 1979; Rule & Curtis, 1970; Schneider & Bissett, 1988). Using nonmetric scaling, Young (1970) found an exponent of 1 for length. However, this result is not pertinent to our case since stimulus lines were varied in a very small range and were presented in conditions such that their lengths were barely discriminable. Using largely different stimuli, Schneider and Bissett (1988) found an exponent of 1 for both length and area in one group of participants. However, using the same stimuli, they found an exponent of 0.85 for length and of 0.89 for area in a different group of participants.

One can interpret these differences in exponent as follows. Assume the psychophysical function is

$$\Psi = a \cdot \Phi^{\beta} + b \tag{3}$$

with a, b, and β constant and Ψ and Φ the sensory and stimulus magnitudes, respectively. For n values of Φ yielding n different values of Ψ, for each possible β there are $n \cdot (n - 1) / 2$ absolute differences between values of Ψ. For each β, these differences may be ranked in terms of size, say, from the smallest to the largest. This ranking is independent of a and b. We may call it the *ranking of differences* for short.

For a given n, nonmetric scaling requires each participant to generate a ranking of differences by subjectively ranking all possible absolute differences between values of Ψ. This empirical ranking of sensory differences is used to numerically recover an estimate of the corresponding β, assuming the response used by participants to rank the sensory differences varies monotonically with these differences (Shepard, 1962).

Equation 3 implies that there are ranges of values of β within each of which each β has the same ranking of differences. Numerically, with β varying in steps of .01 and for the case of equidistant stimuli represented by the integers 1 to n with n = 6, 8, 10, or 20 as values for Φ, I determined these ranges for all combinations of β and n.

Figure 7 shows the results for each n. In each diagram the abscissa represents β and the ordinate represents the ends of the range of the values of β that specify the same ranking of differences specified by the corresponding β represented on the abscissa. Thick and thin lines show the lower and upper ends of this range, respectively.

Figure 7 shows that the number of rankings of differences discriminated by nonmetric scaling increases with n. For n = 6, this method discriminates between only four rankings of differences. Discrimination of rankings of differences may be barely acceptable for n = 8 and may be satisfactory for n = 10 or larger. These conditions of acceptability match those determined by numerical correlation analysis (Shepard, 1966).

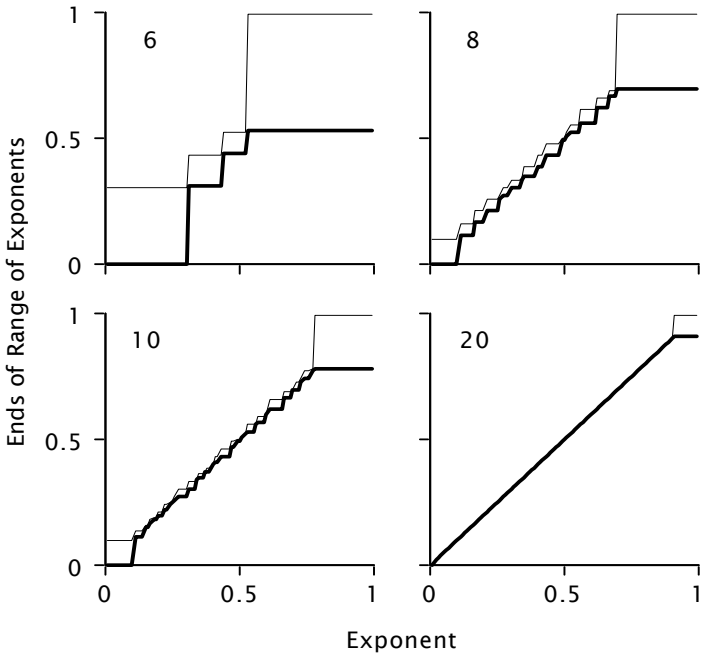

Figure 7. For 6, 8, 10, or 20 stimuli, the abscissa represents the exponent of the psychophysical power function and the ordinate the ends of the range of the exponents that specify the same ranking of differences specified by the exponent on the abscissa. Thick and thin lines show the lower and upper ends of this range, respectively

Nonmetric scaling may spuriously produces exponents lower than 1 for the following reason. Assume that $\beta = 1$. Figure 7 shows that the ranking of differences specified by a potential β of 1 is also specified by a large range of other values of β. This range is 0.53–1 for $n = 6$, 0.7–1 for $n = 8$, and 0.78–1 for $n = 10$. Thus, depending on the chosen n from 6 to 10, nonmetric scaling may yield exponents ranging anywhere from 0.53 to 1. The nonmetric scaling studies mentioned above used values of n varying from 6 to 10.

Acknowledgements

I wish to thank Norman H. Anderson, Lawrence E. Marks, Bruce Schneider, Robert Teghtsoonian, David J. Weiss, and Verena Zudini for providing useful feedback on an earlier version of this paper.

References

Anderson, N. H., & Weiss, D. J. (1971). Test of a multiplying model for estimated area of rectangles. *American Journal of Psychology*, *84,* 543-548. http://dx.doi.org/10.2307/1421171

Baird, J. C., Kreindler, M., & Jones, K. (1971). Generation of multiple ratio scales with a fixed stimulus attribute. *Perception & Psychophysics*, *9,* 399-403. http://dx.doi.org/10.3758/BF03210237

Barth, H. C., & Paladino, A. M. (2011). The development of numerical estimation: Evidence against a representational shift. *Developmental Science*, *14,* 125-135. http://dx.doi.org/10.1111/j.1467-7687.2010.00962.x

Booth, J. L., & Siegler, R. S. (2006). Developmental and individual differences in pure numerical estimation. *Developmental Psychology*, *42,* 189-201. http://dx.doi.org/10.1037/0012-1649.41.6.189

Campbell, N. R. (1920). *Physics: The elements*. Cambridge: Cambridge University Press.

Cliff, N. (1992). Abstract measurement theory and the revolution that never happened. *Psychological Science*, *3,* 186-190. http://dx.doi.org/10.1111/j.1467-9280.1992.tb00024.x

DeCarlo, L. T. (2005). On bias in magnitude scaling and some conjectures of Stevens. *Attention, Perception, & Psychophysics*, *67,* 886-896. http://dx.doi.org/10.3758/BF03193541

Duda, P. D. (1975). Tests of the psychological meaning of the power law. *Journal of Experimental Psychology: Human Perception and Performance*, *1,* 188-194. http://dx.doi.org/10.1037/0096-1523.1.2.188

Ekman, G., Hosman, B., Lindman, R., Ljungberg, L., & Åkesson, C. Å. (1968). Interindividual differences in scaling performance. *Perceptual & Motor Skills*, 26, 815-823. http://dx.doi.org/10.2466/pms.1968.26.3.815

Estes, W. K. (1975). Some targets for mathematical psychology. *Journal of Mathematical Psychology*, *12,* 263-282. http://dx.doi.org/10.1016/0022-2496(75)90025-5

Falmagne, J. C. (1985). *Elements of psychophysical theory*. New York: Oxford University Press.

Giaquinto, M. (2007). *Visual thinking in mathematics: An epistemological study*. Oxford: Oxford University Press.

Guilford, J. P. (1954). *Psychometric methods*. New York: McGraw-Hill.

Hartley, A. A. (1977). Mental measurement in the magnitude estimation of length. *Journal of Experimental Psychology: Human Perception and Performance*, *3,* 622-628. http://dx.doi.org/10.1037/0096-1523.3.4.622

Hartley, A. A. (1981). Mental measurement of line length: The role of the standard. *Journal of Experimental Psychology: Human Perception and Performance*, *7,* 309-317. http://dx.doi.org/10.1037/0096-1523.7.2.309

Hölder, O. (1901). Die Axiome der Quantität und die Lehre vom Maß. *Berichte über die Verhandlungen der Königlich Sächsischen Gesellschaft der Wissenschaften zu Leipzig, Mathematisch-Physische Klasse*, *53,* 1-64.

Jolicoeur, P., Ullman, S., & Mackay, M. (1991). Visual curve tracing properties. *Journal of Experimental Psychology: Human Perception and Performance*, *17,* 997-1022. http://dx.doi.org/10.1037/0096-1523.17.4.997

Jones, N., & Marcus, M. J. (1961). The subject effect in judgments of subjective magnitude. *Journal of Experimental Psychology*, *61,* 40-44. http://dx.doi.org/10.1037/h0046074

Krantz, D. H. (1972). A theory of magnitude estimation and cross-modality matching. *Journal of Mathematical Psychology*, *9,* 168-199. http://dx.doi.org/10.1016/0022-2496(72)90025-9

Markley, R. P., Ayers, D., & Rule, S. J. (1969). Similarity judgments of line length. *Perception & Psychophysics*, *6,* 58-60. http://dx.doi.org/10.3758/BF03210678

Masin, S. C., & Vidotto, G. (1983). A magnitude estimation study of the inverted-T illusion. *Perception & Psychophysics*, *33,* 582-584. http://dx.doi.org/10.3758/BF03202941

Michell, J. (2003). Epistemology of measurement: The relevance of its history for quantification in the social sciences. *Social Science Information*, *42,* 515-534. http://dx.doi.org/10.1177/0539018403424004

Parker, S., Schneider, B., & Kanow, G. (1975). Ratio scale measurement of the perceived lengths of lines. *Journal of Experimental Psychology: Human Perception and Performance*, *1,* 195-204. http://dx.doi.org/10.1037/0096-1523.1.2.195

Petrusic, W. M., Baranski, J. V., & Kennedy, R. (1998). Similarity comparisons with remembered and perceived magnitudes: Memory psychophysics and fundamental measurement. *Memory & Cognition*, *26,* 1041-1055. http://dx.doi.org/10.3758/BF03201182

Petrusic, W. M., & Jamieson, D. G. (1979). Resolution time and the coding of arithmetic relations on supraliminally different visual extents. *Journal of Mathematical Psychology*, *19,* 89-107. http://dx.doi.org/10.1016/0022-2496(79)90014-2

Pringle, R., & Egeth, H. E. (1988). Mental curve tracing with elementary stimuli. *Journal of Experimental Psychology: Human Perception and Performance*, *14,* 716-728. http://dx.doi.org/10.1037/0096-1523.14.4.716

Reed, S. K., Hock, H. S., & Lockhead, G. (1983). Tacit knowledge and the effect of pattern recognition on mental scanning. *Memory and Cognition*, *11,* 137-143. http://dx.doi.org/10.3758/BF03213468

Reese, T. V. (1943). The application of the theory of physical measurement to the measurement of psychological magnitudes, with three experimental examples. *Psychological Monographs*, *55*(3), 1-89. http://dx.doi.org/10.1037/h0093539

Rentmeister-Bryant, H., Slotnick, B., & Parker, S. (2000). Subillusions in the horizontal-vertical illusion. In C. Bonnet (Ed.), *Proceedings of the sixteenth annual meeting of the International Society for Psychophysics* (pp. 291-295). Strasbourg, France: International Society for Psychophysics.

Rule, S. J., & Curtis, D. W. (1970). Input and output transformations from magnitude estimation. *Journal of Experimental Psychology*, *86,* 343-349. http://dx.doi.org/10.1037/h0030154

Schneider, B., & Bissett, R. (1988). "Ratio" and "difference" judgments for length, area, and volume: Are there two classes of sensory continua? *Journal of Experimental Psychology: Human Perception and Performance*, *14,* 503-512. http://dx.doi.org/10.1037/0096-1523.14.3.503

Schönemann, P. H. (1994). Measurement: The reasonable ineffectiveness of mathematics in the social sciences. In I. Borg & P. Ph. Mohler (Eds.), *Trends and perspectives in empirical social research* (pp. 149-160). Berlin: de Gruyter.

Shepard, R. N. (1962). The analysis of proximities: Multidimensional scaling with an unknown distance function. I. *Psychometrika*, *27,* 125-140. http://hdl.handle.net/10.1007/BF02289630

Shepard, R. N. (1966). Metric structures in ordinal data. *Journal of Mathematical Psychology*, *3,* 287-315. http://dx.doi.org/10.1016/0022-2496(66)90017-4

Stevens, S. S., & Galanter, E. H. (1957). Ratio scales and category scales for a dozen perceptual continua. *Journal of Experimental Psychology*, *54,* 153-181. http://www.ncbi.nlm.nih.gov/pubmed/13984045

Stevens, S. S., & Guirao, M. (1963). Subjective scaling of length and area and the matching of length to loudness and brightness. *Journal of Experimental Psychology*, *66,* 177-186. http://dx.doi.org/10.1037/h0044984

Teghtsoonian, R., & Teghtsoonian, M. (1971). The apparent length of perimeters and diameters define a ratio smaller than pi. *American Journal of Psychology*, *84,* 437-438. http://www.jstor.org/stable/1420474

Uhlarik, J., Pringle, R., Jordan, K., & Misceo, G. (1980). Size scaling in two-dimensional pictorial arrays. *Perception & Psychophysics*, *27,* 60-70. http://dx.doi.org/10.3758/BF03199907

Wagner, M. (2006). *The geometries of visual space*. Mahwah, NJ: Erlbaum.

Weiss, D. J., & Gardner, G. S. (1979). Subjective hypotenuse estimation: A test of the Pythagorean theorem. *Perceptual and Motor Skills*, *48,* 607-615. http://dx.doi.org/10.2466/pms.1979.48.2.607

Young, F. W. (1970). Nonmetric scaling of line lengths using latencies, similarity, and same-different judgments. *Perception & Psychophysics*, *8,* 363-369. http://dx.doi.org/10.3758/BF03212609

Zudini, V. (2011). The Euclidean model of measurement in Fechner's psychophysics. *Journal of the History of the Behavioral Sciences*, *47,* 70-87. http://dx.doi.org/10.1002/jhbs.20472

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

The Family-of-Origin Scale: A Psychometric Review and Factor Analytic Study

Mary-Ellen Hemming[1], Victoria Blackmer[2] & H. Russell Searight[2]

[1] Department of Psychology, University of Dayton, Dayton, Ohio, USA

[2] Department of Psychology, Lake Superior State University, Sault Sainte Marie, Michigan, USA

Correspondence: H. Russell Searight, Department of Psychology, Lake Superior State University, 650 W. Easterday Avenue, Sault Sainte Marie, MI., 49783, USA. Tel: 1-906-635-2188. E-mail: hsearight@lssu.edu

Received: April 22, 2012 Accepted: June 21, 2012 Online Published: July 16, 2012

doi:10.5539/ijps.v4n3p34 URL: http://dx.doi.org/10.5539/ijps.v4n3p34

Abstract

The Family-of-Origin Scale (FOS) is a 40-item rating scale in which respondents provide a retrospective assessment of the family in which they were raised. While the FOS was found to be psychometrically sound, there has been a history of controversy about the scale's factor structure. A recent study published in this journal (Petrogiannis & Softas-Nall, 2010) found a seven factor solution for the FOS. After reviewing the research on the FOS, including factor analytic studies, we present and interpret the results of a factor analysis based on data obtained from a U.S. university sample in which nine factors emerged.

Keywords: family assessment, psychometrics, Family-of-Origin theory

1. Introduction

1.1 Background of the Family-of-Origin Scale

Within family therapy, the family of origin is the basis of both psychodynamic and Bowenian approaches to treatment. Bowen's (1978) theory best elaborates on the impact of the family of origin on adult mental health. He indicates that there are two key dimensions – the intellectual-emotional dichotomy and the tension between togetherness and individuality. When these dimensions are appropriately balanced, an individual is said to be well differentiated. A well-differentiated person is one that is able to maintain intimate relationships while simultaneously possessing a strong sense of individual identity that is maintained despite familial pressures. One of the few scales based in family therapy theory, The Family-of-Origin Scale (FOS; Hovestadt, Anderson, Piercy, Cochran, & Fine, 1985) assesses differentiation through its two primary dimensions of Autonomy and Intimacy.

Other historically oriented family therapists, such as the object relations school, suggest that the family of origin exerts its impact through internalized representations of important relationships –typically those between a parent and child (Nichols, 2011). These internalized objects, in turn, serve as unconscious models of close relationships and are likely to be activated when intimate relationships are being established in young adulthood. Object relations theorists believe that individuals project relationship expectations on to intimate others and may unconsciously try to mold important others according to these representations (Framo, 1976). Importantly, from this perspective, the family that is internally represented, whether it is objectively accurate, is the relationship representation that guides formation of intimate relationships in adulthood (Searight, 1997).

The Family of Origin Scale (FOS; Hovestadt, et al., 1985) is a 40 item retrospective instrument in which individuals rate the family in which they were raised. Conceptually, the FOS is based upon two overarching constructs—Autonomy and Intimacy—each of which is represented by five subscales. The subscales were influenced by Beavers' and colleagues description of five constructs characterizing healthy families: power structure, family individuation, acceptance of separation and loss, perceptions of reality, and affect (Lewis, Beavers, Gossett, & Phillips, 1976). Beginning with its original publication in 1985, the FOS has been used in a variety of studies. For example, an adolescent version of the FOS was administered to clinical and non-clinical samples of adolescents currently residing with their families and found that the scale discriminated between adolescents in substance abuse treatment, psychiatric inpatient programs, and non-clinical groups (Niedermeier, Searight, Handal, Manley, & Brown, 1995; Searight, Manley, Binder, Krohn & Rogers. 1991).

During the first decade after its publication, the FOS was the subject of considerable controversy. Much of this

controversy centered on the scale's construct validity, which was examined in a series of factor analytic studies. A key issue in this controversy was whether the FOS does indeed measure multiple distinct aspects of one's family of origin or whether adults retrospectively rating their families perceive their early family experiences as "all good" or "all bad" (Gavin & Wamboldt, 1992; Kline & Newman, 1994; Lee, Gordon, & O'Dell, 1989; Mazer, Mangrum, Hovestadt & Brashear, 1990; Schouten, 1996).

1.2 The Family-of-Origin Scale: Psychometric Properties

Traditional psychometric studies consistently found that the FOS was reliable. There was also evidence of discriminant validity with some support for construct validity.

Hovestadt et al. (1985), in the original FOS study, reported two week test-retest reliabilities of .97 for the scale overall with a median of .77 for the 20 Autonomy items and .73 for Intimacy. Internal consistency, as measured by Chronbach's alpha, was .97 (Hovestadt, et al., 1985).

Customary construct and criterion validity for scales of this type are somewhat challenging to establish since the instrument reflects a specific perspective on family health. However, in keeping with object relations theory, it is likely that "…the individual's *perception*... [of their family]… may be a more proximal determinant of the rating than the actual health of the family, itself " (Gavin & Wamboldt, 1992; p. 186). It is likely that external ratings of family functioning by a non-relative and even ratings by members of the same family may differ (Gavin & Wamboldt, 1992) since everyone is likely to have a unique internal representation of their family-of-origin experience.

With this caveat, there have been a number of studies suggesting that the FOS meets conventional psychometric standards for construct and criterion validity. Support for construct and criterion validity come from studies in which the FOS was significantly and positively correlated with other established family assessment measures such as the Family Relations Index from the Family Environment Scale (Gavin & Wamboldt, 1992; Holahan & Moos, 1982), and Affectional and Associational Solidarity Toward Mother and Father measures (Bengston & Scharder, 1985; Gavin & Wamboldt, 1992). In addition, each of two FOS short forms generated by Ryan et al. (1995) were found to be associated with the Family History of Distress section of the Marital Satisfaction Inventory (Snyder, 1982).

Less direct support for construct validity comes from research in which the relationship between the FOS and individual measures of adjustment are examined. In this regard, the FOS has been found to be significantly and positively associated with the 16 Personality Factor scale's dimensions of emotional stability, conscientiousness and practicality (Lee, Gordon & O'Dell, 1989). Lower total FOS scores, suggesting a lower level of family health, were associated with 16 PF dimensions assessing apprehensiveness, dependence on others, tension and lower emotional stability (Lee, et al., 1989). Yelsma and colleagues found that an empirically-derived, abbreviated 22 item version of the FOS correlated with three dimensions of the Toronto Alexithymia Scale-"impaired abilities to identify feelings, impaired abilities to describe feelings, and externally oriented thinking processes" (p. 359). The inverse association with affective measures and the FOS is compatible with Bowen's view of individual well-being as reflecting the ability to choose between emotional and cognitive responses to others.

One approach to determining a scale's criterion and construct validity—particularly when the conceptual background of the instrument makes it difficult to find another, psychometrically-established instrument assessing a related construct-- is through the contrasted groups approach. Two studies found that the FOS discriminated between self-defined adult children of alcoholics (ACOAs) and non-clinical groups. Capps and colleagues (Capps, Searight, Russo, Temple, & Rogers, 1993) found that self-defined adult children of alcoholics (ACOA) obtained significantly lower scores on all 10 subscales as well as the total FOS score compared with a sample of undergraduate and graduate university students. A discriminant function analysis based upon the FOS, correctly classified 88% of the participants into ACOA and non-ACOA groups. A recent study of African American undergraduate students found significant differences between ACOAs and non-ACOAs on the total FOS score and corresponding differences in alcohol consumption (Hall, 2010).

A recent Polish study found that adolescents with eating disorders (bulimia and anorexia) as well as those with major depressive disorder scored lower on several subscales on both the autonomy and intimacy dimensions of the FOS (Jozefik & Pilecki, 2010). Lee, Gordon, and O'Dell (1989) found that FOS scores discriminated between psychotherapy patients and non-patients. However, of note, pre-post FOS scores of those receiving a course of psychotherapy did not differ- suggesting that these retrospective perceptions of one's family have robust stability.

1.3 The Family-of-Origin Scale: Factor Structure

The factor structure of the FOS has significant implications for the conceptual model upon which the scale is based. Hovestadt et al. (1985) viewed the instrument as assessing two overarching dimensions, Autonomy and Intimacy, with five subscales associated with each. At minimum, it would be expected that factor analytic studies would yield two factors accounting for approximately equal amounts of the total variance.

Table 1. The Family-of-Origin Scale: previous factor analytic studies

Authors	Participants	Number of Factors	Variance Accounted for by Factors I-V
Lee, Gordon, & O'Dell (1989)	100 participants- patients in or seeking psychotherapy;40 males-median age=35; 60 females-median age=35	10	I=38.7% II-6.0% III=5.5% IV=4.6% V=3.6%
Mazer, et al. (1990)	442 undergraduate students; age range: 18-26	7	I=40.0% II=4.8% III=4.0% IV=3.2% V=3.0%
Mazer, et al. (1990)	340 college sophomores	7	I=41.0% II=4.9% III=4.1% IV=3.3% V=2.9%
Gavin and Wamboldt (1992)	63 "premarital couples"-- mean age males: 25.5 yrs, females: 24.4 yrs	10	I=43.4% II=6.8% III=4.9% IV=4.0% V=3.3%
Kline and Newman (1994)	162 males; mean age: 35 yrs.	10	I=20% II=16% III=4% IV=4% V=4%
Ryan, Kawash, Fine, & Powell (1994)	132 participants—from random telephone directory selection and from marital and family therapists; 69 males-mean age=36.6 yrs; 63 females; mean age=39.3 yrs	7	I=17.91% II=12.88 % III=10.96% IV=10.24% V=7.48%
Petrogiannis and Softas-Hall (2010)	306 Greek university students; 81 males, 225 females; mean age: 21 yrs	7	I=37.8% II=5.70% III=4.07% IV=3.72% V=3.47%

Published factor analytic studies of the FOS are summarized in Table 1. As noted by Petrogiannis and Softas-Hall (2010), nearly all of the published factor analytic studies of the FOS have employed principal components analysis with some investigators reporting orthogonal varimax rotations. Of seven factor analytic studies of the FOS, five have yielded a single factor accounting for approximately 40% of the variance and a series of smaller factors each of which accounts for 7% or less of the total variance. However, Kline and Newman (1994) and Ryan et al. (1994) found a more evenly distributed pattern of variance accounted for by two to four factors (See table 1). As noted above, most factor analytic studies do not directly support a two factor model with Kline and Newman's study being a possible exception. They indicated that most of the variance in the scale can be accounted for by one unitary factor. Other studies suggested a 7 to 9 factor structure for the scale – indirectly suggesting that the FOS does measure multiple distinct components of the respondent's family of origin.

Those finding a large initial factor such as Lee, Gordon, and O'Dell have concluded that respondents tend to see their families as "all good" or "all bad", and do not differentiate between specific dimensions of family functioning. Similarly, Yelsma and colleagues (2000) concluded that one factor that included 22 items accounts for most (44%) of the interpretable variance in the FOS. Based upon the factor loadings, they concluded that this single factor assesses " [the]individual's perceived level of expressive atmosphere in his/her family of origin" (p. 357). These 22 items comprised a new instrument, the Family-of-Origin Expressive Atmosphere Scale (Yelsma, Hovestadt, Anderson, & Nilsson, 2000)

1.4 Current Study

Multiple literature searches did not locate any factor analytic studies on the FOS published in in the past decade—with one recent exception. Petrogiannis and Softas-Hall (2010) published a factor analysis of the FOS in a Greek sample. These authors found a total of seven factors and an initial factor, accounting for nearly 38% percent of the variance. The purpose of the current study is to compare results of the Greek investigation of the factor structure of the FOS with a contemporary sample of U.S. university students.

2. Method

2.1 Participants

The data that served as the basis for this factor analysis was originally obtained in a study of eating behavior, body image, and perceptions of the family-of-origin. The study is described elsewhere (Blackmer, Searight, & Ratwik, 2011). Participants were 103 university students at a Midwestern U.S. University. By gender, there were 47 were males and 56 females. Ages ranged from 18 to 25 years with a mean of 19.84 years). Approximately 90% of the sample was of White European background (Blackmer, Searight, & Ratwik, 2011).

2.2 Instrument and Procedure

The Family-of-Origin Scale (FOS; Hovestadt, et al., 1985) is a 40 item measure with each item rated on a 1 to 5 Likert scale according to the respondent's level of agreement with each statement (1=Strongly Disagree; 5= Strongly Agree). The items are all worded in the past tense with the instruction to respond based on the respondent's experience growing up in their family. The 40 items are grouped into two overarching dimensions—each of which includes five subscales. The Autonomy dimension includes: Openness to Others, Clarity of Expression, Responsibility, Respect for Others, Acceptance of Separation and Loss; while the Intimacy dimension is comprised of the Mood and Tone, Range of Feelings, Conflict Resolution, Empathy for Others and Trust subscales.

Twenty of the rated items are stated in the affirmative while the remaining twenty are stated negatively. To maintain uniformity, all of the negatively worded items are scored so that the highest rating ("5") indicates the respondent's strong disagreement with the item's content. As noted in the review above, the FOS has demonstrated reliability and validity.

The FOS protocols were scored according to Hovestadt, et al.'s (1985) guidelines. Individual items for each protocol were entered into an SPSS file for analysis.

Results of a principal components analysis were initially examined. To attempt to reduce overlap and optimize factor loadings, a Varimax rotation was conducted (Kline, 1994). To determine the number of factors in the solution, the criterion of an eigenvalue greater than one was used.

3. Results

Table 2. Varimax rotation of Family-of-Origin Scale: factor loadings

Items	1	2	3	4	5	6	7	8	9
1		.373							.416
2	.304	.627			.400				
3	.606	.340			.309				
4	.369	.322						.464	
5								.749	
6	.334	.537				.319			
7		.660							
8						.743			
9							.744		
10			.801						
11	.382					.393			
12			.609						
13		.446			.423		.397		.439
14									.679
15	.433	.446					.303		.383
16							.740		
17		.632			.344			.357	
18		.366						.551	
19		.307		.423		.314			.319
20									
21		.715							
22	.537	.524							
23	.332	.319			.337				
24				.438		.567	.419		
25				.306					
26					.745				
27				.339		.463	.431		
28				.622				.351	
29				.565					
30	.615	.390							
31	.399	.614							.303
32	.704								
33	.426				.575				
34	.337		.359	.610					
35	.401	.331		.508					
36			.608			.302			
37					.543				
38	.318			.307		.484		.364	
39	.740		.324						
40	.692			.314					

Factor loadings above .30 are included above

The total mean FOS score as well as that for males and females were comparable to figures reported by Petrogiannis & Softas-Hall (2010). Of note, there were no statistically significant differences between the U.S. sample and the Greek participants on any of the individual items or for the total FOS score.

For the current sample of participants, the FOS demonstrated substantial internal consistency reliability with a Chronbach's alpha of .97 for the 40 item instrument. This value is consistent with alpha levels reported by Petrogiannis and Softas-Hall (2010) as well as by earlier FOS investigators (Gavin & Wamboldt, 1992;

Hovestadt, et al., 1985; Ryan et al., 1994).

A principal components factor analysis yielded a total of nine factors based on the criterion of an Eigenvalue greater than one. The initial factor accounted for 39% of the variance. When taken together, the factors emerging from the principal components analysis accounted for approximately 69% of the variance.

We then conducted a Varimax rotation which is depicted in Table 2. While nine factors were extracted and the overall variance explained was comparable to that obtained in the principal components analysis (see Table 3), the factor loadings, based on the principle of orthogonality, led to a more distinct pattern. Compared with the principal components pattern, the Varimax analysis, suggested that, while there was some overlap of items between factors, this redundancy was reduced allowing greater clarity of interpretation (Hair, Anderson, Tatham, & Grablowsky, 1979).

Table 3. Eigenvalues and percentage of variance accounted for by 9 factor solution (principal components and varimax rotation)

Factor	Initial Eigenvalues			Rotation Sum of Squares Loadings		
	Total	Percentage of Variance	Cumulative Percentage of Variance	Total	Percentage of Variance	Cumulative Percentage of Variance
1	15.641	39.102	39.102	4.926	12.314	12.314
2	2.181	5.452	44.554	4.644	11.610	23.924
3	1.944	4.860	49.414	3.718	9.295	33.219
4	1.674	4.186	53.599	2.883	7.208	40.427
5	1.497	3.742	57.342	2.541	6.353	46.780
6	1.303	3.529	60.601	2.530	6.326	53.106
7	1.215	3.038	63.639	2.482	6.205	59.311
8	1.200	3.001	66.640	2.185	5.463	64.773
9	1.033	2.582	69.222	1.780	4.449	69.222

4. Discussion

The current U.S. university sample obtained similar individual item and total FOS scores as in Petrogiannis and Softas-Nall's (2010) Greek sample. While suggesting that the FOS is generalizable to other cultures, it is not congruent with the view of McGoldrick and others emphasizing cultural differences in family processes. For example, Greek-American families are characterized as being particularly emotionally expressive (McGoldrick, Pierce, & Giordano, 1995).

In addition, a recent U.S. study of ethnic differences in FOS scores found that African-American respondents rated their families as higher in Respect for Others and Range of Feelings than Asian, White or Hispanic respondents (Kane, 1998).

In the current study, we conducted a Varimax factor rotation in which the factor axes are maintained as orthogonal (Kline, 1994). While the total variance accounted for by the factor solution is comparable to previous reports (See Tables 1 and 3), the distribution of variance differs. Instead of being based on the amount of variance extracted, the Varimax rotation minimizes the correlations among the resulting factors (Kline, 1994). As a result, there tend to be fewer items loading on a given factor and there is often a reduction in the extent to which an item loads on multiple factors (Hair, Anderson, Tatham, & Grablowsky, 1979). In terms of the percentage of variance explained, our first seven factors had similar explanatory power as the seven factor solution reported by Petrogiannis and Softas-Hall (2010). Similarly, in their study, the first factor accounted for nearly 38% of the total explained variance. This overall pattern is similar to four of the previous six reported factor analytic studies with the FOS published between 1989 and 1994. The issue of whether the FOS is a multi-dimensional versus unitary instrument is, to some extent, a matter of how one interprets the variance accounted for by each factor. While Factor I explained substantially more of the variance in the overall factor structure, the remaining eight factors did contribute additional dimension helpful in understanding family

functioning.

In examining the items loading at .4 and above on Factor I, it appears that a common shared dimension was the emotional climate and extent to which open communication was encouraged (22. "The atmosphere in my family was cold and negative;" 40. "I remember my family as being warm and supportive;" 15. "My family encouraged me to express my views openly;" 32. "In my family, certain feelings were not allowed to be expressed;" 39. "My family had an unwritten rule: Don't express your feelings.").

Many of the FOS items dealing with conflict resolution and related communication skills loaded on Factor II (7. "Conflicts in my family never got resolved;" 13. "Resolving conflicts in my family was a very stressful experience;" 31. "We usually were able to work out conflicts in my family; 6." My parents encouraged family members to listen to one another.").

Factor III contained fewer items. While several communication items (39. " My family had an unwritten rule: Don't express your feelings.") loaded on this factor, this dimension also reflected issues with emotional reactions to separation and loss (10. "We talked about our sadness when a relative or friend died;" 36. " When someone important to us moved away, our family discussed our feelings of loss.").

Factor IV appeared to emphasize a family climate of openness to members' perspectives (28. "I found it difficult to express my own opinions in my family;" 34." I found it easy in my family to express what I thought and how I felt;" 35. " My family members were usually sensitive to one another's feelings.").

A family climate in which others—particularly those outside the immediate family—are viewed with some guardedness (26. "In my family, I learned to be suspicious of others;" 33. "My family believed that people usually took advantage of you.") characterized Factor V along with problems with addressing differences within the family (13. "Resolving conflicts within my family was a very stressful experience;" 17. "My attitudes and feelings frequently were ignored or criticized in my family;" 23. "The members of my family were not very receptive to one another's views.").

Examination of the items associated within Factor VI did not indicate a strong unifying theme but did suggest a positive, optimistic view of relationships (8. "My family taught me that people were basically good;" 24. " I found it easy to understand what other family members said and how they felt;" 27. "In my family, I felt I could talk things out and settle conflicts.").

Factor VII appeared to have some redundancy with the dimensions above which emphasized a climate that encouraged or discouraged communication and levels of transparency within the family (9. "I found it difficult to understand what other family members said and how they felt;" 16. "I often had to guess at what other family members thought or how they felt;" 24. " I found it easy to understand what other family members said and how they felt.").

Most of the items loading on factor VIII coalesced around the theme of personal responsibility (5. "People in my family often made excuses for their mistakes;" 18. "My family members rarely expressed responsibility for their actions;" 5. " People in my family often made excuses for their mistakes.").

Finally, Factor IX appeared to capture a family climate in which individuality was encouraged and in which the expression of a range of feelings and beliefs were supported (14. "My family was receptive to the different ways various family members viewed life;" 12. "In my family, I expressed just about any feeling I had;" 19. "In my family, I felt free to express my own opinions.").

The current factor analysis suggests that there is a primary component to the FOS assessing the overall emotional climate of the rater's family and the quality of communication. Other dimensions assessed by the scale appear to include conflict resolution, and support for and openness to multiple viewpoints including perspectives originating outside the family. While the factors do not resemble the dimensions originally described by the scale's developers, the factors do provide useful information about family processes and climate that could be useful in the clinical setting.

References

Bengston, V. L., & Schrader, S. S. (1982). Parent-child relations. In D. J. Mangen & W. A Peterson (Eds.), *Research instruments in social gerontology: Vol. 2. Social roles and social participation* (pp. 155). Minneapolis, MN: University of Minnesota Press.

Blackmer, V., Searight, H. R., & Ratwik, S. (2011). The relationship between eating attitudes, body image, and perceived family-of-origin climate in college athletes. *North American Journal of Psychology, 13,* 441-452.

Bowen, M. (1978). *Family therapy in clinical practice.* New York: Jason Aronson.

Capps, S., Searight, H. R., Russo, J. R., Temple, L., & Rogers, B. (1993). The Family-of-Origin Scale: Discriminant validity with adult children of alcoholics. *American Journal of Family Therapy, 21,* 274-277. http://dx.doi.org/10.1080/01926189308250926

Framo, J. L. (1976). Family of origin as a therapeutic resource for adults in marital and family therapy: You can and should go home again. *Family Process, 15,* 193-210. http://dx.doi.org/10.1111/j.1545-5300.1976.00193.x

Gavin, L. A., & Wamboldt, F. S. (1992). A reconsideration of the family-of-origin scale. *Journal of Marital and Family Therapy, 18,* 179-188. http://dx.doi.org/10.1111/j.1752-0606.1992.tb00928.x

Hair, J., Anderson, R. E., Tatham, R. L., & Grablowsky, B. J. (1979). *Multivariate data analysis*. Tulsa. OK: PPC Publishers.

Hall, J. C. (2010). Childhood perceptions of family, social support, parental alcoholism and later alcohol use among African American college students. *Journal of Substance Use, 15,* 157-165. http://dx.doi.org/10.3109/14659890903013083

Holahan, C. J., & Moos, R. H. (1983). The quality of social support: Measures of family and work relationships. *British Journal of Clinical Psychology, 22,* 157-162. http://dx.doi.org/10.1111/j.2044-8260.1983.tb00596.x

Hovestadt, A. J., Anderson, W. T., Piercy, F. P., Cochran, S. W., & Fine, M. (1985). A family-of-origin scale. *Journal of Marital and Family Therapy, 11,* 287-297. http://dx.doi.org/10.1111/j.1752-0606.1985.tb00621.x

Jozefik, B., & Pilecki, M. W. (2010). Perception of autonomy and intimacy in families of origin of patients with eating disorders with depressed patients and healthy controls. *A transgenerational perspective-Part I. Archives of Psychiatry and Psychotherapy, 4,* 69-77.

Kline, P. (1994). *An easy guide to factor analysis.* New York: Routledge.

Kline, C. D., & Newman, I. (1994). Factor structure of the Family-of-Origin Scale: Does this scale measure what its creators say it does? *Journal of Marital and Family Therapy, 20,* 47-52. http://dx.doi.org/10.1111/j.1752-0606.1994.tb01010.x

Lee, R. E., Gordon, N. G., & O'Dell, J. W. (1989). The validity and use of the family-of-origin scale: A factor analysis. *Journal of Marital and Family Therapy, 15,* 19-27. http://dx.doi.org/10.1111/j.1752-0606.1989.tb00773.x

Mazer, G. E., Mangrum, O. L., Hovestadt, A. J., & Brashear, R. (1990). Further validation of the family-of-origin scale: A factor analysis. *Journal of Marital and Family Therapy, 16,* 423-426. http://dx.doi.org/10.1111/j.1752-0606.1990.tb00060.x

Nichols, M. (2009). *Family therapy: Concepts and Methods* (9th Eds.). New York: Pearson Publishers.

Niedermeier, C. L., Searight, H. R., Handal, P. J., Manley, C. M., & Brown, N. Y. (1995). Perceived family functioning among adolescent psychiatric inpatients: Validity of the Family-of-Origin Scale. *Child Psychiatry and Human Development, 25,* 252-265.

Petrogiannis, K., & Softas-Hall, L. C. (2010). The Family of Origin Scale in Greece. *International Journal of Psychological Studies, 2,* 3-10.

Ryan, B. A., Powel, B., Kawash, G. F., & Fine, M. (1995). Parallel short forms of the family of origin scale: Evidence of their reliability and validity. *Journal of Psychopathology and Behavioral Assessment, 17,* 283-291. http://dx.doi.org/10.1007/BF02229303

Schouten, P. (1996). Researchers discover what they already knew about the validity: The case of the Family-of-Origin Scale. *Contemporary Family Therapy, 18,* 315-323. http://dx.doi.org/10.1007/BF02196731

Searight, H. R. (1997). *Family of origin therapy and cultural diversity.* Philadelphia: Taylor & Francis.

Searight, H. R., Manley, C. M., Binder, A. F., Krohn, E., Rogers, B. J., & Russo, J. R. (1991). The families of origin of adolescent drug abusers: Perceived autonomy and intimacy. *Contemporary Family Therapy, 13,* 71-81. http://dx.doi.org/10.1007/BF00892230

Snyder, D. K. (1981). *The marital satisfaction inventory (MSI) manual.* Los Angeles: Western Psychological Research.

Yelsma, P. Hovestadt, A. J., Anderson, W. T., & Nilsson, J. E. (2000). Family of origin expressiveness: Measurement, meaning, and relationship to alexithymia. *Journal of Marital and Family therapy, 26,* 353-363. http://dx.doi.org/10.1111/j.1752-0606.2000.tb00304.x

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Insurgency Decision-making under Conditions of Risk

Albert Wesley Harris[1]

[1] Department of Politics, Humboldt State University, Arcata, USA

Correspondence: Albert Wesley Harris, Department of Politics, Humboldt State University, Arcata. CA. 95521, USA. Tel: 1-707-826-3131. E-mail: awh2@humboldt.edu

Received: April 24, 2012 Accepted: June 25, 2012 Online Published: July 16, 2012

doi:10.5539/ijps.v4n3p43 URL: http://dx.doi.org/10.5539/ijps.v4n3p43

Abstract

Utilizing prospect theory, the paper contends that two insurgencies, the Liberation Tigers of Tamil Eelam and the Chechen resistance, decided to mount a stand at Kilinochchi in Sri Lanka, and Grozny in Chechnya, because they preferred to accept the risk of losing the battles, incurring greater casualties (rather than choosing to abandon the two sites respectively) and potentially losing the war, on the chance they could win the respective battles and turn the tide of the civil war generally. In terms of prospect theory, the two insurgencies underweighted the high probability of losing the respective battles, and demonstrated the prevalence of risk aversion in choices between probable gains and sure things, and the prevalence of risk seeking in choices between probable and sure losses.

Keywords: insurgency, loss-aversion, risk-seeking, endowment, casualties

1. Introduction

In 2009 the Liberation Tigers of Tamil Eelam (LTTE) became embroiled in merciless combat with the Sri Lankan Army (SLA) at a site labeled Kilinochchi, located in the northern portion of the island. The LTTE had been seriously damaged in earlier combat, but chose to stand and fight at Kilinochchi (U.N. Secretary-General, 2011, p. 23; ICG, 2008, p. 5; Hariharan, 2008). In 1999 the Chechen resistance in Chechnya, Russia, became engaged in brutal combat with the Russian army at Grozny, the capital of Chechnya. The Chechen resistance had been significantly depleted by earlier combat with the Russian forces, but chose to stand and fight at Grozny (Oliker, 2001, pp. 41-42; Gordon, 1999, p. 10; New York Times, 1999).

1.1 Loss Aversion in Civil War

These respective decisions by the two insurgencies may be best explained by applying prospect theory to these separate but analogous events (Khaneman & Tversky, 1979; Tversky & Kahneman, 1992). My contention is that both insurgencies decided to make a stand at the two sites because they preferred to accept the risk of losing the battles, incurring greater casualties (rather than choosing to abandon the two sites) and potentially losing the war, on the chance they could win the battle and turn the tide of the civil war generally. But this latter potential outcome (winning the battle and thus turning the tide of the war) was significantly less likely than an outcome which would have entailed had the insurgencies chosen to retreat, which would have meant losing territory for certain, but would have incurred significantly fewer casualties, and would have held open the option (or increased the likelihood) of surviving to fight another day. In terms of prospect theory the two insurgencies "underweighted" the high probability of losing the respective battles, and demonstrated "the prevalence of risk aversion in choices between probable gains and sure things, and … the prevalence of risk seeking in choices between probable and sure losses" (Tversky & Khaneman, 1992, p. 316).

1.2 Risk Acceptance

The two insurgencies chose to "stand their ground" even though the odds of success (winning the battles and ultimately the civil wars) were small, and the costs of losing the battles could mean increasing the likelihood of losing the wars. But the potential gains from winning the two battles were large; potentially turning the tides of both wars. The two insurgent organizations could have chosen to retreat, gaining time to regroup, and thus possibly winning the war over a longer term. But retreating would mean giving up ground to the adversary, a *certain* but *smaller* loss (especially in terms of casualties), even if that ground could conceivably be regained at a

later time. The two respective decisions, by the Chechen resistance and the LTTE, to mount metropolitan defenses would have been anticipated by prospect theory (Kahneman &Tversky, 1983, p. 348). Prospect theory argues that "actors should be much more willing to run risks when they believe that failing to do so will result in *certain losses*" (emphasis added) (Jervis, 1992, p. 195).

1.3 Endowment Affect

There is strong reason to believe that the respective insurgencies viewed the prospects of abandoning Grozny to the Russians in 1999, and surrendering Kilinochchi to the SLA in 2009, as prospective *losses*, not simply reductions in past gains. In this paper I hold that, similar to individuals, groups can be loss-averse. "An immediate consequence of loss-aversion is that the loss of utility associated with giving up a valued good is greater than the utility gain associated with receiving it" (Tversky & Khaneman, 1991, p. 1041). Thaler labeled this consequence of loss-aversion as the "endowment effect" (1980).

The argument made here is that an insurgency engaged in perilous combat with the state, would be willing to "pay more" (in casualties) even as winning was becoming increasingly less likely. This follows if it is true that "people tend to give more weight to the value of a potential outcome than to the likelihood of its occurrence" (Levy, 2003, p. 219). In assessing different insurgencies, it is not clear when this willingness to suffer future casualties would end.

2. Collective Decision-making

The potential shortcomings of prospect theory in aiding the analysis of group decision-making have received comment.

[A] limitation of prospect theory for the study of politics is that it is a theory of individual choice, while most of the questions we want to understand about politics involve the choices of collective decision-making bodies (such as states or organizations). The concepts of loss aversion and preference reversal, were based on evidence of individual decision-making, not group decision-making. In the absence of further empirical research we cannot automatically assume that these concepts […] apply equally well at the collective level. (Levy, 2003, p. 233).

2.1 Group Decisions

Clearly the limitation of prospect theory noted in the above paragraph would apply to an analysis of an insurgency decision regarding whether or not to continue the resistance in the "risky" manner of mounting a metropolitan defense. Viewed by a neutral outsider, the defenses of Kilinochchi in Sri Lanka in 2008 and Grozny in Chechnya in 1999, would surely seem like "long shots", following the heavy losses (in both casualties and territory) both theLTTE (ICG, 2008, p. 5; Mehta, 2010, p. 17), and the Chechen resistance (BBC News, 1999; New York Times, 1999), had already incurred prior to mounting their respective urban defenses.

2.2 Individual Motivation

A question that seems important but is probably impossible to answer definitively, is whether the insurgent leadership in each case viewed the city defenses as gambles which, while striving for a "reversal of fortune" victory, ran the risk of a greater loss than would be incurred by simply abandoning the two sites and retreating to safer ground. In other words, the insurgent leadership in each case was "gambling by accepting a chance of a greater loss in return for a chance of no loss (or even a victory)…" (Jervis, 1992, p. 188). But at issue is what motivates individuals to participate in collective action in the form of joining an insurgency in the first place, and then (discounting for the moment the strong possibility of coercion by the insurgent leadership) join in the "against all odds" effort to defend a specific locality.

2.3 Domain of Losses

Fanis has posited that "what motivates individuals to participate in collective action [is] their desire to recoup recent losses…" (2004, p. 364). In general, she goes on to note that when people are in the domain of losses, "they will be risk-acceptant and choose the option that has a lower probability of occurring, even if it will yield higher loss if it does not occur, than the other option, which will yield a certain but smaller loss" (2004, p. 367). One could view an insurgency decision to "stand and fight" *and winning*, as having a low probability (but a large "payoff"), but fighting, and losing, the battle as having a greater loss than retreating, which would be a certain loss, but a smaller one (fewer casualties).

2.4 Group Cohesion

Because insurgencies, as paramilitary organizations, provide little room for discussion in terms of decision-making, it may be that insurgency risk-taking is derived largely from *group cohesiveness* generated by

history (i.e., experience) and group composition.One way to grasp the idea of group cohesion is to understand it to mean that individuals in the group will support group decisions or actions of the group, even if particular individuals do not agree with the proposed decisions or actions. "Group identification in turn increases cooperation, as it leads individual group members to substitute group regard [in place of] egoism as the principle guiding their choices" (Bornstein, 2003, p. 138). Gross and Martin suggest that cohesiveness can be understood as the degree of resistance of a group to "disruptive forces", and then to ask how strong (or weak) a disruptive force would have to be in order for the group to begin disintegrating (1952, p. 553).

3. Acquisition as Endowment

3.1 Time of Possession

It is the degree of cohesion between group members, produced through significant past losses incurred by the group, which likely helps to drive agreater than might be expected risk propensity of the latter.The contention I make here is that the group cohesion exhibited by both insurgencies stems from when, and most importantly how, the two sites of Kilinochchi and Grozny had been "acquired". Kilinochchi had been captured from the SLA in 1998(DeVotta, 2009; Jeyaraj, 1999), and Grozny had been kept from Soviet capture in the First Russia-Chechen war in 1995 (Kneyzsw & Sedlickas, 1999; Lapidus, 1998). This allowed the LTTE to claim Kilinochchi as "theirs", since they had held it for ten years prior to 2009, and similarly allowed the Chechen resistance to claim Grozny as "theirs", since they had possessed it for four years prior to 1999. In prospect theory terminology, the two insurgencies came to see their respective capitals as their "endowments".

3.2 Subjective Value

Thaler found that the process of acquiring a possession enhances its value (1980, p. 43-45). In fact such a possession can be "over-valued", particularly with the passage of time. Jervis noted that as the "time of possession" is extended, and the effort to maintain possession is considerable and sustained, the subjective value of the possession will increase (1989, pp. 168-690). Kahneman & Tversky put it in "transaction" terms: [t]hat is, the highest price that an individual will pay to acquire an asset will be *smaller* than the minimal compensation that would induce the same individual to give up that asset once it is acquired" (emphasis added) (1984, p. 348).

3.3 What Is at Risk

In the case of the two insurgencies' behavior examined here, what was at risk by defending the two sites was exceedingly large; "everything" was at risk, or nearly so. That is, prior to the initiation of the two battles under study, choosing to fight rather than retreat greatly increased the risk of losing the war, suffering exceedingly high numbers of casualties from losing the battle. But making the decision to fight at the two battle sites, brought the possibility of turning the entire tide of the war, although even the possibility of winning meant incurring considerable casualties. The odds were long for this possibility of winning the war to occur, but the rewards were inestimable. The probable consequence for losing was well understood by both insurgencies before the respective battles began.

3.4 Mode of Decision-making

An observation regarding the individual versus group decision-decision making question can be placed here. That is, military and paramilitary (insurgencies) organizations by definition have "command" organizational structures. For the most part, there is little room for "discussion" in the decision-making process that occurs in these organizations (Stoner, 1968); certainly not beyond the top tier of officers. So to a substantial extent, decision-making in military and paramilitary organizations does not occur in a strictly collective manner, in the sense of decisions taken only after group discussion.Individual cadres in an insurgency could be seen as inherently risk-takers, otherwise they would not have joined an insurgency (Begum & Ahmed, 1986). It should be kept in mind there would be some likelihood that coercion was the primary generator of insurgency membership in at least some cases.

4. Insurgency Choice

4.1 Defending Possessions

Both insurgent organizations, the Chechen rebels, and the LTTE, made their defensive stands encumbering great losses, at specific sites against superior forces in order to avoid the loss of their "possessions," of Grozny and Kilinochchi, respectively. My contention is that both insurgencies regarded the two battle locales, Kilinochchi and Grozny, as genuine defenses of *what was theirs*, not just attempts to hold onto recent gains. Choosing to mount these two defensive efforts was in each case a "risky choice," with a decidedly low probability of success.

"An insurgency is a risky and highly complex human activity susceptible to a range of mistakes by its

protagonists" (Krause, 2009, p. 49). But in each case the insurgency leadership had determined that if the battle could be won, the entire tide of the civil war could be turned, albeit not a course of action without its own costs. Given my premise that prospect theory can hold for certain types of collectivities, the theory advises us to not be greatly surprised by these two decisions. This is so because of the finding that individuals (and certain groups) are willing to risk "more"; i.e., choose the course of action between at least two alternatives which will bring greater negative consequences (in the current context, losing the war), *if* the gamble (battle) is lost, than the other alternative of retreating and avoiding devastating casualties, particularly if what they risk is "theirs".

4.2 Ownership

Time of "control" of a locale that has been fought for provides a strong sense of ownership; the longer a piece of territory has remained under the military control of an insurgency, the stronger a sense of ownership prevails.In this instance of insurgencies that have gained control of territory only by incurring extensive casualties, it is *no*t the mechanism of a "sunk costs bias" that also comes into play (Arkes & Blumer, 1985). In economic decision-making theory, the belief is that only potential future costs should be taken into account when faced with a present decision choice, and not retrospective costs that have failed to produce or contribute to a positive outcome. Allowing past costs which have not paid "dividends" to have an impact on future decisions is irrational in traditional economic theory because those costs cannot be recovered (Steele, 1996, pp. 608-610). Believing those costs can be "recovered" or "justified" by future actions is regarded as a "fallacy" (Janis, 1972).

But part of my argument in this paper is that the Kilinochchi and Grozny cases can be more aptly explained as instances of an "impending-benefit bias" analysis on the part of the respective insurgencies, rather than examples of the sunk-cost bias or fallacy. I contend this is so because in the battles which allowed the LTTE to capture Kilinochchi in 1999, and the Chechen resistance to hold Grozny in 1995-96, the casualties incurred were costs which produced *positive outcomes*. These outcomes helped to cement a sense of endowment each insurgency could then claim.

4.3 Choosing the Level of Risk

The endowment effect in the case of insurgency decision-making is what makes risky decisions by insurgent groups more likely to be entered into, than not. Insurgencies will often be loss-aversive and risk acceptant, because the endowment effect (losses are more hurtful than gains are pleasurable) is an incentive for the group to be so. In the current two cases group cohesion is produced in large part through the endowment effect produced by the earlier victories at Kilinochchi and Grozny. Thus, the groups were "risk-acceptant" and "loss averse" insofar as taking a gamble (choosing to fight at the two sites), even though there was a smaller chance of victory and turning the tide of war, than of losing the battles (incurring sizeable casualties) and making more certain the entire war would be lost.

The insurgencies made this choice rather than choosing to retreat which, while engendering a certain but smaller loss of the metropolitan sites (incurring fewer casualties), would not bring about the loss of the war generally, or at least would not greatly increase the likelihood of the latter. Had the insurgencies made these latter choices they would have been exhibiting loss-acceptant and risk- aversive behavior. The insurgencies (particularly the leadership) in each case determined the former choices provided a high risk "chance" of retaining their respective endowments, an outcome which made the gambles worth taking.

References

Arkes, Hal R., & Catherine Blumer. (1985). The psychology of sunk costs. *Organizational Behavior and Human Decision Processes*, 35, 124-140. http://dx.doi.org/10.1016/0749-5978(85)90049-4

BBC News. (1999, December 21). Fierce fighting around Grozny. Retrieved from http://news.bbc.co.uk/2/hi/europe/568612.stm

Begum, H. A., & E. Ahmed. (1986). Individual risk taking and risky shift as a function of cooperation-competition proneness of subjects. *Psychological Studies, 31,* 21-25.

Blank, A. D. (1968). Effects of group and individual conditions on choice behavior. *Journal of Personality and Social Psychology, 8,* 294-298. http://dx.dot.org/10.1037/h0025596

Bornstein, Gary. (2003). Inter-group conflict: individual, group, and collective Interests. *Personality and Social Psychology Review, 7*(2), 129-145. http://dx.doi.org/10/1207/S15327957PSPR0702_129_145

Brown, R. W. (1965). *Social psychology*. New York, NY: Free Press.

Clark, Russell D. (1971). Group induced shift toward risk: a critical appraisal. *Psychological Bulletin*, *76*(4), 251-270. http://dx.doi.org/10.1037/h0031567

DeVotta, Nei. (2009). The Liberation Tigers of Tamil Eelam and the lost quest for separatism in Sri Lanka. *Asian Survey ,49*(6), 1021-1051. http://dx.doi.org/10.1525/as.2009.49.6.1021

Fanis, Maria. (2004). Collective action meets prospect theory: an application to coalition building in Chile. *Political Psychology, 25*(3), 363-388. http://dx.doi.org.10.1111/j.1467-9221.2004.00376.x

Gordon, Michael R. (1999, November 29). Russian promises escape route for civilians to flee Grozny, *New York Times*, (pp. 10). Retrieved from http://www.nytimes.com/1999/11/29/world/russia-promises-escape-route-for- civilians-to-flee-grozny.html

Gross, Neal & William E. Martin. (1952). On group cohesiveness. *American Journal of Sociology*, *57*(6), 546-564. http://dx.doi.org/10.1086/221041

Hariharan, R. (2008, December 10). Sri Lanka: the slow crawl to Kilinochchi – update No. 159, *South Asia Analysis Group, 488.* Retrieved from http://www.southasiaanalysis.org/%5Cnotes5%5Cnote488.html

International Crisis Group (ICG). (2008, February 20). Sri Lanka's return to war: limiting the damage. *Asia Report*, *146,* 1-33. Retrieved fromhttp://www.crisisweb.org

Janis, I. (1972). *Victims of groupthink*. Boston, MA: Houghton-Mifflin.

Jervis, Robert. (1989). *The meaning of the nuclear revolution*. Ithaca, NY: Cornell University Press.

Jervis, Robert. (1992). Political implications of loss aversion. *Political Psychology*, *1*3(2), 187-204. http://dx.doi.org/10.2307.3791678

Jeyaraj, D. B. S. (1999). LTTE offensive. *Frontline, 16*(25). Retrieved from http://www.frontline.in/fl1625/16250040.htm.

Kahneman, Daniel & Amos Tversky. (1979). Prospect theory: an analysis of decision under risk. *Econometrica*, *47*(2), 263-291. http://dx.doi.org/10.2307/1914185

Kahneman, Daniel & Amos Tversky. (1983). Choices, values and frames. *American Psychologist, 39*(4), 341-450. http://dx.doi.org/10.1037/0003-066x.39.4.341/

Kneyzsw, Stays & Romanas Sedlickas (1999). *The war In Chechnya*. College Station, TX: Texas A & M University Press, 1999.

Lapidus, Gail. (1998). Contested sovereignty. *International Security, 23*(1), 5-49. http://dx.doi.org/10.2307/2539261

Levy, Jack (2003). Application of prospect theory to political science. *Synthese, 135,* 215-241. http://dx.doi.org/10.2307/2539261

Mehta, Ashok. (2010). *Sri Lanka's ethnic conflict: how Elam IV was won*. Manekshaw Paper, 22, Center for Land Warfare Studies, New Delhi,

New York Times. (1999, December 16). Russian tanks pounding Grozny from 3 directions. Retrieved from http://www.nytimes.com/1999/12/18/world/russian-tanks-pounding-grozny-from-3-directi

Oliker, Olga (2001). *Russia's Chechen wars, 1994-2000*. Santa Monica, CA: Rand Arroyo Center.

Stoner, J. A. F. (1968). Risky and cautious shifts in group decisions: the influence of widely held values. *Journal of Experimental Social Psychology, 4,* 442-459. http://dx.doi.org/10.1016/0022-1031(68)90069-3

Thaler, Richard. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior and Organization, 1,* 39-60. http://dx.doi.org/10.1016/0167-2681(80)90051-7

Tversky, Amos & Daniel Kahneman. (1992). Advances in prospect theory: cumulative representation of uncertainty. *Journal of Risk and Uncertainty, 5,* 297-323. http://dx.doi.org/10.1007/BF00122574

Tversky, Amos & Daniel Khaneman. (1991). Loss aversion in riskless choice. *The Quarterly Journal of Economics, 106*(4), 1039-1061. http://dx.doi.org/10.2307/2937956

U.N. Secretary-General. (2011, March 31). Report of the U.N. Secretary-General. Retrieved from http://www.un.org/News/dh/infocus/Sri Lanka/POE_Report _Full.pdf.

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

The Role of Emotional Intelligence on Workforce Agility in the Workplace

Zare Zardeini Hosein[1] & Ahmad yousefi[2]

[1] Department of Management, Ferdowsi University of Mashhad, Mashhad, Iran

[2] Department of Management, Allameh Tabataba'i University, Tehran, Iran

Correspondence: Zare Zardeini Hosein, Department of Management, School of Administrative & Economic Sciences, Ferdowsi University of Mashhad, Mashhad, Iran. E-mail: hzare622@gmail.com

Received: May 12, 2012 Accepted: July 2, 2012 Online Published: July 16, 2012

doi:10.5539/ijps.v4n3p48 URL: http://dx.doi.org/10.5539/ijps.v4n3p48

Abstract

This study is investigating the relationship between emotional intelligence and agility of the workforce in order to determine how indicators of emotional intelligence facilitate the agility at the individual level. Statistical Population of this study includes managers, supervisors and staffs of food companies and the simple random sampling method is used. Data has been analyzed by using hierarchical regression statistical methods and comparing average. The survey results have showed that emotional intelligence factors have an impact on workforce agility. The results also have revealed that factors which are related to interpersonal competence (Self-awareness, self-control and self-motivation) have more effects on the agility than factors which are related to social competence (empathy and relation management) and have a greater role in workforce agility changes. Use of the results of this survey in the selection and training of human resources help to create appropriate environment for changing management and organizations movement to agility.

Keywords: emotional intelligence, agile manufacturing, agile workforce, agility, change

1. Introduction

Instability and continuous changes in the workplace have caused difficulties for organizations success and have threatened their survival. This situation has forced organizations to reconsider their goals and strategies and emphasize on quick response to market needs. Organizations' efforts in achieving these goals, have created and introduced one of the latest organizational concepts named Agile Manufacturing in recent years (Ganguly et al., 2009).

The Agile Manufacturing approaches of organizations tries to achieve maximum flexibility in order to make appropriate responses to changes in the product market and consumers' needs, and also make the organization to be known as a pioneer organization by innovating and creating new changes in the market. Organizations access to this flexibility needs agility in all aspects such as strategy, technology, infrastructure and human resources. Among these aspects, various studies have considered the effective adaptation of worker as the most important factor in agility. Dependence of Agile manufacturing efficiency to mental effort, skills, knowledge and attitude of people, and also its high investment in human resources have lead the agile workforce to be the determining factors in success of agile manufacturing system (Sherehiy et al., 2007).

Studies about agility have emphasized the operational and mechanical aspects of workforce agility. These studies have tried to consider the impact of reward and empowering on agility and they also have tried to increase the quick and effective adaptation of workforce to changes by designing flexible work stations and using advanced and multi task machinery (Kathuria, and Partovi, 1999; Oyen et al., 2001; Hopp et al., 2004; Sumukadas and Sawhney, 2004; Pinker et al., 2010). However, these factors have important role in workforce agility, but in these studies, inherent ability of people such as psychological features, which have important role in human performance, changes management and organizational development have been refused.

Emotional intelligence is one of the psychological features that have been considered in this study. Since emotional intelligence is an important factor in the efficiency and effectiveness of the workforce, recognizing and using the effects of emotional intelligence can help to agile manufacturing systems (Nikolaou and Tsaousis, 2005). Moreover, the change and the instability of agile manufacturing system increase sentimental tensions and

the inability of the workforce in decreasing and managing these tensions, can make unpleasant effects on their agility (Vakola et al., 2004). Recognition and use of Emotional abilities effects can help the agility of organizations and prepare a competitive situation for them. Therefore, with a different regard to workforce agility and considering relationship between Emotional intelligence standards and workforce agility, this research is trying to reveal how standards of Emotional intelligence can facilitate agility of organizations at the individual level.

1.1 Agile Manufacturing

The concept of agile manufacturing has been created and entered to the production literature by a group of researchers from Laccoa organization and Lehigh University in order to represent important factors and aspects of manufacturing and also the importance of the environmental changes role in organizations' success.

After agile manufacturing concept has been represented, lots of researchers have attempted to offer general definition of agility of organization and different definitions entered to literature of production. Goldman (1995), defines the agility in production as the ability of beneficial activity in a competitive environment with continuous and sudden changes in customer's requests and preferences. In Gunasekaran's opinion (1998), an agile organization is the one, which can react to sudden and unexpected changes efficiently. Yusuf and partners (1999), define the agility as an ability of obtaining competitive factors (speed, inflexion, innovation, productivity, quality and profitability) by incorporating resources and broadly identifying the environment in order to represent favorable production to customers in competitive market with rapid changes. Menor and partners (2001), define producing qualified product, cost efficiency and creating flexible structure that can reply to inside and outside changes suitably as the bases of organization agility. Ashrafi and his partners (2005), explain the organization agility as an ability of feeling environmental changes and efficient and effective reply to this change. Different definitions offered for agility, represent that the concept of agility is mostly defined as organization's ability to identify environmental changes and rapid reply to customers and beneficiaries by incorporating of resources, process and strategy (Zhang, 2011).

Studies about agility mostly include researches that concentrate on using agility providers and offering a frame to run agile manufacturing system. To determine the most important elements and agility providers some of these frames are being investigated.

In Goldman and his partner's opinion (1990) four strategic dimensions including customer, structure, communications, human and physical resources are important in order to get the ability of agility. According to their opinion, organizations should pay special attention to customers' wants and needs and also their received value of products. In addition, organizations cooperation and communication with other companies in representing products to market and innovation and flexible organization structure help the organization in its agility. In Goldman and his partner's opinion, ability of organization in responding to changes is possible when organization's physical and human resources are organized suitably and individuals motivation and creativity are noticed.

Meredith and Francis (2000) divide agility providers into four categories including process, guideline, communications and human resources. In their point of view these four dimensions are connected to each other, all of them would be necessary to reach agility, and if one of them is neglected, organization agility will be weakened.

According to Jackson and Johansson opinion (2003), ability of changing the product, coordinating organization's units, coordinating and collaborating organization with customers and suppliers and having skills are the methods and tools required to modify those things, which are important in organization agility for the organization. They believed competent persons and knowledge are the basic of all the actions to reach agility and individuals' learning, creativity and entrepreneurship can suitably provide changes for organizations.

The most comprehensive and the most famous presented framework in agility literature is the model of Sharifi and his partners (2001). In this model, four aspects of agility include agility stimulants, strategic abilities, agility abilities and agility providers have been studied. The agility stimulants are the features of organization external environment, which cause the environmental uncertainty and force the organization to make changes and adapt with environment. The strategic abilities include quick adaption, responding and flexibility, which have been represented as the most important features for an agile organization. The agility providers are strategies, technologies, innovation and human resources of organization, which provide the base of organization agility by affrication and good management.

Reviewing of these presents frameworks in agility shows that the agile workforce are an important element in

achieving the internal agile manufacturing system of organization, and cooperation and collaboration of human resources is the key of agile organization success. The special attention to human resources of organization, Recruitment of competent staff and efforts in increasing their abilities and talents are the most important factors in organizational changes and they can increase the agile organization success.

1.2 Agile Workforce

Agility as a word means a quick and simple method movement (Ganguly et al., 2009) and the agility of workforce is the flexible, quick and efficient agility of workforce in a variable environment (Forsythe, 1997). Agile workforce is the most part of an organization in achieving the agile organization and inattention to this factor causes the weakness of organization agility. Cooperation, allegiance and capability of individuals are the base of an organization and use of skills, knowledge, acuteness, experience and intelligence of them for having the organizational capacity are key and important challenges in achieving organizational agility (Meredith and Francis, 2000).

Agile workforce help the organization use the flexible technology efficiently and provide a situation for changes in technology and methods. Agile workforce also help the organization act competitive in costs, quality, and the time of delivering and production diversity aspects and provides situation for better services to customers and frugality in organization (Plonka, 1997).

In the opinion of Hopp and Van (2004), the agile workforce can affect on four strategic purpose includes costs, time, quality and diversity and can help the organization in achieving agility. The Agility of workforce decreases the costs in three ways. First, Agile personnel have high efficiency because of their high flexibility and can do more activities in less time and they can reduce costs. Second, Increase in organization flexibility as a result of agile personnel decrease the investment in inventory and reduce the manufacturing costs. Finally, the cooperation of agile personnel makes the synergy in organization and duties will be done with higher quality and less costs. The Agility leads the personnel to do their duties faster and decrease lost time and production cycle. Decrease in time and production cycle deviations give the organization more time and provide situations for more secure delivery of products. The agility of personnel leads the internal quality to be better (decrease in loses and redoing) and external quality (providing the wants and needs of customers) and help the organization in competition. Personnel agility increase the flexibility in production and help the organization include a wider range of products diversity and represent them to customers. A Professional and multi task personnel makes them be able to displace and leads the organization to increase its diversity of production system (Hopp and Van 2004).

Having special features and abilities is necessary for workforce agility. Last studies in the literature represent different features and abilities of agile workforce. Positive attitude of Learning and empowering, the ability to creative solving of problem, positive attitude to organizational changes, giving creative comments and correct performance of the new responsibilities, are qualities which agile individuals have them, based on Plonka (1997) opinion. Gunasekaran (1999) thinks that active workforce in agile manufacturing system must have Skills related to information technology, efficient participation in team works, and the capability to work with modern technologies, and also know the techniques of negotiation and have the ability of performing different duties inside the organization.

In Dyer and Shafer (2003) opinion, representing three kinds of behavior include proactive behavior, adaptive behavior and production behavior by personnel can help the organization agility. In proactive behavior, people try to have an effective role in organizational success by using opportunities, new events and their creativity. Adaptive behavior needs to perform different roles in the organization. In adaptive behavior, people do different tasks and cooperate with internal parts and projects of organization. In production, behavior people learn new competences and abilities and train these competences to their colleagues by representing knowledge and information.

Griffin and Hesketh (2003) have presented an adaptability framework in work environment, which includes three kind of behavior: proactive, Reactive and Tolerant behavior. In their opinion, in individual proactive behavior, people make a positive effect on changed environment and it includes the behaviors such as creativity in solving the problems, overcoming the stress and adapting with crisis. In Reactive behavior, people change themselves to have better adaption with environment and it includes the behavior such as efforts for learning, physical adaptability, cultural adaptability and coordination with colleagues. In Tolerant behavior, the person tries to overcome the uncertainty, and decrease their stress and anxiety.

Sherehiy and his partners (2007) have considered the agile workforce features and have reviewed the conducted studies in this area. They based on the models of Griffin and Hesketh (2003) and Dyer and Shafer (2003),

identified the most important attributes of agile workforce. Participation in organizational changes; personal creativity and innovation; adaption with people who have different professions and jobs; adaption with people who have different cultures; positive attitude to change; positive attitude to new technologies and comments; dealing with unpredictable situations; flexibility and dealing with stresses are the features that Sherehiy and his partners thinks that agile workforce have them.

1.3 Emotional Intelligence

Salovey and Mayer (1990) used emotional intelligence as a social intelligence with a different meaning from mental intelligence for the first time. Based on the Salovey and Mayer definition emotional intelligence is a kind of social intelligence, which enables people to examine the emotion and use the results for conducting thoughts and deeds. In 1997, Mayer and salovey have represented their emotional intelligence by revising in this definition. In this model, emotional intelligence was defined as the individualist ability in correct perception and evaluation of emotions, ability to facilitate thoughts by emotions and ability to adjust emotion for enhancement of emotional as well as mental growth (Mayer and salovey, 1997).

Another intelligence model was proposed by Bar-on (1997). Bar-on has defined emotional intelligence as a collection of competence and skills, which influences the success of a person under environmental pressures. Bar-on has distinguished between five different areas: interpersonal, intrapersonal, flexibility, managing stresses and overall mood. In each of these areas, there are specific skills, which Bar-on has considered them as emotional intelligence.

Although the concept of emotional intelligence was into literature by Mayer and salovey, but its fame is because of the Goleman efforts. Goleman (1998) represented his theory inspired by results of Mayer and salovey and he used his theory in working environment. Based on Goleman definition, emotional intelligence is the capacity to recognize our own feelings and those of others, for motivating ourselves, and managing emotions well in us and in our relationships. Goleman has proposed a model of emotional intelligence, which includes five domains of self-awareness, self- control, self- motivation, empathy and managing relations. In this category, Goleman relates three first parts of emotional intelligence to the internal competences and relates two next parts (Empathy & relation management) to the intrapersonal skills (Goleman, 2000).

The main difference between the Goleman theory & the other theories of Emotional intelligence is that Goleman based his model on the functional theories and his theory is provided for working environment. Therefore, this model has this application to be used in the working environment & make it possible to predict the organizational efficiency and get the organizational competences.

In the last years, a lot of attention has been paid to Emotional intelligence as an effective fact on the organizational behaviors. And a different studies has been focused on the role of Emotional intelligence in organization & how the Emotional intelligence can predict the behaviors which is related to work such as efficiency, stress management ,attitudes to changes, job success, conflict management & the leading power .

1.4 Research's Hypothesis

The importance & role of the Emotional intelligence in the working environment is undeniable. In the Goleman's idea, the importance of Emotional intelligence in the people's success in the working environment is higher than the ordinary intelligence so that 80% of people's success is depended on that.

Researches show that people with high emotional abilities has a more effective operation (Thilam and Kirby 2002), has successful way of working (Weisinger, 1998) and face to less job insecurity feelings (Jordan et al., 2002). People with high Emotional intelligence match better with organizational events and they are more successful in adaptability with the organizational changes (Insead, 1999). Also these people have suitable attitudes to organizational changes (Vakola et al., 2003) & they have more adequate operation in facing to the organizational conflict & stress (Nikolaou and Tsaousis 2005).

In the Fiol and O'Connor (2002) ideas, the emotional ability is the base of Human's tolerance & adaptability with the sudden changes. According to the Mayer and salovey's idea (1990) the Emotional intelligence makes the flexible programming, easy, improve the decision making process and facilitate the people's creativity and help people do their challenging and variable duties. Huy (1990) says that the Emotional intelligence is a very important fact in facing rapid changes and it is a key factor which determines the success or failure in organizational changes programs. Gabel and his partners (2005) determine the Emotional intelligence as an important fact in facing to culture, procedure and new policies and they believe that the high Emotional intelligence helps people in new operations and provide the careers needs. George and Jones (2001) say that adequate emotional reactions, recognition, and perception of emotion can create the necessary condition for

facing appropriately to organizational changes. According to the Mossholder and his partner's (2000) theory, emotions have a very important role in the organizational changes and creating a positive situation in the organization to help the workforce to understand the emotions and regulate the emotional turmoil, and adapt with changes.

Although the emotional intelligence has not been studied in literature until now, but it can be inferred that the difference in emotional intelligence of individuals can lead to the differences in agility which shows the ability of flexible, quick and efficient movement of individuals in variable environment of organization. Therefore, in this study the assumption of the relation between the factors of emotional intelligence (self-awareness, self-control, self-motivation, empathy and relations management) and workforce agility has been examined.

Goleman determines the self-awareness as the base of the other elements in Emotional intelligence and defines it as the clear perception of the emotion. Feelings, weaknesses and strengths, needs and tastes. People who have higher levels of self-awareness have higher abilities and self esteem because they know their abilities. The people with self-awareness have more abilities in controlling and managing the events, they are accurate in their jobs. Their hopes are not unrealistic. In addition, they accept the responsibilities which are in their power. These people are honest with themselves and others and they know the effect of their emotion on themselves and others. they refuse violence and unfair critical. Because of All features, it has been supposed in this research that higher Self-awareness leads to more agility inside the organization (Goleman, 2001; Sunindijo et al., 2007).

***H_1**: self-awareness has a positive impact on workforce agility*

Self-control means choosing the manner of expressing emotions, which can simplify the flow of thinking. Persons with the high self-control ability can control their negative emotions in hard and oppressive condition and they are able to regulate and modulate their negative emotions like disappointment anxiety and angriness. These persons face with fewer problems in their life and if any problem happens, they can return from that problematic and oppressive condition to good condition quickly. Self-control also helps people present rational decisions and judgments and makes them be able to endure with ambiguities and uncertainty. According to these features in this study, it has been supposed that more self-control leads to more agility inside the organization (Goleman, 2001; Bar-on, 1997).

***H_2**: self-control has a positive impact on agility of workforce*

Self-motivation means the attention to values and interests in the side of access to individual goals and using them to improve the function and depositing the problems. The Self-motivated persons are more efficient in doing their tasks and they are hopeful and optimist though disappointment exists. They are result oriented and there are a lot of motivation in them to achieve the goals and standardizes. For this reason, it has supposed in this research that high Self-motivation leads to more agility in inside the organization (Goleman, 1998_b, 2001; Jordan et al., 2002).

***H_3**: Self-motivation has a positive influence on agility of workforce*

In Golman opinion empathy means understanding the emotions of others and using appropriate behavior and doing their interests reaction. Empathy leads person to be familiar with others behavior which show their needs and wants and understand them. The sympathetic persons have responsibility to others and respect their feelings. They show their interest in communications and activities. These people respect others opinions and they do not refuse them in their activities. According to these features, it has been supposed in this research that Sympathetic people inside the organization have more agility (Goleman, 1995, 1998_b; Sunindijo et al., 2007).

***H_4**: Empathy has a positive influence on agility of workforce*

Social skill means ability of having influence on others emotions. Social skill is a necessary ability for communicating with others. These people can have widespread communicate and they can solve problems and conflict with others. Social skill gives this ability to person to reinforce other's abilities with feedbacks and guidance, encourages, and motivates others. People with social skill are not inactive in variable environment and they have ability to invent and manage new methods. These people understand the significance of cooperation and coordination in working environment and they are active in-group works. According to these features in this research, it has been supposed that high social skill leads to more agility inside the organization (Goleman, 1995,1998_b; Klem and Schlechter, 2008).

***H_5**: social skill has a positive influence on agility of workforce*

Also in this research, it has been tried to compare the influence of interpersonal factors with intrapersonal factors of emotional intelligence. The interpersonal competences have more important role in of emotional intelligence

effect on social people life. Management literature gives lots of attention to this intelligence. These competences help individuals to perform better in compare with the intrapersonal competences have and have higher importance (Kunnanatt, 2008). In the opinion of salovey and collaborators, (2000) recognition and management of emotion are the most important features of emotional intelligence that can determine the emotional ability of people.

According to these discussions in this research, we assume that the interpersonal competences which shows the ability of person in understanding and managing emotions and feelings, have more effects on agility comparing with intrapersonal competences which shows the ability of communications and interactions with others.

***H_6**: Interpersonal competences like self-awareness, self-motivation and self-control explain the changes in workforce agility more than intrapersonal competences*

Personal Variables

There have not been any researches in personal and agility variables until now. In this study, we are trying to consider the impacts of job record, organizational position and education level on agility and control them in order to increase the funding.

Sumukadas and Sawhney (2004) have revealed that high awareness and training of staffs have a positive effect on agility. Iverson (1996) in his studies has proved the relation between job record and having positive feelings about organizational changes. Kathuria and Partovi (1999) has concluded that experienced and educated managers insist on flexibility more and they try to make diversity in their products, adapt the product to consumers ' needs , and make quick changes. Cordery and partners (1993) in their survey have revealed that there's a positive relationship between educational level of staffs and accepting changes. Vakola and partners (2003) have also revealed that there is a positive relationship between educational levels and positive feelings of staffs about organizational changes and their corporation with organizational changes. Therefore, in this study it has assumed that:

***H_7**: There is a positive relation between job record and people agility.*

***H_8**: There is a positive relation between educational level and people agility.*

Positions of people in high levels of organization lead them to connect with organizational problems and be more motivated. Being in high levels of organization gives people more information about organization and environment and understands the necessity of organization's adaptability and changes. Staffs of high levels of organization may also more participate in editing organization's plans. Consequently, they may understand the goals and expected results of organization's plan and within these plans, they would try more (Sumukadas and Sawhney, 2004). Thus, in this study we assume that the staffs of high levels of organization are more agile and they try to cause changes and lead the organization to agility.

***H_9**: There is a significant difference between agility grades of staffs of different organizational positions. (Staff of high-level positions got better grade in agility)*

2. Research Method

This survey has been occurred in food companies of east Iran .Many successful companies work in this area. The statistical population of this research is managers, supervisors and administrative staffs of firms which have diversity in their productions and their staffs are more than 50 persons. The sample Size has been obtained from average distance estimation method and this equation:

$$n = \frac{z_{\frac{\alpha}{2}}^{2} \sigma_x^2}{\varepsilon^2}$$

In order to estimate the standard deviation a primary sample with 30 members has been used and the standard deviation has been calculated which equaled to 0.147. Confidence level for this survey is 95% and the error level is 5%.

A 225 members sample has been selected by random sampling from 22 firms .In order to collect the questionnaire the researches referred to the firms and the questionnaire have been filled. Researches visited the firms and distribute and collect the questionnaire .500 questionnaires have been distributed and the response rate has been obtained as 56%.

In this research the statistical software, SPSS, has been used for data analysis and Pearson correlation coefficient, hierarchical regression and comparing average have been used for testing research hypothesis.

For measuring the emotional intelligence, the questionnaire designed by Weisinger (1998) has been used in this research. This questionnaire has an appropriate validity and its stability has been proved in Yost and partners study (2001), Yost and Tucker study (2000), and Myers and Tucker (2005). This questionnaire includes five factors: self-awareness, self-control, self-motivation, Empathy and relation management based on Likert 5 scale and consist 25 questions.

The Weisinger questionnaire was used for two reasons. First, in widespread studies with high number of samples, use of more valid and shorter questionnaire is more beneficial (Carmeli, 2003). And Second, this study was occurred in organizational environment and this questionnaire is appropriate for this goal (Weisinger, 1998).

However, different features of agile workforce have been represented in agility literature, but few numbers of studies has measured the agility of workforce. In order to design the workforce agility measuring scale, the features represented by Sherehiy et al. (2007) have been chosen and the questionnaire has been designed base of them. The studied by Frese et al. (1997), Musteen et al. (2006) and Pulakos et al. (2002) help designing the questionnaire. The scale used in this questionnaire, is Likert 5 scale and includes 25 questions.

The validity of questionnaire was evaluated based on Cronbach's alpha coefficient. The alpha for emotional intelligence and agility are 82% and 80% that highlight the validity of questionnaire.

In the head of the questionnaire, the questions about personal variables are placed. Questions about educational levels and organizational position are multi option and the questions about job record are single option. Options of educational level are: Diploma (1), Associated Diploma (2), Bachelor of Science (3) and Master of Science (4). Options of organizational position are administrative personnel (1), supervisor (2) and manager (3). The respondents have determined their job records with year.

3. Results

In order to examine the relationship between variables, correlation analysis was performed. Correlation analysis results are shown in Table 1. This table shows all the factors of emotional intelligence (self-awareness, $p \leq .01$, $r = .534$; self -motivation, $p \leq .01$, $r = .652$; self-control, $p \leq .01$, $r = .541$; empathy, $p \leq .01$, $r = .609$; Social skills, $p \leq .01$, $r = .592$) have a positive relation with workforce agility and the first 5 assumptions are consistent with the results of research. In addition, the correlation analysis shows that the education level of employees linked with their agility but denies the relationship between job record and workforce agility .so the assumption H_7 is denied and the assumption H_8 is accepted.

Table 1. Correlation analysis results

variable	min	SD	1	2	3	4	5	6	7
1. job record	9.69	7.95							
2. educational level	2.23	.99							
3. self-awareness	21	2.46	-.038	.11	1				
4. self-control	18.9	3.32	.017	-.005	.415	1			
5. self -motivation	19.9	3.02	-.011	.086	.521	.593	1		
6. empathy	19.1	2.94	.028	.044	.371	.476	.531	1	
7. Social skills	20.9	2.41	.044	-.023	.463	.301	.488	.467	1
8. agility	85.23	9.5	-.021	.173*	.534**	.541**	.652**	.609**	.592**
$P^* \leq 0.05$, $p^{**} \leq 0.01$									

Mean contrast test has been done in three levels In order to examine whether the agility grade of people in managerial, supervisory, and administrative is different or not. The test results are shown in Table 2. The significant test in mean difference of agility variable in management and supervisory and administrative levels showed that there are differences between the grade of these three levels (sig =.035). Therefore, the assumption, which states that grades of agility are identical, would be refused. This test also shows that with the possibility of 99%, there is a linear relationship between agility and organizational position (sig =.01) so the assumption H_9 is accepted.

In order to check that which of the emotional intelligent factors can predict the changes of the grades of

workforce agility, the hierarchical Regression has been done. Because the results of correlation analysis and the mean comparison test has proved the relation between educational level and organizational position with the agility of workforce, in this test educational level and organizational position have been used as the control variable. Therefore, at the first step of the Regression test these two variables have entered to the model. After that in order to check assumption H_6, the interpersonal factors have been used and influences of them have been controlled. Finally, the intrapersonal factors have been entered into the model. The results of the Regression analysis are shown in the table 3.

Table 3 shows that all of the emotional intelligent factors predict the changes of the agility and have positive effect on the agility. Therefore, the results of the Regression analysis underscored H_1, H_2, H_3, H_4 and H_5 assumptions. The equation of the hierarchical Regression analysis that we can compute the score of the agility of work power using the scores of emotional intelligent components via it is the following.

$$Y=13.3+.53x1+.44x2+.716x3+.733x4+1.038x5$$

In which Self-awareness X1, self-control X2, self-motivation X3, Empathy X4 and X5 is social skill.

Table 2. Result of mean contrast test

				Sum of Squares	df	Mean Square	F	sign
Agility & Position	Between Groups	(Combined)		602.107	2	301.054	3.403	.035
		Linearity		593.649	1	593.649	6.710	.010
		Deviation from linearity		8.458	1	8.458	.096	.757
	Within Groups			19287.12	223	88.473		
	Total			19889.23	225			

Finally, the comparison of model determining coefficient changes in entrance of interpersonal and intrapersonal competence (stage 2 & 3) shows that changes of model determining coefficient would be more by entrance of interpersonal competence and confirms the assumption H6 results ($\Delta R2 = .483 > \Delta R2 = .103$ and Sig =.0).

Table 3. Result of hierarchical Regression

stage	Variable entered	Model variables	α amount	sig	R^2	β amount	sig	ΔR^2 amount	sig
1	Organizational position	Organizational position	1.75	.047	.32	81.06	.00	.32	.029
	Educational level	Education	.504	.48					
2	self-awareness Self-control	Organizational position	1.3	.04	.515	27.78	.00	.483	.00
	Self-motivation	Education	9.54	.85					
		self-awareness	.93	.00					
		Self-control	.55	.001					
		Self-motivation	1.26	.00					
3	empathy social skill	Organizational position	.79	.16	.618	13.3	.002	.103	.00
		Education	.49	.29					
		self-awareness	.53	.01					
		Self-control	.44	.005					
		Self-motivation	.718	.00					
		empathy	.733	.00					
		social skill	1.038	.00					

4. Argument and Discussion

In this research, the relationship between workforce agility and emotional intelligence factors has been

considered. The result of the research revealed some important elements. First, the emotional intelligence interpersonal and intrapersonal features have a positive impact on agility. Secondly the interpersonal features of emotional intelligence, explains the agility changes more than intrapersonal features. Finally higher level of organizational position and education lead to higher agility.

There has not been any study about the relationship between education and agility until now. But there are some investigations in the literature of changing management which is compatible with the conclusion of this research that accept the relationship. Cordery and his partners (1993) have shown that there is a positive relationship between the education of personnel and accepting organizational changes, and express that personnel with higher level of education have more opportunities for learning and applying the skills, and so they are more able to response the new necessities and adapt with the challenges of changes. This result adapts with the sequences of Kathuria and Partovi (1999) who demonstrated relationship between education of managers and they attempt for achievement of quick changes, increasing production variety and increasing flexibility. In addition, this result adapts with Iverson (1996) issues. He showed that training the personnel causes increasing their flexibility, conformity and impress their partnership in organization changes.

This research showed that situation in organization is a determining factor in agility. So that, managers are more agile than supervisors and administrative personnel are lower than supervisors viewpoint agility. Sumukadas and Sawhney (2004) demonstrated in their research that personnel partnership in organization affairs and their information about internal and external problems of organization increase the agility. Via the partnership of workforce in top level of organization is more and they have a better knowledge about the organization and its external environment, so they understand the necessity of organization Compatibility and organizational changes better than the others, and they try more to achieve the goals of programs. The results of this study adapt with the discussions in Sumukadas and Sawhney research.

In this study, the relationship between the job record and workforce agility is rejected and this result is different with the results found in Kathuria and Partovi (1999) study, which confirm the relation between job record and flexibility and corporation of workforce. Management Inconstancy is a possible reason for this difference. So that, in this research near 50% of respondents have worked less than 7 years and the average and standard deviation of managers job records is 8 and 6.5. The short term and medium term changes in top manager level lead the people with low job record to work in high and intermediate level of firms and influence the research results. Another justification for this result can be the type of firms and policies and their different criteria about personnel promotion and determining organizational post.

The results of this study have revealed the positive impact of self- Self-awareness on workforce agility. It shows that the awareness of emotions, goals, strengths and weaknesses and logic and honesty of self conscious persons enable them to response reasonable to organizations' wants and needs and have more motivate and ability in represent behaviors and activities proportional with agile organization atmosphere.

According to study results, more ability in self-control leads to more workforce agility. This result is compatible with abilities of self-control people. Regulating the negative and factious emotions, getting along with changeable situations, overcoming the barriers, making decisions and negative judgments, overcoming the ambiguities and reliability, innovation in use of opportunities, optimism and perception of organizational events philosophies are some abilities of self-control people, which can help the agility of person.

The study has revealed that self-motivation has a positive impact on workforce agility. It is argued that efficiency, effective performance, high self-confidence, optimism and high motivation for achieving the goals and standards of self-motivated persons, make them more agile in organization.

This study has proved the positive impact of intrapersonal competence (empathy and social skill) on workforce agility. Intrapersonal competences determine the ability of people in relation management and appropriate interaction with others. Amenability of sympathetic people and respect to others emotions, attitudes and opinions and perception of their needs and wants, justify the sympathetic people's agility. In addition, the ability of widespread relations, solving the disagreements and incompatibility, act in changeable environment, innovation, management in new methods and corporation in work groups make the people with social skills more agile.

Changes and ambiguity in environment cause stress. Stress and anxiety have the most negative impact on the operation and behavior of workforce. The ability of emotion recognition and management help individuals overcomes their stress and anxiety (Vakola and et al., 2003). Salovey and partners (2000) have introduced the recognition of emotions and their management as the fundamental ability of emotional intelligence, which can determine the emotional ability. According to Goleman opinion, recognizing and managing the emotions is the base of emotional intelligence and this competence is the most helpful thing for a person in social life. According

to Kunnanatt opinion (2008), interpersonal competences are more important than intrapersonal factors and it has more important role in the effects of emotional intelligence on social life. The results of this study are compatible with these discussions and they show that the competence of self-consciousness, self-control and self-motivation have more effect on workforce agility than competence of empathy and social skills.

Practical application of these results in employment and personnel training can help organization agility at individual level a lot and provide the field to establish an agile manufacture system in organizations. Use of emotional intelligence criteria in personnel selecting and recruiting not only can predict right performance and individuals' competence, but also help the organization select right persons. In order to measure emotional intelligence of volunteers, interviews should be done in addition to use of quantitative scales. Using interviews in assessment of emotional intelligence can increase the chance of success in recruiting personnel with high emotional ability (Blank, 2008).

Therefore, the emotional intelligence is an inherent ability and the genes have important role in its creation, but emotional intelligence can grow by training and it needs many efforts and practices (Goleman, 2000). There is no standard method for teaching emotional intelligence in the world but one useful method has been accepted that individuals improve their emotional intelligence by passing six stages including emotional mapping, emotional recognition, emotional acknowledgment, emotional guidance, making empathy and social effects. If the individuals pass these stages, successfully their emotional intelligence structure changes in a noticeable way and their interpersonal and intrapersonal competence of emotional intelligence improves. Using this method is also useful for organizations and helps them to improve their employee's emotional capabilities (Kunnanatt, 2008). In addition to this issue, controlling stress and sadness, controlling depression, anxiety management, anger management, problem solving skills and assertiveness can help organizations improve and increase their employee's emotional capabilities (Carr, 2004; Vakola and et al., 2003).

We faced some limitations during conducting this research. If this research was being done in companies with higher changes like computer accessories production companies, the results have had a high level of credit. Unfortunately, we did not have access to such companies. In addition, we did not have access to any information about prior behaviors and performances of the individuals who had confronted the changes and the plans of their own company. Having these kind of information, could have helped us determine agile individuals. Since in this research the data were collected by a single survey at a single point in time, the results may be influenced by common method bias.

References

Adeyemo, D. A. (2007). Emotional Intelligence and the Relationship between Job Satisfaction and Organizational Commitment of Employee in Public Parastatals in Oyo State, Nigeria. *Pakistan Journal of Social Sciences, 4*(1), 324-330.

Ashrafi, N., Xu, P., & Mathiyalakan, S. (2005). A framework for implementing business agility through knowledge management systems, In Seventh IEEE International Conference on E-Commerce Technology Workshops (CECW'05), Munich, Germany, July 19, 2005.

Bar-On, R. (1997). Bar-On Emotional Quotient Inventory (EQ-i): Technical Manual, Multi-Health Systems, Toronto.

Bar-On, R., Brown, J. M., Kirkcaldy, B. D., & Thome, E. P. (2000). Emotional expression and implications for occupational stress; an application of the emotional quotient inventory (EQ-i). *Personality and Individual Differences, 28,* 1107-18. http://dx.doi.org/10.1016/S0191-8869(99)00160-9

Blank, I. (2008). Selecting Employees Based on Emotional Intelligence Competencies: Reap the Rewards and Minimize the Risk. *Employee Relations Law Journal, 34*(3), 77-85.

Breu, K., Hemingway, S. J., Strathern, M., & Bridger, D. (2002). Workforce agility: the new employee strategy for the knowledge economy. *Journal of Information Technology, 17*(1), 21–31. http://dx.doi.org/10.1080/02683960110132070

Carmeli, A. (2002). A conceptual and practical framework of measuring performance of local authorities in financial terms: analyzing the case of Israel. *Local Government Studies, 28*(1), 21-36. http://dx.doi.org/10.1080/714004135

Carmeli, A. (2003). The Relationship between Emotional Intelligence and Work Attitudes, Behaviour and Outcomes: An Examination Among Senior Managers. *Journal of Managerial Psychology, 18*(8), 788-813. http://dx.doi.org/10.1108/02683940310511881

Carmeli, A., Halevy, M. Y., & Weisberg, J. (2007). The relationship between emotional intelligence and psychological wellbeing. *Journal of Managerial Psychology, 24*(1), 66-78. http://dx.doi.org/10.1108/02683940910922546

Carmeli, A., & Josman, Z. E. (2002). The Relationship among Emotional Intelligence, Task Performance and Organizational Citizenship Behaviors. *Human performance, 19*(4), 403-419. http://dx.doi.org/10.1207/s15327043hup1904_5

Carr, A. (2004). *Positive psychology.* New York, Brunner –Rout ledge.

Crocitto, M., & Youssef, M. (2003). The human side of organizational agility. *Industrial Management & Data system, 103*(6), 388-897. http://dx.doi.org/10.1108/02635570310479963

Cordery, J., Sevastos, P., Mueller, W., & Parker, S. (1993). Correlates of employee attitudes toward functional flexibility. Human Relations, *46*, 705-23. http://dx.doi.org/10.1177/001872679304600602

Cordery, J., Bartol, K. M., Mueller, W., & Parker, S. (1991). Mutli skilling: the views of public sector human resource managers. *Asia Pacific HRM, 29,* 79-89.

Dove, R. (1999). Knowledge management, responsibility, and the agile enterprise. *Journal of Knowledge Management, 3*(1), 18–35. http://dx.doi.org/10.1108/13673279910259367

Dove, R. (2001). *Response Ability: The Language, Structure and Culture of the agile enterprise.* Wiley, New York.

Dulewicz, V., & Higgs, M. (1998). Emotional intelligence: can it be measured reliably and validly using competency data? *Competency, 6*(1), 1–15.

Dulewicz, V., & Higgs, M. (2004). Can Emotional Intelligence be developed? *International Journal of Human Resource Management, 15*(1), 95–111. http://dx.doi.org/10.1080/0958519032000157366

Dyer, L., & Shafer, R. (2003). Dynamic organizations: achieving marketplace and organizational agility with people. In Peterson, R.S., & Mannix, E.A. (Eds.), *Leading and Managing People in the Dynamic Organization*. Laurence Erlbaum Associates, Mahwah, NJ.

Fatt, T. J. P., & Howe, I. C. K. (2003). Emotional Intelligence of Foreign and Local University Students in Singapore: Implications for Managers. *Journal of Business and Psychology, 17,* 345–67. http://dx.doi.org/10.1023/A:1022812308150

Fiol, C. M., & O'Connor, E. J. (2002). When hot and cold collide in radical change processes: lessons from community development. *Organization Science, 13,* 532-47. http://dx.doi.org/10.1287/orsc.13.5.532.7812

Forsythe, S. (1997). Human factors in agile manufacturing: a brief overview with emphasis on communication and information infrastructure. *Human Factors and Ergonomics in Manufacturing, 7*(1), 3–10. http://dx.doi.org/10.1002/(SICI)1520-6564(199724)7:1<3::AID-HFM1>3.0.CO;2-7

Fryer, J. S. (1974). Labor flexibility in multiechelon dual-constraint job shops. *Management Science, 20*(7), 1073- 1080. http://dx.doi.org/10.1287/mnsc.20.7.1073

Frese, M., Fay, D., Hilburger, T., Leng, K., & Tag, A. (1997). The concept of personal initiative: Operationalization, reliability and validity in two German samples. *Journal of Occupational and Organizational Psychology, 70,* 139-161. http://dx.doi.org/10.1111/j.2044-8325.1997.tb00639.x

Gardner, H. (1983). *Frames of Mind: The Theory of Multiple Intelligences.* Basic Books, and New York, NY.

Gabel, R. S., Dolan, S. L., & Cerdin, J. L. (2005). Emotional intelligence as predictor of cultural adjustment for success in global assignments. *Career Development International, 10*(5), 375-395. http://dx.doi.org/10.1108/13620430510615300

Ganguly, A., Nilchiani, R., & Farr, J. V. (2009). Evaluating agility in corporate enterprises. *International journal production Economics, 118,* 410-423. http://dx.doi.org/10.1016/j.ijpe.2008.12.009

George, J. M., & Jones, G. R. (2001). Towards a process model of individual change in organizations. *Human Relations, 54,* 419-44. http://dx.doi.org/10.1177/0018726701544002

Gilad, B. (1996). *Business Blindspots, second edition.* Tetbury: Infonortics.

Goleman, D. (1995). *Emotional intelligence.* New York: Bantam Books.

Goleman, D. (1998$_a$). *Working with emotional intelligence.* New York: Bantam Books.

Goleman, D. (1998$_b$). *Working with emotional intelligence.* New York: Bantam Books.

Goleman, D. (2000). Leadership that gets Results. *Harvard Business Review, 78*(2).

Goleman, D. (2001). An EI-based theory of performance. In C. Cherniss & D. Goleman (Eds.), *the emotionally intelligent workplace.* How to select for, measure, and improve emotional intelligence in individuals, groups, and organizations, San Francisco: Jossey-Bass.

Goleman, D., Boyatzis, R., & McKee, A. (2002). The new leaders: Transforming the art of leadership into the science of results. Time Warner Paperbacks.

Goldman, S. L., Nagel, R. N., & Preiss, K. (1995). *Agile Competitors and Virtual Organizations: Strategies for Enriching the Customer.* Van Nostrand Reinhold, New York.

Griffin, B., & Hesketh, B. (2003). Adaptable behaviors for successful work and career adjustment. *Australian Journal of Psychology, 55*(2), 65–73. http://dx.doi.org/10.1080/00049530412331312914

Gunasekaran, A. (1999). Agile manufacturing: a framework for research and development. *International Journal of Production Economics, 62,* 87–105. http://dx.doi.org/10.1016/S0925-5273(98)00222-9

Hallgren, M. (2009). Lean and agile manufacturing: external and internal drivers and performance outcomes. *International Journal of Operations & Production Management, 29*(10), 976-999. http://dx.doi.org/10.1108/01443570910993456

Holstein, W. K., & Berry, W. L. (1972). The labor assignment decision: an application of work flow structure information. *Management Science, 18*(7), 390–400. http://dx.doi.org/10.1287/mnsc.18.7.390

Hopp, W. J., & Van Oyen, M. P. (2004). Agile workforce evaluation: a framework for cross-training and coordination. *IIE Transactions, 36*(10), 919–940. http://dx.doi.org/10.1080/07408170490487759

Huy, Q. N. (1999). Emotional capability, emotional intelligence, and radical change. *Academy of Management Review, 24,* 325-45.

Insead, Q. N. (1999). Emotional capability, emotional intelligence and radical change. *Academy of Management Review, 24*(2), 325-345.

Iverson, R. D. (1996). Employee acceptance of organizational change: the role of organizational commitment. *The International Journal of Human Resource Management, 7,* 122-49. http://dx.doi.org/10.1080/09585199600000121

Jackson, M., & Johansson, C. (2003). Agility analysis from a production system perspective. *Integrated Manufacturing Systems, 14*(6), 482–488. http://dx.doi.org/10.1108/09576060310491342

Jordan, P. J., Ashkanasy, N. M., & Hartel, C. E. J. (2002). Emotional intelligence as a moderator of emotional and behavioral reactions to job insecurity. *Academy of Management Review, 27,* 361–372.

Kathuria, R., & Partovi, F. Y. (1999). Work force management practices for manufacturing flexibility. *Journal of Operations Management, 18,* 21–39. http://dx.doi.org/10.1016/S0272-6963(99)00011-X

Klem, C., & Schlechter A. F. (2008). The relationship between leader emotional intelligence and psychological climate: An exploratory study. *Journal of business management, 39*(2), 9-23.

Korkmaz, T., & Arpacı, E. (2009). Relationship of organizational citizenship behavior with emotional intelligence. *Procedia Social and Behavioral Sciences, 1,* 2432–2435. http://dx.doi.org/10.1016/j.sbspro.2009.01.428

Kumar Singh, D. S. (2004). Role of Emotional Intelligence in Organizational Learning: An Empirical Study. *Singapore management review, 29*(2), 55-74.

Kunnanatt, J. T. (2008). Emotional intelligence: theory and description A competency model for interpersonal effectiveness. *Career Development International, 13*(7), 614-629. http://dx.doi.org/10.1108/13620430810911083

Luthans, F. (2002). Positive organizational behavior: developing and managing psychological strengths. *Academy of Management Executive, 16,* 57-65. http://dx.doi.org/10.5465/AME.2002.6640181

Lyusin, D. B. (2006). Emotional Intelligence as a Mixed Construct. *Journal of Russian and East European Psychology, 44*(6), 54–68. http://dx.doi.org/10.2753/RPO1061-0405440604

Mayer, J. D., Caruso, D., & Salovey, P. (2000). Emotional Intelligence Meets Traditional Standards for Intelligence. *Intelligence, 27,* 267–98. http://dx.doi.org/10.1016/S0160-2896(99)00016-1

Mayer, J. D., & Geher, G. (1996). Emotional intelligence and the identification of emotion. *Intelligence, 22,*

89-113. http://dx.doi.org/10.1016/S0160-2896(96)90011-2

Mandell, B., & pherwani, S. (2003). Relationship between emotional intelligence and transformational leadership style: a gender comparison. *Journal of business and psychology, 17*(3), 387- 404. http://dx.doi.org/10.1023/A:1022816409059

Meredith, S., & Francis, D. (2000). Journey towards agility: the agile wheel explored. *TQM Magazine, 12*(2), 137-143. http://dx.doi.org/10.1108/09544780010318398

Menor, L. J., Roth, A. V., & Mason, C. H. (2001). Agility in retail banking: a numerical taxonomy of strategic service groups. *Manufacturing and Service Operations Management, 3*(4), 272–292.

Mossholder, K., Seton, R., Armenakis, A., & Harris, S. (2000). Emotion during organizational transformations. *Group & Organization Management, 25,* 220-243. http://dx.doi.org/10.1177/1059601100253002

Moon, T. (2010). Emotional intelligence correlates of the four-factor model of cultural intelligence. *Journal of Managerial Psychology, 25*(8), 876-898. http://dx.doi.org/10.1108/02683941011089134

Musteen, M., Barker, V. L., & Baeten, V. L. (2006). CEO attributes associated with attitude toward change: The direct and moderating effects of CEO tenure. *Journal of Business Research, 59,* 604 – 612. http://dx.doi.org/10.1016/j.jbusres.2005.10.008

Myers, L. L., & Tucker L. M. (2005). Increasing awareness of emotional intelligence in business curriculum. *Business Communication Quarterly, 68*(1), 44-51. http://dx.doi.org/10.1177/1080569904273753

Nikolaou, I., & Tsaousis, I. (2005). Emotional intelligence in the workplace: exploring its effects on occupational stress and organizational commitment. *International Journal of Organizational Analysis, 10*(4), 327–343. http://dx.doi.org/10.1108/eb028956

Oyen, M. P., Esma G. S., Hopp, W. J. (2001). Performance opportunity for workforce agility in collaborative and noncollaborative work systems. *IIE Transactions, 33,* 761-777. http://dx.doi.org/10.1080/07408170108936871

Palmer, B., Walls, M., Burgess, Z., & Stough, C. (2002). Emotional Intelligence and Effective Leadership. *Leadership and Organizational Development Journal, 22*(1), 5-10. http://dx.doi.org/10.1108/01437730110380174

Petrides, K. V., & Furnham, A. (2000). Gender Differences in Measured and Self-Estimated Trait Emotional Intelligence. *Sex Roles, 42*(5), 449-461. http://dx.doi.org/10.1023/A:1007006523133

Pinker, E. L, Hsiao-Hui, & Berman, O. (2010). Can flexibility be constraining. *IIE Transactions, 42*(1), 45- 59. http://dx.doi.org/10.1080/07408170903113789

Plonka, F. S. (1997). Developing a lean and agile workforce. *Human Factors and Ergonomics in Manufacturing, 7*(1), 11–20. http://dx.doi.org/10.1002/(SICI)1520-6564(199724)7:1<11::AID-HFM2>3.0.CO;2-J

Prahalad, C. K., & Hamel, G. (1990). The core competence of the corporation. *Harvard Business Review, 68* (3), 79-91.

Pulakos, E. D., Schmitt, N., Dorsey, D. W., Arad, S., Hedge, J. W., & Borman, W. C. (2001). Predicting Adaptive Performance: Further Tests of a Model of Adaptability. *Human performance, 15*(4), 299–323. http://dx.doi.org/10.1207/S15327043HUP1504_01

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality, 9,* 185-211.

Sharifi, H., Colquhoun, G., Barclay, I., & Dann, Z. (2001). Agile manufacturing: a management and operational framework. Proceedings of the Institution of Mechanical Engineers, Part B. *Journal of Engineering Manufacture, 215*(6), 857–869. http://dx.doi.org/10.1243/0954405011518647

Sharifi, H., & Zhang, Z. (1999). A methodology for achieving agility in manufacturing organizations: an introduction. *International Journal of Production Economics, 62*(1), 7–22. http://dx.doi.org/10.1016/S0925-5273(98)00217-5

Sherehiy, B., Karwowski, W., & Layer, J. K. (2007). A review of enterprise agility: Concepts, frameworks, and attributes. *International Journal of Industrial Ergonomics, 37,* 445–460. http://dx.doi.org/10.1016/j.ergon.2007.01.007

Slaski, M., & Cartwright, S. (2003). Developmental emotional intelligence training: implications for stress. *Health and performance. Stress and Health, 19,* 233–239. http://dx.doi.org/10.1002/smi.979

Suliman, A. M., & Al-Shaikh, Fuad N. (2007). Emotional intelligence at work: links to conflict and innovation. *Employee Relations, 29*(2), 208-220. http://dx.doi.org/10.1108/01425450710720020

Sumukadas, N., & Sawhney, R. (2004). Workforce agility through employee involvement. *IIE Transactions, 36*(10), 1011–1021. http://dx.doi.org/10.1080/07408170490500997

Sunindijo Riza Yosia, Hadikusumo Bonaventura H. W., & Ogunlana S. (2007). Emotional Intelligence and Leadership Styles in Construction Project Management. *Journal of management in engineering, 23*(4), 166-170. http://dx.doi.org/10.1061/(ASCE)0742-597X(2007)23:4(166)

Thilam, L., & Kirby, S. L. (2002). Is Emotional Intelligence an Advantage? An Exploration of the Impact of Emotional and General Intelligence on Individual Performance. *The Journal of Social Psychology, 142*(1), 133–143. http://dx.doi.org/10.1080/00224540209603891

Vakola, M., Tsaousis, I., & Nikolaou, I. (2004). The role of emotional intelligence and personality variables on attitudes toward organizational change. *Journal of managerial psychology, 19*(2), 88–110. http://dx.doi.org/10.1108/02683940410526082

Vinodh, S., Sundararaj, G., & Devadasan, S. R. (2008). Total agile design system model via literature exploration. *Industrial Management & Data Systems, 109*(4), 570-588. http://dx.doi.org/10.1108/02635570910948678

Vinodh, S., Sundararaj, G., Devadasan, S. R., Kuttalingam, D., & Rajanayagam, (2009). Achieving agility in manufacturing through finite element mould analysis. *Journal of Manufacturing Technology Management, 21*(5), 604-623. http://dx.doi.org/10.1108/17410381011046995

Weisinger, H. (1998). *Emotional intelligence at work.* San Francisco: Jossey-Bass.

Wong, C. S., & Law, K. S. (2002). The effects of leader and follower emotional intelligence on performance and attitude: An exploratory study. *The Leadership Quarterly, 13,* 243–274. http://dx.doi.org/10.1016/S1048-9843(02)00099-1

Yost, C. A., & Tucker, M. L. (2000). Are effective teams more emotionally intelligent? Confirming the importance of effective communication in teams. *Delta Pi Epsilon, 42*(2), 101-109.

Yost, C. A., Tucker, M. L., & Barone, F. (2001). Testing the structure of the Weisinger emotional intelligence instrument. Unpublished manuscript, The Ohio University at Athens.

Yusuf, Y., Sarhadi, M., & Gunasekaran, A. (1999). Agile manufacturing: the drivers, concepts and attributes. *International Journal of Production Economics, 62*(1–2), 33–43. http://dx.doi.org/10.1016/S0925-5273(98)00219-9

Zhang, Z. D. (2010). Towards theory building in agile manufacturing strategies-Case studies of an agility taxonomy. *International journal production Economics, 131,* 303-312. http://dx.doi.org/10.1016/j.ijpe.2010.08.010

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

When Home Isn't Home

--- *A Study of Homesickness and Coping Strategies among Migrant Workers and Expatriates*

Dieu Hack-Polay[1]
[1] Department of Management, London South Bank University, London, United Kingdom
Correspondence: Department of Management, London South Bank University, London, SE1 0AA, United Kingdom. Tel: 44-207-815-8256. E-mail: hackpod2@lsbu.ac.uk

Received: April 25, 2012 Accepted: May 16, 2012 Online Published: July 16, 2012
doi:10.5539/ijps.v4n3p62 URL: http://dx.doi.org/10.5539/ijps.v4n3p62

Abstract

This paper addresses, homesickness, an important issue in the area of international human resource management. It uses psychological and sociological literature to highlight the negative effects of homesickness on migrant workers and expatriates. These effects range from psychological disruptions to physical manifestations that affect the health and welfare of individuals and impact on work performance. The paper presents a model of coping strategies used by expatriates to deal with homesickness. This model is built on the empirical evidence collected. It concludes that there is significant amount of evidence found to substantiate that homesickness is an illness and detrimental to psychological and social well-being. It is crucial that further research is undertaken in this area as affecting expatriates because the size of the investment in expatriates commands that risks of failure are minimized.

Keywords: homesickness, migrants, expatriates, adjustment, multinationals

1. Introduction

Moving away from home has always led most people to feel homesick. Homesickness as a psychological state created by the prospect or the reality of social isolation continues to attract research attention. Much of the literature in international human resource management acknowledges that one of the key issues facing expatriates and international workers is related to adjustment to the new place. For instance Black, Mendenhall & Oddou (1991) identify a typology of adjustment difficulties formed of four major elements: individual factors, non-work factors, organisational factors and job factors. However, while issues of culture and the family occupy a central place, homesickness is not mentioned.

Homesickness is often covered in expatriate literature within the framework of culture shock, a connected but different psychosocial reality linked to displacement. The article draws on the literature and interviews with expatriates and migrant workers to show far reaching consequences of failure to tackle the problem. The first part provides a definition of homesickness and examines some theoretical models and attempts to differentiate it from culture shock; the second part considers the experiences of the expatriates and migrant workers interviewed to explain the manifestation of homesickness and its consequences in the host country. The unique contribution of this article to the literature resides in its contrasting of migrant workers' and expatriates' experience vis-à-vis homesickness and the development of a typology of copying paradigms.

Van Tilburg, Vingerhoets & Van Heck (1996, p.899) define homesickness as "the commonly experienced state of distress among those who have left their house and home and find themselves in a new and unfamiliar environment". The authors argue that homesickness is a big stressor which can cause ill-health in the people affected, e.g., "depression, deficiencies in the immune system, diabetes". The authors' claim is not isolated. Other scientists such as Ekblad (1993), Leff *et al*. (1970) and Weissman & Paykel (1973) found evidence to support claims that homesickness affects health. If homesickness affects people on the move, even the voluntary migrants, then there is strong probability that it could be more pronounced in expatriate populations. Indeed, the literature suggests that homesickness is common among displaced people and is an illness of socially disorientated and isolated people.

2. Literature Review

2.1 Homesickness as an Illness

As an illness, according to medical and psychological evidence, homesickness has tangible symptoms which are physical, cognitive and behavioural. Sufferers complain of gastric and intestinal pains, lack of sleep, headache, feeling of tiredness and some eating disorders. Baier & Welch (1992), Fisher (1989) and many others noted much evidence to support this claim. Examining the cognitive symptoms of homesickness, Fisher (1989) reveals that there develop in the displaced person obsessive thoughts about home and sometimes simultaneously negative thoughts about the new place. Fisher also identifies a state of absent mindedness in the people affected. There is a tendency to idealise home rather than revisiting the problems one encountered there before. The behavioural symptoms include "apathy, listlessness, lack of initiative and little interest in the new environment" (Van Tilburg et al., 1996, p. 903). A number of expatriate and migrant studies acknowledged that there are numerous and complex relationships between socio-cultural and psychological adjustment (Fisher, 1989; Lin 1986; Scullion & Linehan, 2005). The business consequences of such psychological, physiological and social anomalies are numerous and include lack of motivation, lack of team spirit and poor performance (Deresky, 2010). Omi and Winnant (2003) found similar consequences in a study of migrant populations in East Kentucky, in the United States. It should, however, be acknowledged that there may be elements related to personality and to the impact of the micro-environment in which the expatriates and labour migrants arrive. If the individuals' degree of psychological damage, as a result of displacement, is high and has deeply affected morale and perhaps personality, then they are more likely to display much of the pathological signs explained by Fisher and other psychologists. In addition, the extent to which the new environment in which the international assignee or the migrant lands is supportive determines the degree to which the newcomer experiences difficulties and the extent to which he or she feels homesick. Although most studies of homesickness have been conducted on other groups of migrants, not necessarily expatriates, given the above arguments it may not be unreasonable to attempt to speculate possible generalisations of the conclusions to international assignees and to the social environments in which they arrive. The cognitive and behavioural symptoms of homesickness are likely to lead to emotional problems such as low mood, lack of security, loneliness, nervousness, lack of control and depression.

The symptoms and effects of homesickness help to appreciate the magnitude of the problem, especially as it may affect long term international assignees and migrants. Expatriates may already be facing stress associated with their involvement in major ventures in the home country; in addition they may be facing the dilemma of whether to pursue their career within a MNC in their own home country or seek an international experience often seen as "fetishism" for a high flying career as a global manager or consultant. Further dilemma is faced by dual-career couples that may be worried about opportunities for the partner abroad or the security of their jobs on return. Such a 'psychological trauma' coupled with isolation and difficult conditions in the new environment could culminate into acute cases of homesickness. If support is not offered, then homesickness may contribute to protract their suffering. In such a case, integration and successful rebuilding of broken lives are in great jeopardy and could in turn affect the success of the international assignment as argued earlier.

Homesickness is often viewed as a periodic situation although in "severe cases these feelings are continuous" (Fisher *et al.*, 1984). The possibility of protracted period for homesickness enables to differentiate this condition from culture shock, whose life cycle may be shorter. While homesickness is view as a serious illness, culture shock is not always perceived in this way. Adler (1987) in particular rejects the association of culture shock with illness. The seriousness of homesickness is further indicated by its prevalence although it has been suggested that it is hard to assess prevalence of the 'disease' because of its periodicalness. Van Tilburg et al. (1996) contended that most people experience homesickness especially in the early days following departure and only grave experiences are reported spontaneously. Fisher *et al*., (1984) studied homesickness among boarding school pupils and they found that only 18 per cent of cases were reported. However, a deeper investigation in the same school revealed a prevalence rate of sixty to seventy per cent. This situation may translate the case of expatriates who fall within a field that is under-researched as asserted and substantiated earlier in this paper. The little attention paid to homesickness as a distinct condition in expatriate literature and, at the same time, there are the volumes of existing evidence that a significant number of international assignments end in failure (Briscoe & Schuler, 2004). Homesickness in expatriates and international workers could be a deeper and continuous process that should command more attention if the success rate in international labour transfers is to improve.

2.2 Theoretical Models of Homesickness

Models of homesickness developed by Fisher (1989) are similar to Lin's (1986) model of psychological and social disruption in forced migrants. Fisher drew five models to the ways in which homesickness affect people who are

away from their usual "home". The first, the *Loss and attachment model*, assumes that the separation of the person from his or her social and cultural networks is felt as a loss which sometimes turns into anxiety, grief and anger. If this is persistent, the feeling of loss aggravates to become apathy and helplessness (Van Tilburg, et al., 1996, p. 903). These latter consequences of homesickness in the loss model are what occasion a situation of dependency for the people affected and leads, in turn, to "depression, agoraphobia, two symptoms of home sickness" according to the authors.

The second model, the *Interruption and discontinuity model*, is based on the fact that a break in the way people used to lead their lives and fulfil daily routines can be an important stressor and the source of other negative emotions like fear, anxiety, and distress. The individual becomes powerless because the basic foundations of his or her real life have broken down. In order to survive in the new environment, the expatriate or displaced person needs important adjustments that may not be achieved in the immediate future, or may not be achievable at all. Thus, the more protracted the process of adjustment is, the more anxiety, fear and depression is developed which could prevent, to a large extent, successful social and professional integration in the case of international assignees.

In the *Reduced personal control model* the displaced person is not in control of the new environment in which he or she has landed. In many instances, the individual lacks coping mechanisms susceptible of helping to accommodate the new social, cultural, technological and psychological conditions which can be perceived as opposing and threatening forces. These observations led Burt (1993) to argue that the development of homesickness is mainly due to the fact that the displaced person is not in control of the host environment.

The *Change and transition model* sees individuals as being obliged to accept to fulfil new roles that are supposed to enable them to live in harmony with the host environment. The transition between "giving up" old roles and habits to "adopt" the novel ones is particularly stressful. This has been observed in male and female migrant behaviour. For instance, in research by the various migrant assisting organisations, some male migrants have been reluctant to perform kitchen and childcare duties in the United Kingdom because in their original cultures such duties are essential feminine Similarly, some female migrants have been reluctant to contemplate work with male colleagues as this might clash with their own culture and religion (Hack-Polay, 2008).

The *Conflict model*, establishes that there is a perceived or potential conflict within the individual's self. On the one hand the displaced person has the will - or is rather forced - to learn and acquire new ways of seeing and approaching things and life. On the other hand, there is a sort of resistance on the part of the individual to accommodate the irreversible and uncontrollable wind of change. Thus, there exists in the mind of the displaced persons a desire to return home but they are confronted with issues of security and safety.

Research in an area connected to home sickness, culture shock, uses a model referred to as the U-curve model, developed by Oberg (1960). This model contends that newcomers to an alien culture go through four stages to reach adjustment. These stages are honeymoon, crisis, recovery and adjustment. This model has been criticised because some researchers argue that not all migrants go through the honeymoon phase (Selmer 1999). Models are interesting to consider in an attempt to understand the behaviours of expatriates and international workers. Fisher's models offer a fairly comprehensive catalogue of what expatriates may feel like and do in the new socio-cultural and professional context. However, instead of seeing Fisher's theories as five different models, there could be a realistic inclination to categorise them as one single model of homesickness with different stages. Indeed, it is not rare to observe that an individual goes through more than one, and sometimes, all the stages defined by Fisher's model. These stages may be experienced or felt simultaneously or occur gradually. Some theorists suggest possible interventions or remedy to deal with homesickness.

3. Method

Taking a qualitative approach, the research used unstructured interviews to obtain information. The investigation sought to answer the following *research questions*: (1) To what extent does preparation prior to migration or expatriate is a mitigating factor for developing homesickness? (2) Are there differences between sponsored migrants (expatriates) and self-made migrants (migrant workers)? (3) How do different groups of migrants cope with homesickness? Nationality was not a selection criterion and is not used as a critical variable in the analysis. The participants originated from East Africa, Britain, Indonesia and Saudi Arabia. The expatriates worked for large and small multinationals operating in London, United Kingdom. The migrant workers all came independently to work in the UK from various countries. The critical sample selection criterion was a time variable that required the participant to have lived and worked in the UK or another foreign country for a minimum of three years and competence in English language since the interviews were to be conducted in the medium of English. Three years was thought to be adequate time during which the expatriate or migrant worker would have settled through the development of strategies to cope with homesickness.

Participants were contacted using snowball sampling. The sample comprised 45 participants, 15 company expatriates and 30 migrant workers. Two migrant workers and an expatriate initially contacted led the researcher to others. The contacts obtained via the original interviewees were often from the participants' immediate networks, e.g., company or community organisations, making the process of finding participants less laborious. The purpose for selecting expatriates and migrant workers was to contrast their experiences in the host country and examine differences and similarities among groups that entered international labour migratory movements via two distinct routes.

The unstructured interviews explored themes such as reasons for relocating, pre-departure preparation, initial encounter with the host country, issues with settlement, family and missing home. Questions on homesickness required participants to talk about their experience and feeling in the early period of arrival, e.g., whether they missed home, felt culture shock, lonely. They were also required to speak about the duration of such issues and how they overcame. Most expatriates and the migrants spoke openly about their experiences of living abroad and the research was able to probe their narratives in order to gain more insights into the participants' coverage of key discussion themes. The study covers a period of two years. Initial interviews took place in early 2009, with follow up contact with the participant a year later to establish the degree to which participants have overcome issues and the strategies used in the process.

4. Results

The participants interviewed described themselves as having felt homesick at some during the expatriation process. For some, the condition started its developments right at the point of departure from the home country. For the vast majority, the expression of homesickness actually developed on arrival in the host environments. However, there is a split as to when the illness developed. Among the migrant workers, 26 experienced homesickness in the first three weeks following arrival. Others felt homesick much later, about three to six months later. Among the expatriates, the picture bears similarities though with some variations. One expatriate expressed that feeling of homesickness appears before departure and 14participants acknowledged symptoms only after three months. Among the latter, two expatriates felt homesick only a year after starting the overseas assignments. It was evident that all migrants and expatriates displayed symptoms of homesickness and developed the condition regardless of mitigating factors such as previous experience of migration, the presence of the family and basic language knowledge. These variables were used to assess the degree to which there could be mitigating factors to homesickness.

4.1 Homesickness in Expatriates and Migrants: Causal Explanations

A plethora of factors in combination lead to the sense of dislocation and subsequent development of homesickness in migrant workers and expatriates. In general the study has revealed that it is always a combination of factors that causes the condition. However, a multiple combination of those is likely to aggravate the disease and cause the affected workers condition to deteriorate over time. This section highlights some of the most common causes described by the participants.

4.1.1 Crossing the Boundaries of Fortress Cultures

Penetrating different cultures is not effortless. Countless studies (Deresky, 2010; Hack-Polay, 2008; Hofstede, 1991; Lin, 1986) described the hitches associated with the process. The process of penetrating new cultural contexts particularly becomes more painful the more distant the cultures are. In the case of the migrant workers in the study, all came from relatively countries outside of Western Europe, with the African respondents having cultures that have more dissimilarity with western cultures. The predominantly collectivist cultures in this part of the world has proved incompatible with the individualist western cultures. Even the Eastern European participants from less collectivist cultures did not escape the feeling of incompatibility of cultures with the western host country. Collectivism meant that the migrants expected a more welcome in the host country, both in society and in the workplace. However, they argue that they were greeted with a "cold welcome" which was far from being one in their home cultures. Over half of the migrant workers felt this. The expression used by a migrant teacher indicates how migrant workers might develop apathy for the host country and a feeling of homesickness:

"Here no-one says hello to you. Even when you are first to do so, you may not get an answer. When I started work, it wasn't much different in the workplace. Colleagues would gather and eat while I sat in my corner. I felt unwanted and desired to go home".

Nine expatriates expressed frustrations about the new work environment while expatriates described the office culture as "fortress culture" where everyone seemed too busy to devote time to welcome newcomers and make them feel at home. The nine expatriates were particularly frustrated at the fact that they could not find their way

around the office easily and felt "stupid" sometimes and missed the home country. Though a significant number of expatriates did not express similar views, the experiences of the nine exemplify issues of integration that could trigger a sense of missing home country cultures and practices and therefore increase the feeling of the superiority of home over away, and an Asian expatriate translated the frustrations in those terms:

"In headquarters, I knew where things were and I knew people. We are supposed to work as a team but the team doesn't work. There's a 'gang' of unhelpful colleagues who chat and gossip between themselves. They know everything about you but you know nothing about them."

This analysis is further supported by the fact that all expatriates contended that there was something either in the organisational cultures or the societal cultures that led them to feel like not being at home or in an environment culturally close to home.

4.1.2 Fear

Fear was exemplified at several levels. Fear of the demands of the need to bridge the cultural gap and integrate has already been elucidated. However, fear that caused a feeling of missing home could be noticed in other areas. Fear of doing the wrong thing both within the workplace and society, fear of the (in)ability to adapt to new technology, fear of opacity of legal frameworks in some contexts, fear of the pace of life, fear for safety, etc. were other dimensions of the feeling of insecurity that surround the migrants and expatriates. The African migrants mostly originated from urban centres. The newness of everything, the people, economic and social systems, the architecture, transport system and even the food was very overwhelming for the migrant workers. Fear was about the use of banking services, road traffic, computers, heating and cooking systems. Many had the fear of doing the wrong thing which might lead to their being hurt or breaking the law or causing other damage. However, the fear of the human beings in the new social context was paramount for a large majority. An eastern European migrant contented:

"I was very scared because this wasn't home. My fears were exacerbated by negative stories I heard about attacks on migrants. I prayed for my safety."

The fear of people and authorities in the receiving country was widely shared by the participants. After a laborious journey, braving much psychological disruptions linked to separation and risk taking in terms of the new venture, to see these fears become reality was not an option to evoke for fear that it might bring bad luck. Nineteen migrant workers and 11 expatriates argued that fear was already in shaping before the journey began, with some reporting "tummy rumbling and fast heart beats". Kofman & Sales (1992) argue that within the boundaries of a "Fortress Europe", those aspiring for safety can fear being rejected and returned to danger. This stage represents a significant step for many migrant workers and expatriates because those with less fear and more strategies to combat fear have an increased chance of successful integration. Removing fear helps combat the "terrifying" perception that distant cultures and realities are necessarily alien, therefore potentially harmful and helped the foreign workers draw similarities with home.

4.1.3 Language

Awareness of the language of the host country was felt to be of critical importance. Both groups of migrant workers and expatriates acknowledge this probably in the same powerful way as expressed by Freire (1970) who argues that "to exist humanly is to name the world, to change it" and this is possible through language acquisition. Freire connects language acquisition with the effective search and appropriation of economic opportunities. Language is a primary source of socialisation and studies by Marshall (1992) found that language is a significant barrier faced by migrants in a host society. In the context of this research, two thirds of migrant workers felt that the lack of language competence was a key issue that reminded them about home and the "good life" they had. An Eastern European factory worker likened the lack of language skills to "deafness, blindness and deafness". This translates the social disability caused to migrants and expatriates by the lack of language competence. The metaphors express the frustrations of not being able to speak for self and communicate with the host country nationals (HCNs) and in the wider society.

The lack of language skills among migrant workers, in the early period following the arrival in the host country, impairs to large extent access to advice, information and guidance and social activities (Hack-Polay, 2008). While the language issue was significant for migrant workers both in the workplace and society, it affected expatriate workers mostly outside work. However, that did not necessarily remove the frustrations of the incapacity to melt in the new social context and learn more, thus, increasing the sense of dislocation of being out of place and therefore re-inactivating the strong feeling for home. This was expressed by a migrant in these terms:

"Back home, I knew very little English. When I arrived here, I felt ashamed at not being able to communicate with people and understand them".

Migrant workers and expatriates who spoke a second language or a plurality of languages had an advantage. Multilingualism made it easier to build initial relationships with people and peers from a variety of backgrounds and nationalities. This helped them to combat social isolation and some psychological pressure born from separation and loss. The experiences of the migrant workers and expatriates demonstrated that language is critical survival tool in a new culture and society.

4.1.4 Dimensions of the New Position

Increased responsibilities, unfamiliarity with the context and the magnitude of coordination issues were highlighted by half of the expatriates as critical factors that led them to miss home and develop thoughts of wanting to return. There was a question of whether the pre-departure training and visits undertaken actually achieved the aim, which was to smooth the transition between home and away. Pre-departure training is often credited with some degree of success (Briscoe, Schuler & Claus, 2009; Dowling & Welch, 2008) and this was exemplified in the experiences of the participants. Expatriates, with the exception of one who has several years of experience in multiple locations, have underscored the overwhelming sense being lost in the new job. The expatriates estimated that while the preparations were important, these did not always emphasise the job element in terms of the new employee getting a chance to practise and to experience for a meaningful length of time the realities and issues associated with the new position. Images of home keep coming back to the mind due to these difficulties, but this is further evident when there is scarcity of support as in the case of a quarter of expatriates who argued that they receive little support from both the subsidiary and headquarters.

Migrant workers were less concerned about the immensity of the tasks involved in the new job in the host country. The major issue for two-thirds of participants was about demonstrating that they had skills and could mix well with locals. Migrant workers were further concerned about not gaining permanent positions and therefore having to either seek other opportunities or return home. For those migrants whose country of origin presented less employment opportunities, this was not a desirable option; that increased the sense of fear, a factor impacting on their emotions.

4.2 The Grieving Process and Homesickness

Becoming a migrant or expatriate causes a sense of loss and grief. When most participants were alone, they felt more deeply the loss in terms of family, friends and environmental familiarity. They grieved for country as a geographical space, and sociocultural and linguistic entity that signified belongingness. An eastern European migrant's expression sums up the feeling of many of the participants:

"I feel sad for leaving my parents back home. I always think about them and the good time. I go to see them from time to time and phone them. But this is not the same as being with them regularly".

Grieving for such a colossal loss was commonly expressed through tears and the body language that encompassed head shaking, isolating oneself in the room, restlessness and miserable attitude. All migrant workers and expatriates acknowledged going through this process, despite the apparent joy having the opportunity to further their professional experience and, in the case of migrant workers, to send remittances to relatives back home. The similarity in the experiences of the migrant workers and expatriates is not an isolated finding. Other studies found some consistency in the experience and behaviour of displaced people, e.g., Lin, 1986; Williams & Westermeyer, 1986. An African migrant described the "coldness" of the host country, not just in terms of the cold weather of November when he arrived in the United Kingdom. During the interview the migrant persistently referred to the loneliness on arrival, the emptiness and the lack of social warmth. Grief for the "lost" homeland or the "lost" paradise is unmistakably high particularly in the first hours and days of arrival. In later stages, the migrant try to get on with their professional lives. Time and the building of new networks shorten the grieving process.

4.3 Symptoms and Consequences of Homesickness

The symptoms of homesickness among the migrant workers and expatriates could be observed at many levels and took different forms. Some were purely psychological but others were physiological. Though the detailed symptoms were different from one individual to another, broad similarities were reported by the participants.

Constant changes in moods were common among expatriates and migrants. A significant majority reported that in the early period following arrival, they were unsettled possibly due to disorientation and fear. The anxiety led three quarters of the participants to shift from excitement to a feeling of unhappiness. Frowning, teeth grinding, not finding a personal space and occasionally being unfriendly denoted more often the mental state of the worker. At times, the expatriate or migrant worker realised that there was something wrong in their own behaviour but could

do nothing about and found room to blame others for the psychological state in which they were. Phone calls to the headquarters were inappropriately rude before the expatriate apologised. The migrant workers also reported that sometimes, they did not feel like phoning home. When they did because they missed relatives, the slightest reminder of the "overdue remittance" greatly irritated them. Though only a fifth, some participants reported sobbing in the office or more discreetly in the loo or in their apartment. The stage was an exemplification of Fischer's (1989) reduced personal control model during which the migrant feels helpless before a number of situations. An expatriate said:

"Sometimes, I became irritated with no reason. Some of my colleagues' behaviour, sometimes normal, was found unacceptable and offensive. I went out of the office, to the toilet and outside for fresh air. It was unsettling and I was withdrawn"

The lack of interest was characterised by participants' lack of response to normal demands of the body and refusing food. Some participants, particularly among migrant workers, reported not eating for a day or two and having very unbalanced diets for many weeks after arrival. This led to unusual loss of weight and ill physiological conditions. Five respondents reported constipations, three claimed to have had constant headaches and a larger proportions, one third of participants, thought they felt weak. Many, both migrants and expatriates, experienced a general sense of feeling unwell without necessarily being able to describe what was wrong. Some participants refused basic socialising that may assist them in removing the sense of isolation and the constant reminders of the absence of home. An Eastern European migrant commented that being alone helped to connect with past realities but it was equally harmful because the mind was consistently back home and the migrant was spiritually absent from the host country. This transition exemplifies Fischer's (1989) conflict model in which the authors sees antagonistic and conflicting forces at work within the individual's psyche.

Migrant workers and expatriates alike went through this experience. Migrant workers particularly felt that there was a lot to take in. Work systems, technologies and reporting lines were entirely different in the country of origin. These, combined with the psychological effects of separation, became a situation that the participants were uneasy about but had no control over. This impacted on their performance in the early days of taking up the new positions. A migrant added that sometimes he might be chatting with friends and being lost in the discussions. He also acknowledged making several mistakes at work, which caused concerns to the managers. In fact the respondent admitted that on several occasions, he used the wrong packaging for particular products. These errors caused delays in processing customer orders and a sizeable amount of complaints. Managers referred him to the human resource department that provided advice and counselling to help the transition. However, such errors were fatal for one migrant worker who was returned home before finding work in Britain. Eight of the fifteen expatriate equally experienced the lack of focus and concentration and this lasted weeks but the situation tended to improve over time. Here, it could be spoken of *Interruption and discontinuity model* within Fischer's (1989) homesickness framework.

In total, homesickness caused psychological and social disruption in migrant workers and expatriates. The participants were affected physiologically, leading to some more accepted forms of physical illness. The gravity of the homesickness and its effects were more pronounced among migrant workers perhaps because they received less preparation before migrating but equally because of the fear of having no jobs to return to unlike expatriates. The next section examines coping or mitigating mechanisms.

4.4 Bridging the Gap between Home and Away

The following paragraphs examine in more details the mitigating factors in dealing with homesickness. The migrant workers and expatriates interviewed had different responses to the evolving symptoms of the disease and developed a variety of coping mechanisms. However, other factors such as the role of third party, e.g., employers, were significant. Usually, these when combined with personal coping strategies were rendered more effective. The major mitigating factors in the fight against homesickness can be categorised in four main groups: social paradigm, the educational paradigm, the personal paradigm and the medical paradigm.

4.4.1 Social Paradigm

This is made up of strategies linked with the utilisation of social networks. A fifth of participants argued that contacts with different people, including locals and expatriates from own and other countries were extremely productive in maintaining a certain psychological balance. A larger proportion of both migrant workers and expatriates acknowledged that contacts with strangers were not helpful in the initial period after relocation as the majority was in search for a personal space that would encourage the organisation of thoughts and make sense of the new realities. For this latter group, such self-imposed isolation became counter-productive and later contacts with the "outside" social world became instrumental in the healing process.

Most beneficial ingredients for respondents in the social paradigm include the discovery and integration with community organisations and expatriate associations. All the migrants workers felt that being able to meet people from their own community, socialise, speak the language, attend cultural events and have access to native cuisine were critical healing and success factors. The choice of the place of residence in the host country for migrant workers is fundamentally determined by the concentration of people from the same ethnic backgrounds. The sense of solidarity helps migrants make sense of life in the new environment. Further evidence the healing powers of the social paradigm lies in the highly ranked role of the family by expatriates. A third of the fifteen expatriates had come with their spouse and children. With the nuclear family being present, the expatriate had little to be deeply concerned about back home; to some extent, home seems to have moved with the expatriate. Though this category displayed the symptoms of homesickness, these were less pronounced than in those who did not relocate with the family. Most participants who regularly kept in touch with family and friends in the home country (12 participants), the feeling of missing home was less intensive than among those who did not telephone, write to or visit friends and relatives at regular intervals. The social model is summarised in table 1.

	Main strategies within paradigm	**Outcome**
Social Paradigm	• Use of social networks • Integrate community or expatriate groups • Increased contacts with friends and family • Use of the nuclear family • Cultural exploration and discovery	• Psychological balance • Ability to rapidly make sense of host realities

Table 1. Social paradigm and intended outcomes

4.4.2 Educational Paradigm

This paradigm includes coordinated assistance by the MNC, e.g., pre-departure training and briefing sessions, a least a country visit and chat with previous expatriates from the same company. A large number of the expatriates asserted that pre-departure preparation provided a crucial overview of the host country, geographical orientation, the dimensions of the new positions and expected issues. At least two thirds of expatriates supported this view and within this proportion half agreed that the testimonies of returnees were important in establishing a picture of the destination. Among first-time expatriates, half of the sample, as part of the pre-departure training four had overlap experience. Overlap is pre-assignment preparation that involves the new expatriate working alongside the outgoing member of staff to develop a realistic idea of what is involved in the work. All new expatriates that went through this process were unanimous about the benefits of overlaps.

A key aspect of the training provided to the expatriates before the assignment was cross-cultural management. All the expatriates that received some form of training acknowledged that it was extremely important and "eye opening". The view was shared by both experienced and first-time expatriates. Such positive feeling is translated by the statement of a first time expatriate for an operational management position who sees the richness of pre-departure preparation. Migrant workers in general did not benefit from such coordinated assistance and showed more signs of dislocation and homesickness. Their experience is similar to expatriates who had little or no preparation. In fact, for these participants, the more dislocated their felt, the more they missed home and presented the symptoms of homesickness. This argument is further vindicated by the experiences of migrants who took formal courses in the UK; these migrants benefited in terms of language acquisition, cultural awareness and socialisation as they had more opportunities to meet host country nationals and experience real life interactions but critically such migrants developed skills that made them more professionally mobile. Table 2 illustrates the educational paradigm.

The centrality of the educational paradigm lies in its capacity to raise awareness and be psychologically prepared to a certain degree. Such awareness means that the displaced persons could think of contingencies. The educational paradigm removes to a certain degree the sense of dislocation which is a causal factor of homesickness and the perilous circumstances displaced persons experiences.

	Main strategies within paradigm	Outcome
Educational Paradigm	• Coordinated assistance by MNCs • Pre-departure training, preparation • Returnee testimonies and input • Overlap • Education attendance in host country	• Reduced sense of dislocation • Preparedness of expatriate or migrant worker • Formulation of personal plan prior to departure

Table 2. The educational paradigm and intended outcomes

4.4.3 Personal Paradigm

The personal paradigm comprises of three key strategies: personal willingness and drive to maintain local and distant connections, Self-directed cultural learning and the Use of previous migration experience. The first strategy involved the expatriate or migrant worker doing all it takes to keep in touch with relatives and friends back home. This is usually through letters, electronic mail, telephone calls or visits back home. A female expatriate described her experience of using this strategy:

The atmosphere in Indonesia was great. But I felt lonely because my boyfriend could not come as we weren't married. To feel better I wrote 10 letters in 3 days and received equal numbers within 2 weeks; I kept reading, which kept me going.

The second strategy within the Personal paradigm is *Self-directed cultural learning*. This is summarised in table 3. Using this strategy, the migrant or expatriate, consciously or unconsciously, constructs a programme of learning aimed at decreasing the effect of homesickness. This involves the participant developing keen interest and willingness to learn about cultures and practices in the host country. Some expatriates clarified that they established regular patterns of television sessions where they would watch particularly programmes on local TV stations; others bought several books explaining local cultures and signposting newcomers to religious or traditional festivals and things of interest to tourists. Self-directed cultural learning also applied in the workplace. The Personal Paradigm proved effective because the subject of homesickness was at the centre of the search for remedy and was driving the healing process. Such a conclusion was further evident in the experiences of migrants or expatriates who had worked or lived abroad before. Although the environment was different, they tended to dig hard into past migration to inform current life. These participants showed a superior capacity to adapt than those who were first time migrants or expatriates. Migrant who have worked in another country mirrored this.

	Main strategies within paradigm	Outcome
Personal Paradigm	• Drive to maintain contact at home • Willingness to build contacts with host country nationals (HCNs) • Self-directed cultural learning • Use of previous migrant/expatriate experience • Social tourism	• Cultural immersion • Sense of self-worth • Development of temporary social networks • Cultural exploration and discovery

Table 3. The personal paradigm and intended outcomes

4.4.4 Medical Paradigm

The Medical Paradigm was the least used – only five of the 45 participants - but remained an avenue for a minority of participants. It is worth exploring given its impact on those participants' lives. The strategies within the medical paradigm involved the absorption of medicines and drugs. The sufferers of homesickness took tablets literally every day for the slightest pain, headache, stomach-ache and fatigue. One respondent acknowledged taking tablets when he felt very tired claiming that it relaxed him. Others took sleeping tablets to beat the constant thoughts about

home that stopped them sleeping well. The Medical Paradigm had a degree of effectiveness but presented strong drawbacks. An expatriate who relied heavily on this paradigm pointed out some drawbacks:

"In the beginning taking tablets was fine. I become drowsy and sleep a bit. But when I wake up and 'regain consciousness' the thought of home was still there, sometimes even more virulent. I ended up losing more by not socialising with local people".

The medical paradigm is illustrated in table 4.

	Main strategies within paradigm	**Outcome**
Medical Paradigm	• Consumption of drugs • Consumption of alcohol	• Temporal removal of homesickness • Less social networks and societal assistance • Addiction to drugs or alcohol • Reduced personal control

Table 4. The medical paradigm and intended outcomes

5. Conclusions and Discussion

The paper has shown that homesickness is a critical issue for displaced people. This could affect expatriates and multinational organisations to a large extent. Evidence (Deresky, 2010) suggests that it is a serious issue with potentially damaging impacts if it is not remedied. Homesickness is a condition that many psychologists see as an illness (Fisher, 1989; Van Tilburg et al., 1996), with important manifestations that have bearings on performance. For example, the displaced person could be irritable, sad, uncooperative and lacking initiative and drive. In business, the discourse of successful expatriate assignment must incorporate issues of homesickness which can lead to lower performance. The legitimacy of such a conclusion lies in the fact that migrant workers and expatriates in this research made significant reference to the term "home" and feelings of missing home. The impact of homesickness on expatriate performance should therefore not be overlooked. Further research is needed to establish the weight of homesickness in expatriate failure. This means attempting to establish whether an employee posted overseas who does not experience acute levels of homesickness generates better performance and return on investment. Homesickness could be a critical factor affecting adaptation and adjustment and should require greater attention than it currently receives. Expatriation is significant corporate investment whose high cost has been consistently argued. It is imperative to take every little step to safeguard such crucial investment.

Van Tilburg et al., (1996, p.909) argue that "the possibilities of interventions appear to be limited". Some realistic modes of interventions centre on the "stress management" approach (Fisher, 1989). It is designed to help the affected people to accept the feeling of homesickness, be involved in the new environment, do physical activities (sports, games, visits), eat and sleep well, go onto training programmes (Van Tilburg et al., 1996). In discussing culture shock, a concept related to homesickness, Selmer (1999) argues that there is no way to prevent it. Preventive solutions for homesickness are equally in short supply. Attempts can, however, be made to reduce the impact of homesickness on expatriates and organisations; such attempts are deeply rooted in the ability of organisations to ensure adequate expatriate preparation before departure and during the assignment. Deresky (2010) emphasises the importance of preparation and training, arguing that such activities reduce culture shock, disorientation and anxiety. Preparation should largely be concerned with informing the expatriate about the circumstances in the host country and the potential for social and psychological isolation for some time before acquaintance with the new environment. This process is normal and requires time and personal or family effort for a positive and gradual adjustment. Important family problems could result from homesickness; members could turn against each other and this could lead, on occasions, to the disintegration of the family and a large number of people do not pass this stage, causing the expatriate to return earlier. As part of prevention, expatriate packs could include plans for frequent return visits back home. Although this may add to the overall cost of the expatriate assignment, it will still remain more economical than failed expatriation.

Finally, reducing homesickness could take into account an attempt to rebuild a socio-cultural network, however artificial it may be. In many places several multinational companies work in juxtaposition and their staff may share cultural norms. For instance, there could be concerted effort by MNCs to establish an expatriate network that could

include host country nationals (HCNs). Cultural practices such as nightclubs, religious institutions, schools or childcare facilities could be drawn in to provide a more cultural sensitive network for the expatriates. This is far from implying that parent company nationals (PCNs) and third country nationals (TCNs) should cut themselves off the host society. On the contrary they learn from each other's adjustment difficulties and successes at the same time as combating somehow the effects of homesickness.

References

Adler, P. S. (1987). Culture shock and the cross-cultural learning experience. In Luce, L. F., & Smith, E C (Eds.), *Toward internationalism.*Cambridge: Cambridge University Press.

Baier, M., & Welch, M. (1992). An analysis of the concept of homesickness. *Archives of Psychiatric Nursing*, *6,* 54-60. http://dx.doi.org/10.1016/0883-9417(92)90055-N

Black, J. S., Mendenhall, M., & Oddou, G. (1991). Towards a comprehensive model of international adjustment: an integration of multiple theoretical perspectives. *Academy of Management Review*, *16,* 291-317.

Briscoe, D. R., & Schuler, R. S., & Claus, L. (2009). *International Human Resource Management: policies and practices for multinational enterprises*. Routledge.

Burt, C. D. B. (1993). Concentration and academic ability following transition to university: an investigation of the effects of homesickness. *Journal of Environmental Psychology*, *13,* 333-342. http://dx.doi.org/10.1016/S0272-4944(05)80255-5

Deresky (2010). *International management: managing across borders and cultures.* New Jersey: Pearson/Prentice Hall.

Dowling, P., & Welch, D. (2008). *International Dimensions of Human Resource Management*. London, Thomson.

Ekblad, S. (1993). Psychological adaptation of children while housed in Swedish refugee camp: aftermath of the collapse of Yugoslavia. *Stress Medicine*, *9,* 159-166. http://dx.doi.org/10.1002/smi.2460090306

Fisher, S. (1989). *Homesickness, cognition and health*. London: Erlbaum.

Fisher, S. (1984). The transition from home to boarding school: a diary-style analysis of the problems and worries of boarding school pupils. *Journal of Environmental Psychology, 6,* 35-37. http://dx.doi.org/10.1016/S0272-4944(86)80033-0

Hack-Polay, D. (2008). Migrant integration: case for a necessary shift of paradigm. *Journal of Identity and Migration Studies, 2*(1), 37-56.

Hechanova, R., Beehr, T. A., & Christiansen, N. D. (2003). Antecedents and consequences of employees' adjustment to overseas assignment: a meta-analytic review. *Applied Psychology, 52*(2), 213–236. http://dx.doi.org/10.1111/1464-0597.00132

Leff, M. J. *et al*. (1970). Environmental factors preceding the onset of severe depressions. *Psychiatry*, *33,* 293-311.

Lin, K. M. (1986). Psychopathology disruption in refugees. In Williams, C. L., & Westermeyer, J. (Eds.), *Refugee mental health in resettlement countries* (pp. 61-73). Washington DC: Hemisphere Publishing Corporation.

Oberg, K. (1960). Culture shock: adjustment to new cultural environments. *Practical Anthropologist, 7,* 177–182.

Omi, M., & Winnant, H. (2003). *Racial formation in the United States.* London: Routledge.

Scullion, H., & Linehan, M. (2005). *International human resource management: a critical text*. Basingstoke: Palgrave Macmillan.

Selmer, J. (1999). Culture shock in China? Adjustment pattern of western expatriate business managers, *International Business Review*, *8*(1999), 515-534. http://dx.doi.org/10.1016/S0969-5931(99)00018-9

Van Tilburg, M. A., Vingerhoets, A. J., & Van Heck, G. L. (1996). Homesickness: a review of the literature, *Psychological Medicine*, *26,* 899-912. http://dx.doi.org/10.1017/S0033291700035248

Weissman, M. M., & Paykel, E. S. (1973). *Moving and depression in women*. New York: Basic Books.

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Effect of Early Stimulation on Some Immune Parameters in a Model of Prenatally Stressed Rats

Ana C. Liaudat[1], Nancy Rodríguez[1], Adriana Vivas[2], Héctor F. Gauna[1] & Nora I. Mayer[1]

[1] Departamento de Biología Molecular, Facultad de Ciencias Exactas, Físico-Químicas y Naturales, Universidad Nacional de Río Cuarto, Córdoba, Argentina

[2] Departamento de Anatomía, Facultad de Agronomía y Veterinaria, Universidad Nacional de Río Cuarto, Córdoba, Argentina

Correspondence: Nora I. Mayer, Departamento de Biología Molecular, Facultad de Ciencias Exactas, Físico Químicas y Naturales, Universidad Nacional de Río Cuarto, Ruta 8 Km 601, X5804BYA Río Cuarto, Córdoba, Argentina. Tel: 54-35-8467-6232. E-mail: nmayer@exa.unrc.edu.ar

Received: March 15, 2012 Accepted: June 1, 2012 Online Published: August 22, 2012

doi:10.5539/ijps.v4n3p73 URL: http://dx.doi.org/10.5539/ijps.v4n3p73

Abstract

The aim of this research was to investigate the effects of prenatal stress and handling on immune system cell distribution and lymphocyte T proliferation in adult Albino Wistar male rats. Prenatal stressed (PS) offspring by immobilization (IMO) were handled during the first week of life. Animals of both treatments were acute IMO stressed. Blood was extracted from 0 to 330 min, and counting of white blood cells, leucocyte subpopulations and levels of corticosterone (COR) were made. Lymphocyte T spleen proliferation was determined. COR, leucocyte, lymphocyte and neutrophil profiles and lymphocyte T proliferation were significant different between prenatal stress and non-handling group and prenatal control and non-handling group, however these responses were attenuated when animals were handled. In conclusion, early handling revert the effects of PS with re-exposure to the same postnatal stressor on the activity of hypothalamo-pituitary-adrenal axis, the dynamic of leucocyte distribution and the mitogenic response of T lymphocytes.

Keywords: handling, prenatal stress, immunity, rats

1. Introduction

Maternal stress during pregnancy may have long-lasting adverse effects on physical development and behaviour of the offspring (Rodriguez et al., 2007). In rodents and primates it increases the incidence of attention deficits, impairs coping behaviour in novel and intimidating situations (Weinstock, 1997) and induces learned helplessness and anhedonia (Keshet & Weinstock, 1995). It has previously been shown that prenatally stressed rats exhibit hyperanxiety (Salomon et al., 2011; Nachum Biala et al, 2006) depressive–like behaviour and learning deficits in their youth and adulthood (Morley-Fletcher et al., 2003; Poltyrev et al., 2005).

Prenatal chronic stress by immobilization produced basal hyperactivity of the HPA axis and its reponse decreased (habituation) to the same stress applied postnatally (Mayer et al., 2011). Others authors (Rabasa et al., 2011) applying the same chronic stress during adulthood also found habituation.

Moreover, this prenatal chronic stress, especially during pregnancy as well as in the post natal period (Seckl, 2004), modifies the functional status of the immune system and the vulnerability of offsprings to immunotoxicants effects or immune mediated diseases (Dhabhar et al., 1996; Wright, 2010). Kohman et al. support these findings and describe a direct connection with high levels of cytokines and exaggerated cognitive deficits. Previous works have shown that stress stimuli in pregnant monkeys diminished the in vitro mitogen-induced lymphocyte proliferation (Halper et al, 1991; Jessop et al., 1987)

Another effect is a redistribution of the absolute and relative number of leukocytes and of lymphocytes and neutrophils, which could be compatible with the reduction of the possibility of these cells to access organs in contact with antigens when subjected to the same prenatal stress in adult life (Dhabhar et al., 1994, 1995, 1996). This alteration may be due, at least in part, to the habituation in the functionality of the HPA axis (Mayer et al, 2011).

Early handling (H) may antagonize the stress consequences. Meaney et al. (2000) demonstrated that not

prenatally stressed rats neonatally handled, had a permanent increase in concentrations of receptors for glucocorticoids in the hippocampus. Thus, at all ages tested, rats that were not handled secreted more glucocorticoids in response to stress than did H rats. Moreover, some research has confirmed that, adult H rats responded to stressors with more modest increases in corticosterone and adrenocorticotrophic hormone (ACTH) and a faster return to basal plasma concentrations (Meaney et al., 1996). H rats had significantly greater (30–40%) glucocorticoid receptor (GR) binding capacity in the hippocampus compared with non-handled (NH) rats (Meaney et al., 1988, 2000). This change in hippocampal GR binding capacity resulted in enhanced negative-feedback effects of corticosterone (Lemaire et al., 2006; Meaney et al., 2000). Most recently, an elevated GR mRNA containing the hippocampus-specific exon 1_7 was founded (Mc Cormick et al., 2000). Furthermore, animals that were early handled demonstrated low anxiety-like behavior, expressed as high exploratory behavior compared to non handled individuals (Vallée et al., 1997, Chapillon et al., 2002).

However, the influence of postnatal handling on the immune system remains unclear: Thus, the aim of the present study is to analyze the effects of prenatal stress and handling on immune system cell distribution and mononuclear spleen cells proliferation at basal levels and after the same postnatal acute stress in adult male rats.

2. Materials and Methods

Animals: Albino Wistar rats (280-300g), were housed in individual plastic cages under standard laboratory conditions (12 hours light/12 hours dark, 22 °C, constant humidity, water and food available *"ad libitum"*). The first day of pregnancy was determined by the presence of sperm plug.

During the last two weeks of pregnancy, females in the stressed group were exposed for 30 min. to chronic and unpredictable stress by plate immobilization (IMO) according to the method described by Michajlovskij et al. (1988), three times a week. Control female rats were left undisturbed in the cages. The offspring males from these two groups were referred to as prenatal stress (PS) and control (PC). The offspring were submitted to postnatal handling as described by Meaney et al. (2000). This manipulation was performed daily from postnatal day 1 until postnatal day 3. Briefly, the pups were picked up and transferred from their home cage to another one containing paper toweling. Separate cages were used for each litter throughout in the cage for 1 min (between 9 to 11 a.m. every day) before being returned to their home cage. The mother was taken out of the home cage before the pups, kept alone in another cage for the 1 min, and then returned to the home cage after the pups. Handling sessions were always performed in the same room by the same experimenter. The stimulation was performed daily (between 9 to 11 A.M.) from postnatal day 1 until 3.

Immediately litters were culled to eight pups to prevent the influence of number of pups on the parameters. Offspring were weaned 21 d after birth and housed in groups of four males by litter, and left undisturbed until testing at 90 d of age. Only two male siblings per litter from each group were tested in adult life.

The PS group was assessed to two groups: prenatal stress and handling (PSH) and prenatal stress and non-handling (PSNH). The PC group was divided into two groups: prenatal control and handling (PCH) and prenatal control and non-handling (PCNH).

2.1 First Experiment

Plasma analysis: Blood samples (200-300 µl) of all groups were collected by the tail clip method (Tulli et al., 1995) before treatment for baseline measurements (0 min), immediately after the acute IMO session (20 min), and at 60, 90, 120, 150 and 330 min). COR levels of the blood plasma (Armario & Castellanos, 1984) were measured by radioimmunoassay using highly specific rabbit antiserum to COR from Bioclin (Cardiff, UK) Assay sensitivity was 10 pg of COR; the inter and intra-assay coefficient of variability was <10%.

For leukocyte cells analysis, the relative leukocyte formula was determined by examining 200 stained cells with the method of May Grünwald-Giemsa.

2.2 Second Experiment

Animals of alls groups were sacrificed by decapitation immediately after IMO. For lymphocyte T cell proliferation, spleen was extracted and cell proliferation was determined using the [^{3}H] thymidine assay. The spleen cells were seeded in microplate (2 x10^5/well) and cultured in RPMI 1640 from Sigma (St.Louis, MO, USA) complete medium (10% FBS, 25 mM HEPES, 2 mM L-glutamine, 50 µM 2-4 mercaptoethanol, 100 U/ml penicillin, 100 µM streptomycin), at 37°C, under 5% CO_2 atmosphere, stimulated with Concanavalin A (2,5 µg/ml, Sigma) during 72 hours (Mayer et al., 2011).

The statistical comparisons in the *First Experiment* were analysed using a three-way 2x2x7 repeated measure MANOVA, between: mother treatment (prenatal stress), and offspring (postnatal handling); within: time

treatment (T=0, T=20, T=60, T=90, T=120, T=150, T=330). In *Second Experiment* were analysed using two-way 2x2 ANOVA, between: mother treatment (prenatal stress) and offspring (postnatal handling). Post-hoc comparisons were made using Duncan's test.

3. Results

3.1 First Experiment

When controls plasma COR levels with or without handling treatment were analyzed, no statistical differences were observed at the evaluated times.

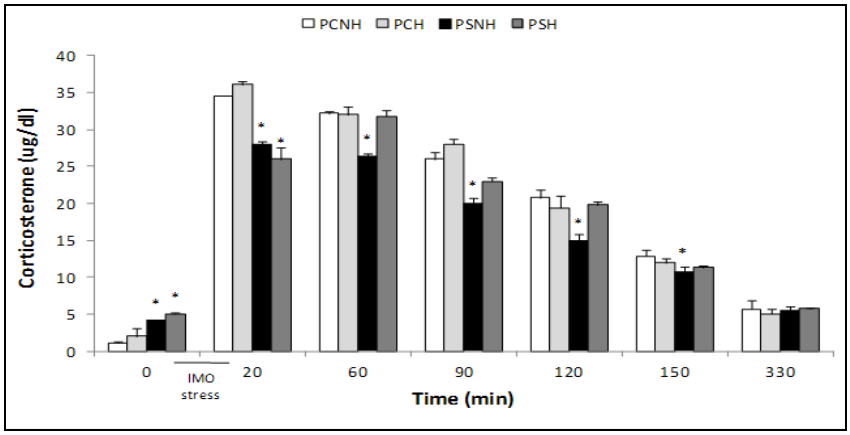

Figure 1. Effects of prenatal stress and postnatal handling on corticosterone plasma levels

Note. Effects of prenatal stress and postnatal handling on corticosterone plasma levels of PCNH (n = 10), PSNH (n = 8) and PSH (n = 8) adults male offspring rats after exposure to acute postnatal stress for 20 min. Each bar represents the mean ± S.E.M. *p<0.05 *vs*. PCNH and PCH groups.

As revealed in Figure 1, COR plasma analysis showed that PSNH basal levels of plasma COR were significantly higher than the levels of the PCNH group of rats showed significant effects of the prenatal stress treatment ($F_{(3,30)}$ =10.72; p = 0.001) and time ($F_{(6,180)}$ = 130.02; p = 0.021). The interaction between both factors was also significant ($F_{(18,180)}$=18.89; p = 0.001). PSH basal levels of plasma COR were also significantly higher than the levels of the PCNH group of rats, showing similar levels of COR between PSNH and PSH. As expected, all groups of animals had a higher increment of COR levels after IMO postnatal stress until 150 minutes. PSNH animals showed significantly lower COR levels than the control group at 20, 60, 90 and 120 min post stress. However, the PSH values were not different from those of the PCNH group from 60 min. At 150 and 330 min plasma COR levels were the same for all groups of animals.

It was observed that total leukocyte number (Figure 2) showed significant effects of the prenatal stress treatment ($F_{(3,30)}$ = 6.96; p = 0.021) and time ($F_{(6,180)}$ = 65.32; p = 0.0032). The interaction between both factors was also significant ($F_{(18,180)}$ = 1.39; p = 0.025). After 60 min of the acute postnatal stress stimuli, it was possible to observe a decrease in the number of leucocytes in the peripheral blood with respect to basal levels both in PSNH and in PCNH animals; the decrease continued until 150 min. The number of leucocytes was higher in PSNH animals than in their respective controls PCNH and PCH at 120, 150 and 330 min. This difference disappeared when the prenatal stress animals were submitted to postnatal handling PSH.

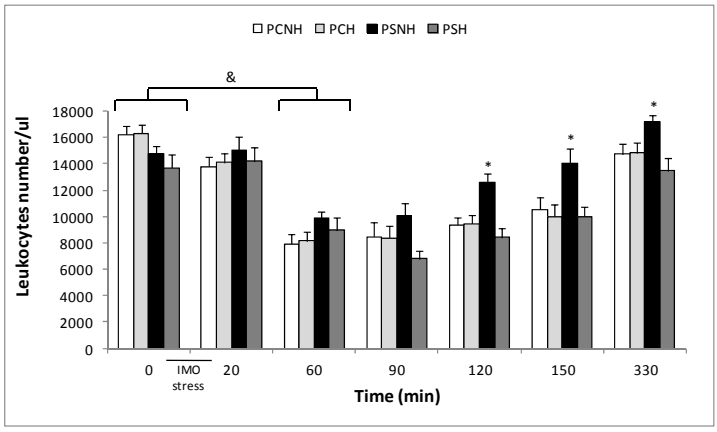

Figure 2. Effects of prenatal stress and postnatal handling on kinetic profile of the number of leukocytes in peripheral blood

Note. Effects of prenatal stress and postnatal handling on kinetic profile of the number of leukocytes in peripheral blood of PCNH (n = 10), PSNH (n = 8) and PSH (n = 8) adult male offspring after exposure to acute postnatal stress for 20 min. Each bar represents the mean ± S.E.M. & $p<0.05$ all grups T=0 *vs*. all groups T=60. *$p<0.05$ vs. PCNH and PSH groups.

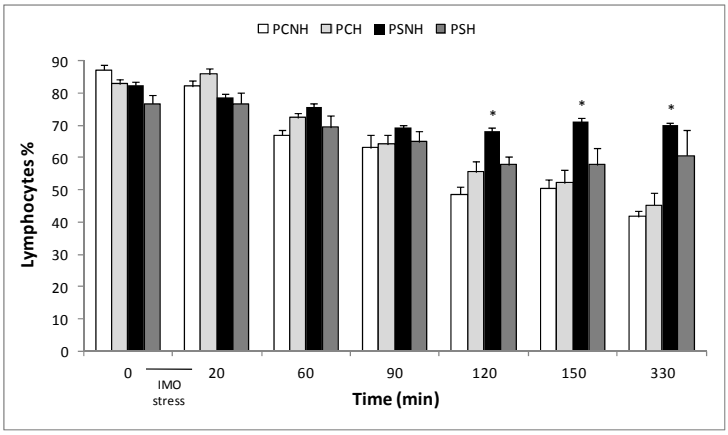

Figure 3. Effects of prenatal stress and postnatal handling on kinetic profiles of lymphocyte percentages in peripheral blood

Note. Effects of prenatal stress and postnatal handling on kinetic profiles of lymphocyte percentages in peripheral blood of PCNH (n = 10), PSNH (n = 8) and PSH (n = 8) adult male offspring after exposure to acute postnatal stress for 20 min. Each bar represents the mean ± S.E.M. *$p<0.05$ *vs*. PCNH and PCH groups.

Significant effects in percentages of lymphocytes were observed between prenatal stressed rats and their controls (Figure 3). The acute postnatal stress stimuli decreased the lymphocyte percentage in all experimental groups after 120 min, but PSNH animals showed significantly increased values ($F_{(3,30)}$=4,37; p=0.0091) in comparison to PCNH and PCH groups at time ($F_{(6,180)}$ =78,80; p=0.001) 120, 150, 330 min. The interaction between both factors was also significant ($F_{(18,180)}$=2.59; p = 0.0005). This difference disappeared when the prenatal stress animals were submitted to postnatal handling PSH.

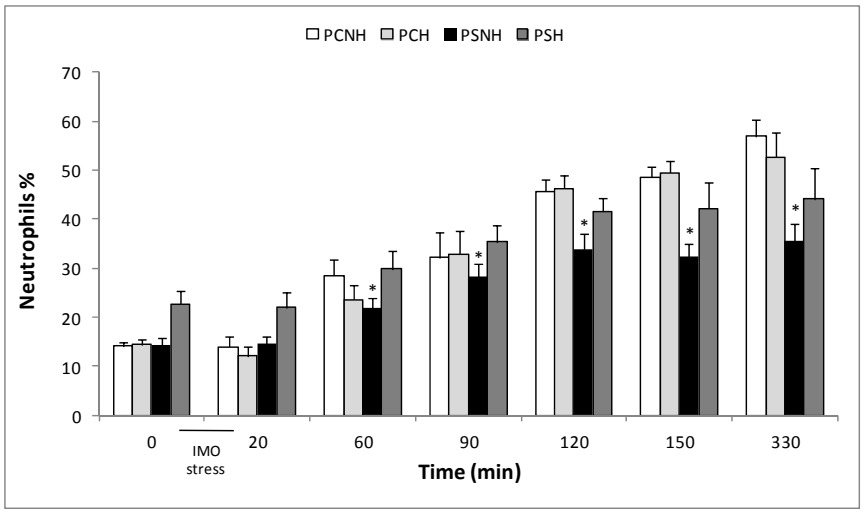

Figure 4. Effects of prenatal stress and postnatal handling on kinetic profile of percentage of neutrophils in peripheral blood

Note. Effects of prenatal stress and postnatal handling on kinetic profile of percentage of neutrophils in peripheral blood of PCNH (n = 10), PSNH (n = 8) and PSH (n=8) adult male offspring after exposure to acute postnatal stress for 20 min. PC: animals housed in standard conditions, PSNH: animals with prenatal stress treatment and without handling, PSH: offspring prenatally stressed and with postnatal handling. Each bar represents the mean ± S.E.M. *p<0.05 *vs*. PCNH and PCH groups.

As shown in Figure 4, after stress acute stimuli, the PSNH percentages of neutrophils were lower than the values of PCNH and PSH groups ($F_{(3,30)}$ = 6,92; p= 0.006) after 60 min. ($F_{(6,180)}$= 66,21; p=0.001). The interaction between both factors was also significant ($F_{(18,180)}$= 3.15; p = 0.0028). These results show that postnatal handling attenuated the effects of prenatal stress. No significant difference was found between PCNH or PCH and PSH groups.

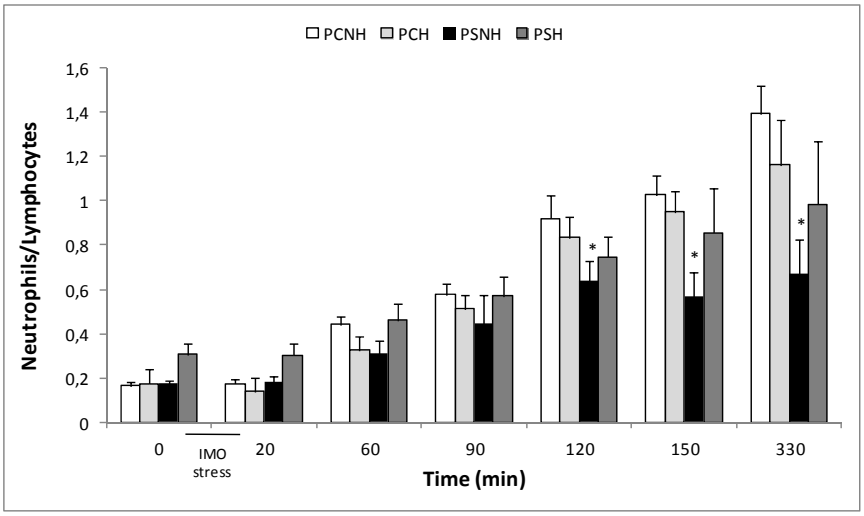

Figure 5. Effects of prenatal stress and postnatal handling on kinetic profile of the neutrophil-lymphocyte relationship in peripheral blood

Note. Effects of prenatal stress and postnatal handling on kinetic profile of the neutrophil-lymphocyte relationship in peripheral blood of PC (n: 10), PSNH (n: 8) and PSH (n: 8) adult male offspring after exposure to acute postnatal stress for 20 min. PC: animals housed in standard conditions, PSNH: animals with prenatal stress treatment and without handling, PSH: offspring prenatally stressed and with postnatal handling. Each bar represents the mean ± S.E.M. *p<0.05 *vs*. PCNH and PCH groups.

The neutrophil-lymphocyte relationship, a stress marker, was determined (Figure 5). These results revealed a significant decrease in the values concerning to PSNH in comparison to PCNH and PCH animals ($F_{(3,30)}$ = 5,47; p = 0.0027) at 120, 150 y 330 min. ($F_{(6,180)}$ = 36,55; p = 0.001). The interaction between both factors was also significant ($F_{(18,180)}$= 2.35; p = 0.0021). The prenatal effect observed in PSNH group was attenuated when the prenatal stress animals were handled PSH.

3.2 Second Experimen

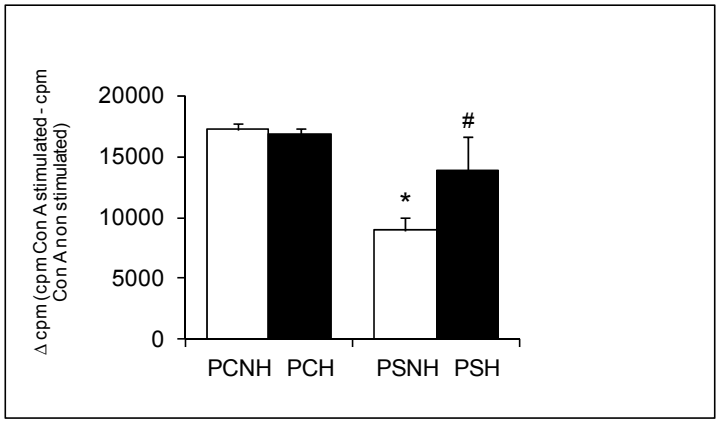

Figure 6. Effects of prenatal stress and postnatal handling on spleen lymphocytes T proliferation

Note. Effects of prenatal stress and postnatal handling on spleen lymphocytes T proliferation in control conditions: PCNH (n = 8), PCH (n:5), PSNH (n:5) and PSH (n:5).Each bar represents the mean ± S.E.M. *p<0,05 PSNH vs. PCNH and PCH grups, #p<0.05 PSH vs. PSNH

Figure 6 describes a low immune cell proliferation in animals that were submitted to prenatal stress situation in comparison to the PCNH group. The lowest lymphocyte T proliferation events occurred in the PSNH group, but when animals with the same treatment were handled this effect disappeared and the level of cell proliferation was similar to PCNH. Showed significant effects of the prenatal stress treatment ($F_{(1,27)}$= 7.14; p = 0.012) and postnatal handling ($F_{(1,27)}$ = 5.98; p = 0.021). The interaction between both factors was also significant ($F_{(1,27)}$= 7.36; p = 0.011).

4. Discussion

We found that the basal level of COR of prenatal stress and non-handling group as well as prenatal stress and handling animals was higher than the control group level. These data suggest that the HPA axis of the experimental groups was hyperactive. These results are in agreement with previous findings (Bauer et al., 2001; Sterlemann et al., 2008). This hyperactivity may be due to a lower GR mRNA and MR mRNA expression (Sterlemann et al., 2008; Maccari et al., 2003). A consequence of the decreasing levels of corticoid receptors are the up-regulation of COR production for the homeostasis maintenance. It is important to note that the stress consequences produced in the offspring may have been produced by direct stress effects, due to the fact that the COR is a steroid hormone and it can cross the placental barrier (Zarrow et al., 1970).

Our results demonstrated that prenatal stress and non-handling group plasma COR levels after acute postnatal stress condition was significantly lower than the prenatal control non-handling group until 150 minutes. This effect was reverted by handling treatment since 60 minutes after postnatal stress. These findings could be explained by the increase of GC receptor gene expression in hippocampus cells of all the handled animals, as described by O'Donnell et al. (1994). Furthermore, Meaney et al. (1988) demonstrated that the pituitary-thyroid system mediated the effect of postnatal handling on hippocampal GR expression, and in 2000 the same author suggests that via cAMP-PKA, postnatal handling could alter glucocorticoid receptor expression (Meaney et al., 2000).

Previous studies describe a strong relationship between endocrine and immune systems in animals submitted to stress-induced alterations (Bowers et al., 2008; Couret et al., 2009). Significant correlations were observed between high levels of COR and leukocyte distribution (Dhabhar et al., 1996). Bauer et al. (2001) demonstrated that the COR levels produced by stress could modify the cell adhesion molecule (CAMs) expression and promote cellular transmigration. In fact, in our previous experiments, prenatally stressed animals re-exposed to

the same stressor postnatally did not demonstrate effects on circulating lymphocyte percentages, suggesting an endocrine-immune habituated response to stress stimuli (Mayer et al., 2011).

When in this study we evaluated the leukocyte total numbers and the lymphocyte and neutrophil percentages, we observed that the prenatal stress and non-handling group showed significant differences of kinetic profiles for prenatal control non-handling group. The postnatal handling treatment reversed the effect of prenatal stress over leukocyte total numbers and lymphocyte and neutrophil percentages. The leukocyte numbers decreased in the four experimental groups after acute stress stimuli since 60 min. This effect could have been produced by the increased immune cell migration to the immune system compartment, in concordance with Dhabhar et al. (1996). These data suggest that the normalized levels of glucocorticoids influence the integrin expression and, as a consequence, the leukocyte migration. However, the decreased in leukocyte number is minor in prenatal stressed due to habituation. The neutrophil-lymphocyte relationship, a stress marker, showed that postnatal handling in prenatally stressed animals return to normal values since 120 min.

Another possible explanation for the similar results observed in prenatal control non-handling group and prenatal stress handling group may be due, at least in part, to the decrease in the pro-inflammatory cytokine levels, restoring the immune cell distribution.

The lower lymphocyte T proliferation described in prenatal stress non-handling group is in agreement with Silberman et al. (2004). When prenatally stressed animals were postnatally handled, the lymphocyte T proliferation is reverted to control levels. These results are difficult to explain because the underlying mechanisms are not clear. In our studies, the results are independent of plasma COR levels at that time but it could be expressed via monoaminergic (Meaney et al., 2000).

There are many evidences from various years ago demonstrating in human that exists effects from prenatal stress of psychophysic nature as mental retard, dream disturbs on child (Stott D. N., 1973; Schell L. M., 1981), cognitive deficits (Koehl 2002 ,Weinstock, 2001), addiction to drugs (Deminière et al., 1992), sexual function altered (Ward, 1972, 1984; Papaioannou A, et al. 2002), increase attention déficit with hyperactivity (Clements A. D., 1992) and hyperanxiety (Vallée et al., 1997; Ward, 1991). Also, prenatal stress impairs coping behaviour in novel and intimidating situations, induces depressive-like behaviour and learned helplessness and anhedonia (Papaioannou et al. 2002). These processes could be prevented by early handling treatment.(Nachum-Biala et al, 2006).

A considerable array of manipulations in early development have been shown to permantely modify the development and subsequent function of HPA (Kapoor et al, 2006; Vallée et al, 1997; Armario et al, 2011). There is additional evidence for the involvement of associative processes since adaptation of the ACTH and the adrenaline responses to repeated handling was lost when the person who handled the animals was changed (Dobrakovova et al, 1993). In both human and in rodents there is a critical neonatal period in which the disruption of maternal care and possibly the presence of other stressful situations can reprogram the HPA axis (Seckl & Meaney 2004). These events may culminate in early potential damage of brain function because the brain's exposure to corticosteroids is increased

5. Conclusion

We demonstrated that early postnatal handling regulates immune responses through immune cell distribution and lymphocyte T proliferation induced by prenatal stress.

Psychological stress interacts to increase vulnerability and put the human being at the greatest risk for disease. This is important because immune dysregulation in human is more frequently and seriously associated with clinical impairment (Bellinger et al., 2008).

References

Armario, A., & Castellanos, J. M. (1984). A simple procedure for direct corticosterone radioimmunoassay in the rat. *Revista Española de Fisiología, 40,* 437- 441.

Bauer, M. E., Perks, P., Lightman, S. L., & Shanks, N. (2001). Are adhesion molecules involved in stress-induced changes in lymphocyte distribution? *Life Sciences*, *69,* 1167-1179. http://dx.doi.org/10.1016/S0024-3205(01)01200-0

Bellinger, D. L., Lubahn, C., & Lorton, D. (2008). Maternal and early life stress effects on immune function: relevance to immunotoxicology. *Journal of Immunotoxicology, 5,* 419-444. http://dx.doi.org/10.1080/15476910802483415

Bowers, S. L., Bilbo, S. D., Dhabhar, F. S., & Nelson, R. J. (2008). Stressor-specific alterations in corticosterone

and immune responses in mice. *Brain, Behaviour and Immunity, 22,* 105-113. http://dx.doi.org/10.1016/j.bbi.2007.07.012

Chapillon, P., Patin, V., Roy, V., Vincent, A., & Caston, J. (2002). Effects of pre- and postnatal stimulation on developmental, emotional, and cognitive aspects in rodents: a review. *Developmental Psychobiology, 41,* 373-387. http://dx.doi.org/10.1002/dev.10066

Clements, A. D. (1992). The incidence of attention deficit-hyperactivity disorder in children whose mothers experienced extreme psychological stress. *Georgia Educational Researcher, 91,* 1-14.

Couret, D., Jamin, A., Kuntz-Simon, G., Prunier, A., & Merlot, E. (2009). Maternal stress during late gestation has moderate but long-lasting effects on the immune system of the piglets. *Veterinary Immunology and Immunopathology, 131,* 17-24. http://dx.doi.org/10.1016/j.vetimm.2009.03.003

Deminière, J., Piazza, P., Guegan, G., Abrous, N., Maccari, S., Le Moal, M., & Simon, H. (1992). Increased locomotor response to novelty and propensity to intravenous amphetamine self administration in adult offspring of stressed mothers. *Brain Res, 586,* 135-139. http://dx.doi.org/10.1016/0006-8993(92)91383-P

Dhabhar, F. S., Miller, A. H., & Stein, M. (1994). Diurnal and stress-induced changes in distribution of peripheral blood leukocyte subpopulation. *Brain Behav Immun, 8,* 66-79. http://dx.doi.org/10.1006/brbi.1994.1006

Dhabhar, F. S., Miller, A. H., McEwen, B. S., & Spencer, R. L. (1995). Effects of stress on immune cell distribution. Dynamics and hormonal mechanisms. *The Journal of Immunology, 154,* 5511-5527.

Dhabhar, F. S., Miller, A. H., McEwen, B. S., & Spencer, R. L. (1996). Stress-induced changes in blood leukocyte distribution. Role of adrenal steroid hormones. *Journal of Immunology, 157,* 1638-1644.

Dobrakovova, M., K.evetnansky R, O., prsalova, Z., & Jezova, D., (1993). Specificity of the effect of repeated handling on sympathetic-adrenomedullary and pituitaryadrenocortical activity in rats. *Psychoneuroendocrinology, 18,* 163–74. http://dx.doi.org/10.1016/0306-4530(93)90001-2

Halper, A. H., Meller, R. L.,Trestman, A. C., Santucci, C., Lackner, M., & Stein, J. P. (1991). Biochemical mechanisms of stress-induced impairment of rat T cell mitogenesis. *Journal of Neuroimmunology, 32*(3), 241-247. http://dx.doi.org/10.1016/0165-5728(91)90194-C

Jessop, J. J., Gale, K., & Bayer, B. M. (1987). Enhancement of rat lymphocyte proliferation after prolonged exposure to stress. *Journal of Neuroimmunology, 16*(2), 261–271. http://dx.doi.org/10.1016/0165-5728(87)90080-4

Keshet, G. I., & Weinstock, M. (1995). Maternal naltrexone prevents morphological and behavioral alterations induced in rats by prenatal stress. *Pharmacol Biochem Behav, 50,* 413–419. http://dx.doi.org/10.1016/0091-3057(94)00289-U

Koehl, M., Lemaire V., Mayo W., Abrous D. N., Maccari S., Piazza P. V. et al. (2002). Individual vulnarability to substance abuse end affective disorders: role od early enviromental influences. *Neurotoxicity Res, 4,* 281-296. http://dx.doi.org/10.1080/1029842021000010866

Lemaire, V., Lamarque, S., Le Moal, M., Piazza, P. V., & Abrous, D. N. (2006). Postnatal stimulation of the pups counteracts prenatal stress-induced deficits in hippocampal neurogenesis. *Biological Psychiatry, 59,* 786-792. http://dx.doi.org/10.1016/j.biopsych.2005.11.009

Maccari, S., Darnaudery, M., Morley-Fletcher, S., Zuena, A. R., Cinque, C., & Van Reeth, O. (2003). Prenatal stress and long-term consequences: implications of glucocorticoid hormones. *Neurosciences and Biobehavioral Reviews, 27,* 119-127. http://dx.doi.org/10.1016/S0149-7634(03)00014-9

Mayer, N., Greco, C., Bertuzzi, M., Rodriguez, N., Vivas, A., & Gauna, H. (2011). Immobilization stress responses in adult rats exposed *in utero* to immobilization. *Stress and Health, 27,* e1-e10. http://dx.doi.org/10.1002/smi.1329

McCormick, J. A., Lyons, V., Jacobson, M. D., Noble, J., Diorio, J., & Nyirenda, M. (2000). 5'-heterogeneity of glucocorticoid receptor messenger RNA is tissue specific: differential regulation of variant transcripts by early-life events. *Molecular Endocrinology, 14,* 506-517. http://dx.doi.org/10.1210/me.14.4.506

Meaney, M. J., Aitken, D. H., Van Berkel, C., Bhatnagar, S., & Sapolsky, R. M. (1988). Effect of neonatal handling on age-related impairments associated with the hippocampus. *Science, 239,* 766-768. http://dx.doi.org/10.1126/science.3340858

Meaney, M. J., Diorio, J., Francis, D., Widdowson, J., LaPlante, P., & Caldji, C. (1996). Early environmental regulation of forebrain glucocorticoid receptor gene expression: implications for adrenocortical responses to stress. *Developmental Neuroscience, 18,* 49-72. http://dx.doi.org/10.1159/000111395

Meaney, M. J., Diorio, J., Francis, D., Weaver, S., Yau, J., & Chapman, K. (2000). Postnatal handling increases the expression of cAMP-inducible transcription factors in the rat hippocampus: the effects of thyroid hormones and serotonin. *The Journal of Neuroscience, 20,* 3926-3935.

Michajlovskij, N., Lichardus, B., Kvetñasnsky, R., & Ponec, J. (1988). Effect of acute and repeated inmobilization stress on for and water intake urine output and vasopressine changes in rats. *Endocrinologia Experimentalis, 22,* 143-157.

Morley-Fletcher, S., Darnaudery, M., Koehl, M., Casolini, P., Van Reeth, O., & Maccari, S. (2003). Prenatal stress in rats predicts immobility behavior in the forced swim test: Effects of a chronic treatment with tianeptine. *Brain Res, 989,* 246–251. http://dx.doi.org/10.1016/S0006-8993(03)03293-1

Nachum-Biala, Y., Salomon, S., & Weinstock, M. (2006). Postnatal handling prevents abnormalities in behaviour and memory induced by prenatal stress. *European Neuropsychopharmacology, 16*(1), S78. http://dx.doi.org/10.1016/S0924-977X(06)80092-1

O'Donnell, D., Larocque, S., Seckl, J. R., & Meaney, M. J. (1994). Postnatal handling alters glucocorticoid, but not mineralocorticoid messenger RNA expression in the hippocampus of adult rats. *Brain Research Molecular Brain Research*, *26,* 242-248. http://dx.doi.org/10.1016/0169-328X(94)90096-5

Papaioannou A., Geroziss K., Prokopou A., Bolaris S., & Stylianopoulou F. (2002). Sex differences in the effects of neonatal handling on the animal's response to stress and the vulnerability for depressive behaviour. *Behav Brain Res, 129,* 131-139. http://dx.doi.org/10.1016/S0166-4328(01)00334-5

Poltyrev, T., Gorodetsky, E., & Bejar, C. (2005). Effect of chronic treatment with ladostigil (TV-3326), on anxiogenic and depressive-like behaviour and on activity of the hypothalamic pituitary adrenal axis in male and female prenatally-stressed rats. *Psychopharmacology, 181,* 118–125. http://dx.doi.org/10.1007/s00213-005-2229-z

Rabasa, C., Delgado-Morales, R., Muñoz-Abellán, C., Nadal, R., & Armario, A. (2011). Adaptation of the hypothalamic-pituitary-adrenal axis and glucose to repeated immobilization or restraint stress is not influenced by associative signals. *Behavioural Brain Research, 217*(1), 232-239. http://dx.doi.org/10.1016/j.bbr.2010.10.001

Rodríguez, N., Mayer, N., & Gauna, H. F. (2007). Effects of prenatal stress on male offspring sexual maturity. *Biocell, 31,* 67-74.

Salomon, S., Bejar, C., Schorer-Apelbaum, D., & Weinstock, M. (2011). Corticosterone mediates some but not other behavioural changes induced by prenatal stress in rats. *Journal of neuroendocrinology, 23*(2), 118-28. http://dx.doi.org/10.1111/j.1365-2826.2010.02097.x

Schell, I. (1981). Environmental noise and human prenatal growth. *Am. J. Physiol. Anthrop, 56*(6), 3-70.

Seckl, J. R. (2004). Prenatal glucocorticoids and long-term programming. *European Journal of Endocrinology, 151,* 49-62. http://dx.doi.org/10.1530/eje.0.151U049

Seckl J. R., & Meaney M. J. (2004). Glucocorticoids programming. *Ann. N.Y. Acad. Sci, 1032,* 63-84. http://dx.doi.org/10.1196/annals.1314.006

Silberman, D. M., Ayelli-Edgar, V., Zorrilla-Zubilete, M., Zieher, L. M., & Genaro, A. M. (2004). Impaired T-cell dependent humoral response and its relationship with T lymphocyte sensitivity to stress hormones in a chronic mild stress model of depression. *Brain Behaviour and Immunity, 18,* 81-90. http://dx.doi.org/10.1016/S0889-1591(03)00109-0

Sterlemann, V., Ganea, K., Liebl, C., Harbich, D., Alam, S., & Holsboer, F. (2008). Long-term behavioral and neuroendocrine alterations following chronic social stress in mice: implications for stress-related disorders. *Hormones and Behaviour; 53,* 386-394. http://dx.doi.org/10.1016/j.yhbeh.2007.11.001

Stott, D. (1973). Follow-up study from birth of the effects of prenatal stresses. *Dev. Med. Child. Neurol, 5,* 770-787.

Vallée, M., Mayo, W., Dellu, F., Le Moal, M., Simon, H., & Maccari, S. (1997). Prenatal stress induces high anxiety and postnatal handling induces low anxiety in adult offspring: correlation with stress-induced corticosterone secretion. *The Journal of Neuroscience, 17,* 2626-2636.

Ward, I. L. (1972). The prenatal stress feminizes and desmasculinizes the behavior of males. *Science, 175,* 82. http://dx.doi.org/10.1126/science.175.4017.82

Ward, I. L. (1984). The prenatal stress syndrome: current status. *Psychoendocrinology*, *9,* 3-11. http://dx.doi.org/10.1016/0306-4530(84)90016-7

Ward, I. L. (1991). Prenatal stressand childhood psychopathology. *Child Psychiat.Hum.Dev, 22,* 97-110. http://dx.doi.org/10.1007/BF00707788

Weinstock, M. (1997). Does prenatal stress impair coping and regulation of hypothalamic-pituitary-adrenal axis? *Neurosciences and Biobehavioral Reviews, 21,* 1-10. http://dx.doi.org/10.1016/S0149-7634(96)00014-0

Weinstock. (2001). Alterations induced by gestational stress in brain morphology and behavior of the offspring. *Prog.Neurobiol, 65,* 427.

Wright, R. J. (2010). Perinatal stress and early life programming of lung structure and function. *Biological Psychology, 84,* 46-56. http://dx.doi.org/10.1016/j.biopsycho.2010.01.007

Zarrow, M. X., Philpott, J. E., & Denenberg, V. H. (1970). Passage of 14C-4-corticosterone from the rat mother to the foetus and neonate. *Nature, 226,* 1058-1059. http://dx.doi.org/10.1038/2261058a0

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Are Japanese Willing to Employ a Chinese Candidate with High Language Proficiency? An Experimental Study of Prejudice in Hiring Decisions

Seiji Takaku[1], Kuniko Takeda[1], Nobuko Asai[2] & Nobuhiko Goto[3]

[1] Division of Social and Behavioral Sciences, Soka University of America, Aliso Viejo, USA

[2] Faculty of Social Relations, Kyoto-Bunkyo University, Kyoto, Japan

[3] Department of Psychology, Nagoya University, Aichi, Japan

Correspondence: Seiji Takaku, Division of Social and Behavioral Sciences, Soka University of America, Aliso Viejo, CA92656, USA. Tel: 1-949-480-4058. E-mail: stakaku@soka.edu

Received: June 7, 2012 Accepted: August 2, 2012 Online Published: August 22, 2012

doi:10.5539/ijps.v4n3p83 URL: http://dx.doi.org/10.5539/ijps.v4n3p83

Abstract

We investigated the extent to which Japanese hold prejudice attitudes toward Chinese. Japanese participants evaluated the personality and job qualifications of a male job candidate as a function of the candidate's nationality (Japanese, Chinese, or simply Asian), the number of languages he speaks, and the level of the participants' patriotism.The Japanese participants' evaluation of the candidate was not influenced by the candidate's nationality, but was influenced by the number of languages he speaks. The level of the participants' patriotism also influenced their evaluation of the job candidate in expected and unexpected directions. Various implications of the results were discussed.

Keywords: prejudice, hiring decision, Japan-China relation, language proficiency

1. Introduction

Although overt discrimination against Chinese people is rare (e.g., Yang, Power, Takaku, & Posas, 2004), Japanese sentiments toward Chinese have become increasingly negative in recent years, in part owing to China's growing economic and political influences in the world (Nakamura, 2008; Qiu, 2006). For example, Nakamura (2008) reported that Japanese sentiments toward Chinese hit the lowest level since the government started the survey in 1978. Another national survey conducted by the Ministry of Foreign Affairs of Japan in 2006 also showed that 66.7 percent of the respondents reported that Japan-China relation is "not good"; and the 2002 *Yomiuri Shinbun* newspaper survey also reported that 55 percent of Japanese respondents thought the Chinese people were unreliable (Qiu, 2006).

In light of these survey reports, many fear that such negative sentiments held by Japanese could easily turn into overt discrimination against Chinese. In fact, there has been an increase in more blatant discrimination against Chinese in recent year as exemplified by a group of Japanese nationalists throwing smoke bombs at the Chinese consulates in the cities of Fukuoka and Nagasaki and organizing a motorcade of several dozen cars to intimidate a bus carrying Chinese tourists in Fukuoka, which prompted Beijing to issue a warning to its citizens about the dangers of visiting Japan (MacKinnon, 2010).To prevent this type of conflicts, it is imperative to explore various ways by which such negative prejudice held by, and discrimination exercised by, Japanese against Chinese could be reduced. Thus, in this study, we attempted to address this very issue by utilizing Allport's (1954) social contact theory and Tajfel and Turner's (1979) social identity theory. Specifically, we examined whether a Chinese person's ability to speak Japanese has any effect on reducing his likelihood of getting discriminated against by Japanese who hold differing levels of patriotic attitude in a job hiring setting.

1.1 Social Psychological Theories on Reducing Prejudice and Discrimination

By far the most influential prejudice reduction theory is Allport's (1954) social contact theory that clarifies four essential conditions for optimal intergroup relationships: (1) equal status between the groups in the situation; (2) common goals; (3) intergroup cooperation; and (4) the support of authorities, law, or custom (Pettigrew &Tropp, 2006). The theory has been tested and supported by past research that examined a variety of issues dealing with

inter-group relations (see Davies, Tropp, Aron, Pettigrew, & Wright, 2011; Pettigrew, 1998; Pettigrew &Tropp, 2006). These studies have consistently shown that an application of the theory helps build positive inter-group relationships (e.g., Anderson, 1995; Binder et al., 2009; Desforges, Lord, Ramsey, Mason, Van, & West, 1991; Drew, 1988; Haddock, Zanna, & Essess, 1993).

In addition to the four conditions above, Pettigrew (1998) argued that "friendship potential" (p. 76) is a fifth, and the most essential, component that ensures the most optimal intergroup relation. He stated that the cross-group contact situations must provide participants with the opportunity to become friends, requiring extensive and repeated intergroup contacts as exemplified by the famous Robbers Cave study by Sherif and his colleagues (1961).

1.2 Language Proficiency as an Important Factor in Increasing Friendship Potential

Researchers who advocate the importance of friendship potential in reducing prejudice assume that people who are involved in cross-group contact situations can communicate with one another in the same language. However, in many cross-group contact situations, such an assumption is not warranted. In fact, not only having a common language is crucial to optimal intergroup relationships (e.g., Blokland, 2003; Wagner & Machleit, 1986), whether or not one could speak the common language well plays an important role in actualizing friendship potential. This is especially true for minority group members who recently immigrated to a new country. Recent research on discrimination experienced by adolescent children of immigrants in the United States, for example, indicates that those adolescents who could not speak English well (or speak with an accent) were significantly more likely to perceive that they have been stereotyped as perpetual foreigners and been discriminated against by their majority group peers than those adolescents who could speak English well (Kim, Wang, Deng, Alvarez, & Li, 2011; Medvedeva, 2010).

In fact, other studies (e.g., Davila & Mora, 2004; Dustman & Fabbri, 2003) found that immigrants with high language proficiency may experience less prejudice and discrimination because they are more likely to be employed and obtain higher earnings than those with limited language proficiency. For example, Leslie and Lindley (2001) who studied various immigrant groups in the UK found that the immigrants with high language proficiency were more likely to receive full-time education and earn higher incomes than those with limited language proficiency, and because these factors help them establish higher status in society, they are less likely to experience prejudice and discrimination.

These research findings seem to reinforce the idea that, not just having a common language, but for the minority group members, having high proficiency in the majority group's language plays a crucial role in helping members of both groups to perceive themselves as part of the same group (i.e., recategorization process), which eventually helps them actualize friendship potential and establish most optimal intergroup contact (Gaertener et al., 2000; Wright, Aron, McLaughlin-Volpe, & Roop, 1997).

Nevertheless, because many of these studies were based on correlational method, it is difficult to isolate the causal effect of language proficiency of out-group members on reducing their likelihood of getting discriminated against by the majority group members. Thus, it is imperative to conduct a highly controlled experiment to explicate the language proficiency effect on the reduction of prejudice and discrimination.

1.3 Present Study

The objectives of the present study are: (1) to document experimentally to what extent contemporary Japanese express negative attitudes towards and discriminate against contemporary Chinese in a job hiring process; and (2) to assess whether manipulation of language proficiency reduces negative attitudes toward and discrimination against the Chinese candidate. Specifically, the present study followed Fein and Spencer's (1997) experimental procedure and asked the participants to evaluate the personality and job qualifications of a male job candidate, ultimately deciding on whether the candidate should be hired based on the candidate's nationality (i.e., Japanese, Chinese, or no nationality identified and simply labeled "Asian" for the control condition) and the number of languages he could speak.

Based on the literature reviewed above, the following hypotheses were proposed:

Hypothesis 1a & 1b: When the job candidate is portrayed as bilingual, the Japanese candidate (who speaks Japanese and English) is (a) perceived as possessing more *positive* personality and fewer *negative* personality traits and (b) endorsed significantly more for the position than the bilingual Chinese candidate (who speaks Chinese and English) or the bilingual Asian (control) candidate.

Hypothesis 2a & 2b: However, when the job candidate is portrayed as trilingual, (a) the difference in perceived personality traits and (b) the difference in the degree of endorsement for the position between the Japanese

candidate and the Chinese (or the control Asian) candidate will disappear because the Chinese candidate who speaks Japanese in addition to Chinese and English is now perceived as an in-group member.

In addition to the above hypotheses, we also examined the possibility that the strength of national identity may moderate the effect of language proficiency. Social identity perspectives posit that people are motivated to achieve their distinct self-image from their social identity, and this tendency is stronger among those who strongly identify with their group (i.e., high identifiers) rather than weakly (i.e., low identifiers) (Tajfel & Turner, 1986). For example, Jetten, Spears, and Manstead (2001) found that high identifiers showed stronger ingroup bias than low identifiers. Crisp, Stone, and Hall (2006) also found the similar results. Accordingly, we postulate the following hypothesis.

Hypothesis 3: Compared to those who are low on their level of patriotism, Japanese participants who are high on their level of patriotism are (a) less likely to infer positive personality traits of the Chinese candidate, (2) more likely to infer negative personality traits of the Chinese candidate, and (3) less likely to endorse the Chinese candidate for the position regardless of whether he speaks Japanese or not.

2. Method

2.1 Participants

A total of 312 Japanese participants were recruited at Tohoku University and NagoyaUniversity in Japan and Soka University of America in the United States, consisting of 154 males and 154 females (four participant did not provide his/her gender information). The participants' age ranged from 18 to 41 with the mean age of 20. All participants were enrolled into a raffle to receive a $200 visa gift card.

2.2 Design

The participants were asked to evaluate the personality and job qualifications of a male job candidate who is applying for an imaginary IT company in the United States and ultimately decide whether he should be hired for the position. The first independent variable (IV) was the nationality of the candidate, including Japanese, Chinese, or not mentioned (i.e., the control candidate who is simply perceived as an Asian male). The second IV was the number of languages spoken by the candidate. Specifically, the Japanese candidate was portrayed as either being able to speak two languages (i.e., Japanese and English) or three languages (i.e., Japanese, English, and Chinese); for the Chinese candidate, he was portrayed as either being able to speak two languages (i.e., Chinese and English) or three languages (i.e., Chinese, English, and Japanese); and for the control candidate, he was portrayed simply as bilingual or trilingual without specifying what languages.This IV was intended to allow the Chinese candidate to be perceived either as an "out-group" member or an "in-group" member. Thus, the study employed a 2 (the number of languages spoken) x 3 (nationality: Japanese, Chinese, or control) between-participants factorial design. Participants were randomly assigned to evaluate one of the six candidates (see *Procedure* section for details).

The dependent variables (DVs) were measured by a survey questionnaire issued to each participant following their thorough analysis of the job description (Appendix A), the candidate's résumé (Appendix B), and a video clip of the corresponding job interview (Appendix C). The level of prejudice was measured in two ways: (1) by the participants' evaluation of perceived personality traits of a job candidate and (2) by how much they endorsed the candidate for the position. The personality traits included nine positive traits – i.e., intelligent, trustworthy, sincere, friendly, down-to earth, creative, motivated, ambitious, and happy – and nine negative personality traits – i.e., insensitive, arrogant, inconsiderate, self-centered, rude, materialistic, conceited, vain, and superficial. The participants were asked to evaluate those traits based on a 7-point likert scale (1 = not at all; 7 = very much). In addition, four questions were asked to measure participants' endorsement of the candidate for the position he was applying. The first three questions asked them how much they would agree with the following statements using a 7-point scale (1 = not at al; 7 = very much): (1) "I feel this person would make an excellent candidate for the position in question"; (2) "I would likely give this person serious consideration for the position in question"; (3) "I felt favorably toward this person"; and the last item by asking to fill out the blank in the following sentence: (4) "I would guess that this person is in the top___% of people interviewed."

Furthermore, the following three questions were asked to assess the degree of patriotism possessed by the participants using a 7-point scale (1 = not at all; 7 = very much): To what extent do you agree with the following statement? (1) "I love Japan"; (2) "Japan is superior to other Asian countries in many aspects"; and (3) "I am proud to be Japanese." Then, the following question was asked to assess their degree of superordinate identity based on a 7-point scale (1 = not at all; 7 = very much): To what extent do you agree with the following statement? "I like being called 'Asian'." Finally, the participants were asked to write down the candidate's

nationality, the number of languages he could speak, and his full name to ensure the success of the manipulations.

2.3 Procedure

An online learning management system called "Angel" was used to post the six online surveys. Furthermore, by entering the six survey links into the "url rotator," one of the six survey links was randomly sent to the participants when they agreed to participate in the survey by clicking the link provided in the invitation email sent by one of the experimenters. After consenting to take the survey, all participants were provided with general information about the research that investigates the cross-cultural differences on how people evaluate a job candidate's competence during an imaginary IT company's job interview. The participants were then shown the detailed description of the job, explaining general tasks and required skills. Then, they were shown a three-minute video presented as an excerpt from the candidate's job interview (Note 1). In the video clip, the candidate's responses to the interviewer's questions were sufficient and not overly positive or negative to provide a neutral impression. After the video, the participants reviewed the candidate's résumé, which included details about the number of languages he could speak, character-strengths, work experience, educational background, work-relevant skills, and other information that one usually finds in a professional résumé. Subsequently, the participants were asked to indicate the name of the candidate and how many and what languages the candidate is able to speak (i.e., manipulation-check questions), assess the candidate's perceived personality traits, and evaluate how much they endorse the candidate for the position. Furthermore, embedded in these questions were three questions intended to assess how patriotic these Japanese participants were and one question designed to assess the degree of their superordinate "Asian" identity.

2.3.1 Manipulation of Candidate's Nationality

To manipulate the candidate's national background, the following information was altered: (1) name (Wang-Xi Feng for Chinese condition, Nobuo Yoshikawa for Japanese condition, and James Francis Duran for Asian control condition), (2) language (the number and type of languages spoken), and (3) his relevant work experience (a waiter at a Chinese restaurant, Japanese restaurant, or just a restaurant). Also, the Asian actor hired to act as the candidate during the interview was chosen because he could be easily recognized as either Chinese or Japanese descent.

2.3.2 Manipulation of Candidate's Spoken Languages

The number and the type of languages that the candidate is able to speak were indicated in the résumé and in the job interview video clip. In the video clip, he further specified his home country (i.e., China, Japan, or unidentified) and that he had an internship experience in the respective country to impress the employer/interviewer with his language skills (i.e., interned in China for the Chinese bilingual candidate, in Japan for the Chinese trilingual candidate, Japan for the Japanese bilingual candidate, China for the Japanese trilingual candidate, and no country was specified for the Asian control candidate).

2.3.3 Data Collection

The data was collected through online surveys, which were issued with the help of two colleagues at *Tohoku* University and *Nagoya* University in Japan. They were asked to send the survey link to students in their classes. The Japanese online social networking website, Mixi, was also utilized as a means to contact Japanese participants. The cover story explained that *Tohoku* University, in alliance with a university in America, was investigating cross-cultural difference on how people evaluate a job candidate's interpersonal skills during a pseudo job interview.

Upon completion of the data collection, a debriefing letter was emailed to every participant who gave permission to contact them. After debriefing the participants with the true purpose of the study, the winner of the $200 raffle (selected at random) was informed. This concluded the role of the survey participants.

2.4 Translation of Materials

Surveys were originally created in English. They were translated into Japanese and translated back into English by a second translator to ensure equivalence in meaning.

3. Results

3.1 Manipulation Check

Following the video job interview and the review of the résumé, the participants were asked to enter the candidate's name, nationality, and languages spoken. For the Chinese and Japanese candidate (both bilingual and trilingual), all participants were able to report accurately his name and the number and the type of languages he

could speak, with only minor mistakes, such as the spelling of the candidate's name (e.g., Nobuo Yoshikawa →Noboru Yoshikawa). For the control candidate (both bilingual and trilingual candidates) whose language or nationality information was not specified, several participants (ten participants for the control bilingual candidate and thirteen participants for the control trilingual candidate) inaccurately inferred the candidate's nationality and/or the type of language he could speak. The results of the data analyses with or without these participants did not differ significantly so they were kept in the subsequent data analyses.

3.2 Creating Indices

Before creating an index for positive personality traits, the Chronbach's alpha value among the nine positive personality traits was calculated and found that the measure was fairly reliable ($\alpha = .76$). As for the negative personality trait index the Chronbach's alpha value among the nine negative personality traits was .84. As for the endorsement index, the Chronbach's alpha value among the four items was .85. As for the Japanese pride/patriotism index, the Chronbach's alpha value among the three items was .72.

3.3 Testing Hypothesis

To test hypotheses 1a – 2b, a 2 x 3 analysis of variance (ANOVA) was performed on the positive personality index, negative personality index, and endorsement index.

3.3.1 Positive Personality Index

Although we predicted a significant interaction effect between the nationality and the language independent variables, the results indicated that there was only a significant main effect of the number of languages the candidate speaks on the level of positive personality inferred, $F(1, 304) = 6.74$, $p < .01$, $\eta^2 = .022$. Specifically, the participants thought that the trilingual candidate possessed significantly more positive personality traits ($M = 4.60$; $SD = .74$) than the bilingual candidate ($M = 4.37$; $SD = .73$) regardless of his nationality.

3.3.2 Negative Personality Index

Again, although we predicted a significant interaction effect between the nationality and the language independent variables, no significant result was found.

3.3.3 Endorsement Index

As predicted, there was a significant interaction effect between the nationality and the language independent variables, $F(2, 306) = 3.19$, $p<.05$, $\eta^2 = .020$. However, this interaction effect was not the type of interaction effect we predicted. A series of post hoc tests using the Bonferroni alpha correction procedure revealed that the language variable influenced only the Japanese candidate's endorsement level, but not the Chinese or the control candidate's endorsement level. Specifically, when the Japanese candidate was portrayed as trilingual, he was endorsed significantly more for the position ($M = 5.48$; $SD = 1.04$) than when he was portrayed as bilingual ($M = 4.80$; $SD = 1.18$). In other words, the participants' level of endorsing the candidate was not influenced by his nationality as we predicted.

Next, to test hypothesis 3, we first divided the participants into two groups of *more-patriotic* participants and *less-patriotic* participants using the median split procedure. We then conducted a 2 (high vs. low patriots) x 2 (bilingual vs. trilingual Chinese candidate) factorial ANOVA on the following three dependent variables: positive personality index, negative personality index, and endorsement index. Because no significant results were found for the negative personality index, we will only report the findings for the positive personality index and endorsement index.

3.3.4 Positive Personality Index

Though we expected only the patriotism main effect, we found that there was a significant interaction effect between the two independent variables, $F(1, 96) = 6.35$, $p < .01$, $\eta^2 = .06$. To interpret this interaction, we conducted a series of post-hoc tests using the Bonferroni alpha correction procedure. We found that participants who are less patriotic perceived the bilingual Chinese candidate ($M = 4.19$; $SD = 1.11$) to possess as much positive personality characteristics as the trilingual Chinese candidate ($M = 4.35$; $SD = .79$), $t(54) = .63$, p = ns. However, participants who are more patriotic perceived that the bilingual Chinese candidate to possess significantly more positive personality characteristics ($M = 4.85$; $SD = .77$) than the trilingual Chinese candidate ($M = 4.11$; $SD = .70$), $t(42) = 4.27$, $p < .01$.

3.3.5 Endorsement Index

Again, though we expected only the patriotism main effect, we found that there was a significant interaction effect between the two independent variables, $F(1, 96) = 6.35$, $p < .01$, $\eta^2 = .08$. To interpret this interaction, we

conducted a series of post-hoc tests using the Bonferroni alpha correction procedure. We found that participants who are less patriotic endorsed the trilingual Chinese candidate (M = 5.35; SD = 1.19) slightly more than the bilingual Chinese candidate (M = 4.65; SD = 1.54), even though this difference became technically non-significant after the Bonferroni alpha correction was applied, $t(54) = 1.87$, $p = .05$. On the other hand, participants who are more patriotic endorsed the bilingual Chinese candidate significantly more (M = 5.65; SD = .95) than the trilingual Chinese candidate (M = 4.95; SD = .89), $t(42) = 2.49$, $p < .01$.

4. Discussion

The main objectives of the present study were to document the degree to which the contemporary Japanese hold prejudice attitudes towards and discriminate against the contemporary Chinese and to assess whether such negative attitudes and behaviors could be reduced by a simple manipulation of language proficiency of the target person. Furthermore, we wanted to investigate these issues in a highly controlled experimental setting in which Japanese participants were asked to evaluate a job candidate whose nationality was manipulated to portray him as Japanese, Chinese, or simply Asian. Based on the literature review, we hypothesized that Japanese participants were more likely to endorse a Japanese job candidate rather than a Chinese job candidate. Also, when the job candidate was portrayed as Chinese, the Japanese participants would endorse the candidate who could speak Japanese in addition to Chinese and English significantly more than the candidate who does not speak Japanese (i.e., only Chinese and English).

Contrary to the hypotheses, we found that Japanese participants' evaluation of the job candidate was not influenced by the nationality manipulation. Specifically, the degree to which the candidate was perceived to possess positive personality traits was not influenced by the candidate's nationality, but by how many languages he could speak. The Japanese participants thought that the trilingual candidate, regardless of his nationality, possessed more positive personality traits than the bilingual candidate. Furthermore, the degree to which the candidate was perceived to possess negative personality traits was influenced neither by the candidate's nationality nor the number of languages he could speak. Finally, the degree to which the candidate was endorsed for the position was influenced both by the candidate's nationality and the languages he could speak, but not in the direction we expected. Though we expected that the Japanese participants would endorse the Chinese candidate as much as, if not more than, the Japanese candidate if he is portrayed as being able to speak Japanese and know much about the Japanese culture, we found that the Japanese participants endorsed all candidates equally regardless of the candidate's nationality or the number of languages he could speak, except for the trilingual Japanese candidate who was endorsed significantly more than the bilingual Japanese candidate. We would like discuss a few implications of these findings below.

First and foremost, the Japanese participants, or more specifically Japanese undergraduate students who participated in this study are not as prejudiced as we expected and they seemed to be able to evaluate the candidate solely based on the merit of his job relevant skills, talents, and experiences. This hopeful finding may be the result of Japanese people's conscious effort to "right the wrong" by carefully re-assessing the historical cause of China's anti-Japanese sentiments. For example, evidence for such an effort can be seen in the comment made by a Japanese reporter who reported after the rioting at the 2004 Asian Cup Soccer Games, in which the reporter stated, "People in Japan should ask themselves why such anti-Japanese behavior manifested itself, a necessary prelude to searching for ways to understand and hopefully defuse the obvious rancor exhibited in China" (as cited in Qiu, 2006, p. 29).

Secondly, one potential reason why the language manipulation only influenced the Japanese participants' evaluation of the Japanese candidate, but not the Chinese or the control candidate, may have to do with the fact that knowing Chinese is more important in today's ever globalizing world economy than knowing Japanese and that knowing English is no longer perceived as a special advantage. Thus, when the Japanese candidate was portrayed as being able to speak Chinese in addition to English (i.e., the trilingual Japanese candidate), the Japanese participants endorsed him significantly more than the bilingual Japanese candidate. However, when evaluating the Chinese candidate, the Japanese participants did not think that knowing Japanese (i.e., the trilingual Chinese candidate) would make the candidate any more advantageous than knowing the two most important languages in today's world, namely Chinese and English. Likewise, the fact that the language manipulation did not influence the Japanese participants' evaluation of the control candidate may imply that knowing what specific languages a given candidate could speak is more important than simply knowing the number of languages he could speak.

Another interesting finding from this study was that even though we predicted that the higher the Japanese participants' level of patriotism, the more they would discriminate against the Chinese candidate regardless of

whether he speaks Japanese or not, we found no evidence for this prediction. On the contrary, we found that highly patriotic participants perceived the trilingual Chinese candidate who speaks Japanese to not only possess significantly *less* positive personality traits but also endorsed him significantly *less* than the bilingual Chinese candidate who does not speak Japanese. One potential interpretation of this rather contradictory finding is that those who were highly patriotic might have felt "threatened" by a very capable Chinese candidate who not only speak English but also Japanese and reacted toward him in a negative manner. The fact that non-patriotic participants endorsed the trilingual Chinese candidate slightly more than the bilingual Chinese candidate further supports the notion that these participants were not "threatened" by the capable Chinese trilingual candidate, recognized his talent, and thus treated him accordingly.

Although this particular research finding is intriguing and its potential explanations are many, further analyses of the data suggest that how the Japanese construct their self-identity does seem to play an important role in reducing prejudice against Chinese people. As mentioned previously, one of the questions we asked the Japanese participants was how proud they were to be considered *Asian*. We wanted to see if the stronger the super-ordinate identity the Japanese possess (i.e., I am an Asian), the more likely they would be to endorse the Chinese candidate. The results clearly showed that the stronger the super-ordinate identity the Japanese participants possessed, the more they thought that (1) the Chinese candidate possessed positive personality characteristics ($\beta = .23$, $p < .01$) and (2) the more they endorsed him as a result ($\beta = .26$, $p < .01$), regardless of whether he speaks Japanese or not. In addition, the same, yet much stronger, pattern of results was found when evaluating the control candidate whom the Japanese participants could only recognize him as an Asian ($\beta = .40$, $p < .001$ for positive personality characteristics and $\beta = .35$, $p < .001$ for their endorsement of the candidate, respectively). Taken together, these results strongly suggest that enhancing people's superordinate identity plays an essential part in reducing prejudice and creating a more positive relationship between the two antagonized groups.

4.1 Limitations and Suggestions for Future Studies

Despite the positive and promising results of the present study, we still need to address some limitations of the study. First, though we have collected a sufficient number of participants to produce enough statistical power for the type of research design used in this study, the participants were mostly college students, who are younger and more educated than the general population and, therefore, the results may not be generalizable to the entire Japanese population. However, this should not be considered only as a limitation. Though the older Japanese generation might still hold strong prejudice against the Chinese people, these young college students are the ones who will shoulder and shape their future relationship with the Chinese people. Therefore, our findings seem to bode well for the future of the two nations.

However, even then, it is still possible that the Japanese participants did not show any sign of prejudice against the Chinese candidate or show any preferential treatment for the Japanese candidate because the company to which the candidate was applying was indicated as an American company. In other words, if the company was indicated as a Japanese company, then the Japanese participants might have felt stronger urge to treat the Japanese candidate more favorably than the Chinese candidate. However, at the same time, by portraying the company as an American company (i.e., neither Japanese nor Chinese company), we believe that the entire evaluation process was made more objective.

Though this may be a minor issue, due to the nature of the online survey, there was no way for the researchers to control for the environment in which the participants took the survey. It is quite possible that some participants were distracted by others or discussed their responses to the survey with them; thereby preventing them from thoroughly examining various factors presented and/or providing their true opinions on the candidate. But, even this were the case for some participants, because of the random assignment used, such noises were equally distributed among the six conditions, making them poor candidates for confounding variables.

4.2 Conclusion

There is no doubt that the atrocities committed by the Japanese military during WWII have not only damaged and will continue to influence the Sino-Japan relation, they have also been shaping the attitudes that the people of the two nations hold toward each other. However, despite such historical and many current obstacles that hinder their effort towards improving their relationship, the results of the present study suggest that there is a brighter future ahead for the two nations. Specifically, as demonstrated by many past studies, our findings strongly support the idea that to reduce prejudice and discrimination, it is important for the people involved in an intergroup conflict to internalize a superordinate identity so that any negative sentiments they may hold toward one another can be reduced and the relationship between the two groups can be improved.

Acknowledgments

This research was supported by a grant given to the first author by the Pacific Basin Research Center at Soka University of America. We would like to thank Nanci Lawson, Barbara McGrath, and Andrew Welty for their assistance in developing the online surveys for this research.

References

Allport, G. (1954). *The nature of prejudice.*Cambridge. MA: Addison-Wesley.

Anderson, L. S. (1995). Outdoor adventure recreation and social integration: A social-psychological perspective. *Dissertation Abstracts International Section A: Humanities and Social Sciences*, *55*(7-A), 2137.

Binder, J., Zagefka, H., Brown, R., Funke, F., Kessler, T., Mummendey, A., Maquil, A., Demoulin, S., & Leyens, J. (2009). Does contact reduce prejudice or does prejudice reduce contact? A longitudinal test of the contact hypothesis among majority groups in three European countries. *Journal of Personality and Social Psychology*, *96*(4), 843-856. http://dx.doi.org/10.1037/a0013470

Blokland, T. (2003). Ethnic complexity: Routes to discriminatory repertoires in an inner-city neighbourhood. *Ethnic and Racial Studies*, *26*(1), 1-24. http://dx.doi.org/10.1080/0141987002200025252

Crisp, R. J., Stone, C. H., & Hall, N. R. (2006). Recategorization and subgroup identification: Predicting and preventing threats from common ingroups. *Personality and Social Psychology Bulletin, 32*(2), 230-243. http://dx.doi.org/10.1177/0146167205280908

Davies, K., Tropp, L. R., Aron, A., Pettigrew, T. F., & Wright, S. C. (2011). Cross-group friendships and intergroup attitudes: A meta-analytic review. *Personality and Social Psychology Review, 15*, 332-351.

Davila, A., & Mora, M., T. (2004). English-language skills and the earnings of self-employed immigrants in the United States: A note. *Industrial Relations, 43*(2), 386-390. http://dx.doi.org/10.1111/j.0019-8676.2004.00335.x

Desforges, D. M., Lord, C. G., Ramsey, S. L., Mason, J. A., Van, L. M., & West, S. C. (1991). Effects of structured cooperative contact on changing negative attitudes toward stigmatized social groups. *Journal of Personality and Social Psychology*, *60*(4), 531-554. http://dx.doi.org/10.1037/0022-3514.60.4.531

Dustmann, C., & Fabbri, F. (2003). Proficiency and labour market performance of immigrants in the UK. *The Economic Journal, 113*(489), 695-717. http://dx.doi.org/10.1111/1468-0297.t01-1-00151

Drew, B. (1989). Intergenerational contact in the workplace: An anthropological study of relationships in the secondary labor market. *Dissertation Abstract International*, *50*(4).

Fein, S., & Spencer, S. J. (1997). Prejudice as Self-Image Maintenance: Affirming the Self through Derogating Others. *Journal of Personality and Social Psychology*, *73*(1), 31-44. http://dx.doi.org/10.1037/0022-3514.73.1.31

Gaertner, L. S., Dovidio, F. J., Banker, S. B., Houlette, M., Johnson, M. K., & McGlynn, A. E. (2000). Reducing intergroup conflict: From superordinate goals to decategorization, recategorization, and mutual differentiation. *The Educational Publishing Foundation*, *4*(1), 98-114.

Haddock, G., Zanna, M. P., & Esses, V. M. (1993). Assessing the structure of prejudicial attitudes. The case of attitudes towards homosexuals. *Journal of Personality and Social Psychology, 65,* 1105-1118. http://dx.doi.org/10.1037/0022-3514.65.6.1105

Jetten, J., Spears, R., & Manstead, A. S. R. (2001). Similarity as a source of discrimination: The role of group identification. *European Journal of Social Psychology*, *31*, 621-640. http://dx.doi.org/10.1002/ejsp.72

Kim, S. Y., Wang, Y., Deng, S., Alvarez, R., & Li, J. (2011). Accent, perpetual foreigner stereotype, and perceived discrimination as indirect links between English proficiency and depressive sympotoms in Chinese American adolescents. *Developmental Psychology, 47,* 289-301. http://dx.doi.org/10.1037/a0020712

Leslie, D. & Lindley, J. (2001). The impact of language ability on employment and earnings of Britain's ethnic communities.*Economia, New Series, 68*(272), 587-606. http://dx.doi.org/10.1111/1468-0335.00263

MacKinnon, M. (2010, June 6). A black sun rises in a declining Japan. *The Globe and Mail.* Retrieved from http://www.theglobeandmail.com/news/world/a-black-sun-rises-in-a-declining-japan/article1215080/

Medvedeva, M. (2010). Perceived discrimination and linguistic adaptation of adolescent children of immigrants. *Journal of Youth Adolescence, 39,* 940-952. http://dx.doi.org/10.1007/s10964-009-9434-8

Ministry of Foreign Affairs of Japan. (2006, February). Ministry of Foreign Affairs of Japan: Nicchukankeinikansuruishikichosa. Retrieved from http://www.mofa.go.jp/mofaj/area/CHINA/yoron05/indec.html (February 12, 2010)

Nakamura, K. (2008). Japanese's increasing and deepening hatred toward Chinese. Retrieved from http://www.21ccs.jp/china_watching/KeyNumber_NAKAMURA/Key_number_52.html

Pettigrew, F. T. (1998). Intergroup Contact Theory, *Annual Review Pscychology*, *49*, 65-85. http://dx.doi.org/10.1146/annurev.psych.49.1.65

Pettigrew, F. T., & Tropp, R. L. (2006). A meta-analytic test of intergroup contact theory. *Journal of Personality and Social Psychology*, *90*(5), 751-783. http://dx.doi.org/10.1037/0022-3514.90.5.751

Qiu, J. (2006). The politics of history and historical memory in China-Japan relations. *Journal of Chinese Political Science, 11*(1), 25-52. http://dx.doi.org/10.1007/BF02877032

Sherif, M., Harvey, O. J., White, B. J., Hood, W. R., & Sherif, C. W. (1961). *Intergroup conflict and cooperation: The Robbers Cave experiment*. Norman: University of Oklahoma Book Exchange.

Tajfel, H., & Turner, J. (1986). The social identity theory of intergroup behavior. In S. Worchel & W. G. Austin (Eds.), *Psychology of Intergroup Relations* (pp.7-24). Chicago: Nelson-Hall.

Yang, P. Q., Power, S., Takaku, S., & Posas, L. (2004). Immigration and ethnic conflict in comparative perspective. In Y-T. Lee, C. McCauley, F. Moghaddam & S. Worchel (Eds.), *The Psychology of Ethnic and Cultural Conflict.* Westport, CA: Greenwood.

Wagner, U., & Machleit, U. (1986). "Gestarbeiter" in the Federal Republic of Germany: Contact between German and migrant populations. In M. Hewstone & R. Brown (Eds.), *Contact and Conflict in Intergroup Encounters* (pp. 59 – 78). Oxford: Basil Blackwell.

Wright, C. S., Aron, A., McLaughlin-Volpe, T., & Roop, A. S. (1997). The extended contact effect: Knowledge of cross-group friendships and prejudice. *Journal of Personality and Social Psychology*, *73*(1), 73–90. http://dx.doi.org/10.1037/0022-3514.73.1.73

Yang, P. Q., Power, S., Takaku, S., & Posas, L. (2004). Immigration and ethnic conflict in comparative perspective. In Y-T. Lee, C. McCauley, F. Moghaddam & S. Worchel (Eds.), *The Psychology of Ethnic and Cultural Conflict.* Westport, CA: Greenwood.

Note

Note 1. The entire interview was done in English, but we provided the subtitle on the bottom of the screen so the Japanese participants were able to understand the entire conversation during the job interview.

Appendix A

Job Description

Job Description: Offering a position for technical support and training to departmental staff using computer equipment and applications on a wide area network (WAN) or large local area network (LAN); installs, tests, and resolves problems with computer hardware and software; utilizes existing software to accommodate the database needs of departments; develops and maintains Intranet and Internet Web sites, and performs related duties as required.

Distinguishing Characteristics: Computer Systems Specialist is an intermediate-level position. Incumbents learn to perform the full range of technical support duties.

Appendix B

NOBUO YOSHIKAWA

19385 Blue Crest Ave. Huntington Beach, CA (714) xxx – 0037 nyoshikawa821@xxxxxxx

OBJECTIVE:

To obtain a position as computer systems specialist with Premiere Tech United.

EDUCATION:

I have recently graduated from California State University of Northridge with a B.S. in computer science.

CONTRIBUTIVE SKILLS:

- Clerical abilities.
- Passionate about computers and information technology.
- Great memorization skills.
- Ability to expand my learning potential in different circumstances.
- Self-motivated and committed.
- Dedicated to achieving my goals.
- Resourceful.
- Ability to exercise my creativity by generating ideas very quickly.
- **Trilingual: English, Japanese, Chinese**

EXPERIENCE:

Web Designer / Internet Support Dec. 2005 – May 2007

Information Technology Department, CSUN

- Developed passion for technology by working increasingly closer with wide area network WAN and local area network LAN.
- Designed web pages for department while learning how to precisely alter and recode each, in addition to other formats.
- Learned .BIN, .CUE, .ISO, .BMP, .EXE, .M3U, .WMV, .APP, .MP4, .MPEG, in addition to many other file types.

Student Support Specialist Mar. 2005 – Nov. 2005

Information Technology Department, CSUN

- Provided support to students campus-wide in general areas such as broken sound cards and ineffective Wi-Fi and Bluetooth modulators.
- Completed weekly projects fixing classroom audio / visual systems and equipment. Gave introductory computer lessons to students.

Restaurant Waiter Oct. 2002 – Aug. 2004

Jade Palace Restaurant

- Constantly worked with customers in order to build positive relationships.
- Developed personality skills to improve friendliness while maintaining a great work ethic.

Appendix C

Interviewer: "Hi. How are you doing? Please take a seat. My name is Andrew and I am the department manager here at the Premier Tech United."

Candidate: "Thank you. Here is a copy of my resume."

Interviewer: "Alright, thank you. Ok, let's get started. Mr. Yoshikawa / Mr. Wang / Mr. Duran, why don't you introduce yourself first?"

Candidate: "Hello, my name is Nobuo Yoshikawa / Wang-Xi Feng / James Francis Duran. I am 24 years old. I was born in Tokyo, Japan / Beijing, China / Not mentioned. When I was 15 years old, I moved to the United States to learn English. After graduating from high school I attended California State University, Northridge, where I earned my Bachelor's degree in computer science. I also spent two summers interning at a Chinese (Japanese/not mentioned) technology development company in Beijing, China (for trilingual Japanese) / Tokyo, Japan (for trilingual Chinese) / not mentioned (for trilingual control) while I was at Cal State Northridge."

Interviewer: "Oh, great. So, you speak two languages, is that right?"

Candidate: "As a matter of fact, I speak three languages."

Interviewer: "Oh, really, so aside from Japanese and English, what else do you speak?"

Candidate: "I also speak Chinese."

Interviewer: "Where did that come from?"

Candidate: "Well, as part of our curriculum at Cal State Northridge, I had an opportunity to study abroad in Beijing, China.

Interviewer: "OK, great."

Interviewer: "I noticed that you are 24 years old. So, what did you do after you graduated?"

Candidate: "Actually, after graduating from college, I had planned to start my career, but my family had some problems so I had to return home to support them. But now, those issues have been resolved, so I wanted to return to the United States in search of a career."

Interviewer: "Alright. As you may know, there are many candidates applying for this job. What makes you more qualified for this job?"

Candidate: "Well, to start off, I have studied three years of technology development and wireless communications in college. Also, as I mentioned before, I interned for two summers at an information technology company. And, during my internship, I was able to develop practical skills in the field of computer technology, applied them directly to my work."

Interviewer: "Alright, sounds like you have the experiences that are necessary for this position. So if hired, how much time would you be willing to commit to this position?"

Candidate: "Well, I am looking for a full time job, so 40 or more hours a week."

Interviewer: "Alright. As you might have read in the job description, this position requires a lot of patience and willingness to sit in front of a desk organizing files, updating software, and repairing anything that may have problems. How do you feel about this?"

Candidate: "Well, I am a very goal-oriented person. My tasks are my first priority. I do not lose focus easily, and I am confident in my ability to concentrate on what needs to be done."

Interviewer: "Well, you sound like you are a solid candidate for us. Ok, that pretty much wraps it up for us. Are there any questions that you may have for us?"

Candidate: "When should I be hearing back from you?"

Interviewer: "A good question. Our secretary should be contacting you in the next two to three weeks."

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Function of Family-of-origin Experiences and Marital Adjustment among Married Iranian Students of Universiti Putra Malaysia

Soudabeh Ghoroghi[1], Siti Aishah Hassan[1] & Maznah Baba[1]

[1] Faculty of Educational Studies, Department of Counselor Education and Counseling Psychology, Universiti Putra Malaysia, Selangor, Malaysia

Correspondence: Soudabeh Ghoroghi, Faculty of Educational Studies, Department of Counselor Education and Counseling Psychology, Universiti Putra Malaysia, 43400 UPM Serdang, Selangor, Malaysia. Tel: 60-173-675-420. E-mail: sudygh@yahoo.com

Received: March 28, 2012 Accepted: August 6, 2012 Online Published: August 22

doi:10.5539/ijps.v4n3p94 URL: http://dx.doi.org/10.5539/ijps.v4n3p94

Abstract

The purpose of this study was to examine the relationships between family-of-origin experiences and marital adjustment in a sample of married postgraduate Iranian students in Malaysia. The sample consisted of 220 married students who were randomly recruited to participate in the study through their email addresses. The respondents completed demographic information and two questionnaires including Family-of-Origin Scale (FOS; Hovestadt, et al., 1985) and the Locke-Wallace Marital Adjustment Test (LWMAT; Locke & Wallace, 1959). A correlational survey design was utilized in the present study. Data analysis included frequencies, percentages, mean scores, Pearson's correlation, and multiple regression analysis. The results indicated that Family-of-origin experiences were positively and significantly correlated with marital adjustment. In addition, this study indicated that marital adjustment influences by family-of-origin experiences.

Keywords: family of origin, relationships, marital adjustment, married Iranian

1. Introduction

Undoubtedly, one of the most important decisions for most individuals, if not all, is choosing a marital partner, especially among traditional societies and families. Marriage is defined as a formally-written, verbal, or tradition long-term agreement between a man and a woman for the production of children, food and other commodities in a domestic context (Bailey, 2003).

In a marriage, marital satisfaction refers to the level of satisfaction or happiness derived from the union (Locke & Wallace, 1959). The level of marital satisfaction determines the survival of any marriage and as such there have been studies and investigations on the factors that affect marital satisfaction since the 1990s (Bradbury, Fincham, & Beach, 2000). According to Snyder and Lopez (2005), marital bliss contributes to enhanced well-being and a happy marriage experiences less stress, anxiety or depression. It is therefore understandable why there has been much focus on investigating the key factors that lead to happy marriages.

The process in which an individual or a couple modifies, adopts or changes their behavior pattern and interaction to gain the maximum satisfaction in their relationship is referred to as marital adjustment (Bali, Dhingra, & Baru, 2010). Marital adjustment, which is a developmental process (Martin, 2007) has been investigated extensively in marriage and family relationship research and it is one of the most frequently investigated dependent variables in relationship studies.

According to Martinson (2005), of the various factors that influence the development and behavior of an individual e.g., socio-cultural interactions and environment, work, friends, etc, family-of-origin experiences that we go through with our family have the greatest impact. According to Hovestadt, and colleagues (1985), family-of-origin is the family of an individual's psychological, physical and emotional beginnings. The term experiences in the family-of-origin, refers to person's experiences with parents and/or primary caregivers and especially the relationship with the parents during childhood, as the basis of relationships in adult life (Falcke, Wagner, & Mosmann, 2008).

Kerr (2008) reminds us that while we are physically away from our family, we do not leave them emotionally. From a multigenerational perspective, the legacy of the family of origin appears to be unshakably with us, an

emotional baggage that stubbornly stays within us that is exhibited in our adult relationships (Martinson, 2005; Sabatelli & Bartle, 2003). As such, the circumstances of the family-of-origin determine the conjugal adjustment and the psycho-social state of the individual in later life (Asadinik, 2009; Botha, Berg, & Venter, 2009; Falcke, et al., 2008; Luecken, Kraft, & Hagan, 2009; Martinson, 2005; Topham, Larson, & Holman, 2005).

The importance of the family of origin is unavoidable. This is why Falcke et al. (2008) stated that the basis of conjugal choice is related to the inclination to replicate the family-of-origin. As such, instead of mutual agreement between both partners on what should be, there is the conflict that arises from one party trying to impose his/her perspective on the other in their individual efforts to recreate their personal family-of-origin, their own cultural and familiar patterns. Similarly, Patterson, Williams, Edwards, Chamow, and Grauf-Grounds (2009) make the same conclusions and advice therapists and counselors when doing marital or couple therapy to closely assess the couples' family-of-origin. Carr (2006) indicated that family-of-origin and parent-child experiences may lead individuals to hold on to certain belief systems and patterns of behavior that contribute to marital discord such as attachments that are insecure, and authoritarian, permissive, neglectful or inconsistent parenting. It has been indicated that it is not easy to come to terms with the internalization of anger, devotion, loyalty and neglect that originated in the family-of-origin (Laham, 1990).

In the discussions on parent-adolescent relationships, theorists stressed that adolescents should be detached from their parents emotionally so that they can become autonomous and independent individuals (Steinberg & Silverberg, 1986). Allen et al. (1994) emphasized that for healthy adolescent development, a balance between autonomy and relatedness in the parental relationships should be maintained. Intimacy and autonomy are two essential conditions for an optimal functioning of a marriage (Gordon, 2006).

The perceptions of marital satisfaction vary across cultures (Atta-Alla, 2009). In a recent research by Delkhamoush (2007), his findings showed that the content and structure of young Iranians' marital values could be explained by the five dimensions of Schwartz and Ros' (1995) theoretical model of values. He further concluded that Iranian youths' perception of conceptual values of marriage is the same as the common perspective in other societies (Delkhamoush, 2007).

In traditional Iranian culture, the primary goal of marriage is procreation such that infertility is sufficient grounds for divorce (Asadinik, 2009). Zoroastrians in ancient Iran made marriage vows for life and there were rare divorces among them (Kameli, 2008). In case of conflict or disagreement, the couple's families and priests helped to resolve the conflict. Unavoidable divorce brought shame and dishonor to the families until recently. Islam discourages divorce and considers it as the last resort for the couples who cannot continue a healthy relationship (Kameli, 2008).

Many Iranian couples endure a problematic marriage for the sake of the family and self-sacrifice of personal freedoms and happiness for the sake of the family has always been highly valued in traditional Iranian culture (Asadinik, 2009). However, over the past few decades, relationship patterns have become more diverse. There are a lot of marriage-related issues researched that indicate changes in marital values. The results of studies show mate selection has changed in both industrial countries (Higgins, Zheng, Liu, & Sun, 2002; Kiernan, 2000; P. D. Martin, Specter, Martin, & Martin, 2003), and developing countries (Delkhamoush, 2007; Zaidi & Shuraydi, 2002). Many rapid global changes that are occurring have had an impact on patterns of marriage in developing countries (Delkhamoush, 2007).

Dennison (2011) carried out a mixed methods study and investigated how family-of-origin characteristics (inter-parental conflict) influenced the state of current marriage on 190 newly-wed couples in Arizona USA. It was found that family-of-origin characteristics (inter-parental conflict) that were measured indicated a reduction in the level of marital satisfaction, particularly among wives. especially Sabatelli and Bartle (2003) study that investigated 125 newly-wed student couples at Ohio State university and evaluated the correlation between the experiences of the newly-weds' experiences in their family-of-origin and how they coped with their marriage. The data analysis indicated that the family-of-origin experiences of both partners significantly influenced their own marriage adjustments.

A total of 542 respondents in Porto Alegre, Brazil were studied by Falcke,et al. (2008) using Family Background Questionnaire (FBQ) and the Golombok Rust Inventory of Marital state (GRIMS). Results showed a relationship between level of marital satisfaction and their family-of-origin influences. With the aim of exploring the relationship between marital satisfaction and family-of-origin, Botha et al. (2009) from South Africa used Locke and Wallace's Marital Adjustment Test and the McMaster Family Assessment Device on 47 married couples. Again it was found that there was a close association between family-of-origin factors and the status of married life. The researchers also investigated the significance of family-of-origin functions as a determining aspect of

the quality of later married life.

A research conducted on 6,423 U.S. couples by Martinson (2005) indicated that those among the respondents who had desirable family-of-origin experiences, also had more satisfying married lives while those who had less satisfactory family-of-origin histories showed less satisfaction with their marriage.

Shokrkon, Khojastemehr, Atari, Haghighati, and Shahniyeilagh (2006) investigated the predictors of marital relationship in divorced couples compared to normal ones among 514 respondents in Ahwaz city in Iran. Utilizing multiple regression, the findings indicated that personality factors, social skills and family-of-origin characteristics (attachment styles) have a relationship with marital adjustment.

The factor influencing marital satisfaction can be external stressors while studying abroad. As opposed to domestic students with more social support, Hechanova-Alampay, Beehr, Christiansen, and Horn (2002) believe that international students suffer from additional stress, loneliness, homesickness and finally anxiety. According to the Ministry of Higher Education, the flow of international postgraduate students to Malaysian universities has increased in the years 2002 to 2008 from 27,872 to 90,501(Horany & Hassan, 2011). Iranian postgraduate students seem to outnumber others in Malaysian public universities (Akhtari-Zavare & Ghanbari-baghestan, 2010). However, most studies on post graduate students in Malaysia focus on their academic enhancement and supervision (Ibrahim & Hassan, 2011; Krauss & Ismail, 2010), only few studies focus on the marital life of these students (Kalantarkousheh & Hassan, 2010).

2. Methodology

2.1 Respondents and Procedure

The respondents included in this study were married postgraduate Iranian students in Universiti Putra Malaysia. Students were randomly recruited to participate in the study through their emails addresses. The target population of the study comprised all postgraduate married Iranian students enrolled in governmental universities encompassed almost all postgraduate Iranian students. The target university of this Study was Universiti Putra Malaysia (UPM) which is classified as governmental by classification of the Malaysian Ministry of Higher Education (MOHE, 2011). The Iranian Students Association Malaysia states that this university has 1,760 students enrolled in master and Ph.D programs, making it the Malaysian public university with the highest number of Iranian postgraduate students (ISAM, 2011). The minimum sample size regarding G*Power is 172, and according to Bartlett, Kotrlik, and Higgin (2001), it is 100. Thus in this study, the target number of 220 subjects was calculated to ensure the reliability of the study. A list of Iranians who meet the eligibility criteria was obtained from the School of Graduate Studies of UPM (SGS). The whole married postgraduate population of Iranian students and their individual email addresses was 600 subjects. Using simple random sampling, 300 random digit selected because of non-responded, non-completed probability consideration of respondents. Data for this study were obtained by administering the survey instruments to the respondents via an online survey. The total number of respondents reached 220. The raw data from the online survey instruments were downloaded from the website in which the survey was administered and imported into a computer spreadsheet for analysis. The sample consisted of 220 married students including 117 females and 107 males aged from 25 to 61.

2.2 Instrumentation

In addition to the demographic questionnaire, two instruments were used to collect the data. Both of the items were translated into Farsi to make it feasible for administration to respondents. The translation was done by a panel of experts under supervision of Sanai (one of the most well-known professors in Family and Marriage Counseling and psychotherapy) and printed in a book titled "Family and Marriage Scales" in the year 2009. The translated versions have been frequently used in different studies in Iran (Bahari et al., 2010). The instruments include:

2.2.1 Family-of-Origin Scale (FOS; Hovestadt, et al., 1985)

The adolescent FOS scale is an instrument designed to measure the "perceived levels of health in one's family-of-origin" (Hovestadt, et al., 1985). In contrast to other self-report measures of family functioning, the FOS provides a unique perspective particularly relevant to adolescent development (Manley, Wood, Searight, Skitka, & Russo, 1994). This 5-point Likert-type scale consists of 40-items which, according to the test authors Hovestadt et al. (1985) tap 10 relational characteristics that are thought to influence an individual's capacity regarding the two dimensions of autonomy and intimacy. Twenty of the items are designed to measure autonomy and the other 20 items are designed to measure the encouragement of intimacy. The autonomy dimension is comprised of five subscales: Clarity of Expression - thoughts and feelings are clear in the family; Responsibility - family members claim responsibility for their own actions; Respect for Others - family members are allowed to

speak for themselves; Openness to Others - family members are receptive to one another; Acceptance of Separation and Loss - separation and loss are dealt with openly in the family. The intimacy dimension consists of five subscales: Range of Feelings - family members express a wide range of feelings; Mood and Tone - a warm positive atmosphere exists in the family; Conflict Resolution - normal conflicts are resolved without undue stress; Empathy - family members are sensitive to one another; and Trust. With a range of possible scores 40-200, high scores (160-200) on this scale indicate higher perceived family-of-origin health, while low scores (40-80) indicate lower perceived health. Some examples of questions are "My parents openly admitted it when they were wrong." and "Sometimes in my family I did not have to say anything, but I felt understood".

Mazer, Mangrum, Hovestadt and Brashear (1990), based on their testing of family-of-origin scale with 407 adolescent participants, found that the scale is a multi-dimensional tool with value and validity to be applied in clinical research. Fischer and Corcoran (2007) report the internal consistency of the family-of-origin scale as .75, and a test-re-test reliability of .77 for measures of autonomy, and .73 for measures of intimacy. In the current study, reliability for FOS was a = .925.

2.2.2 The Locke-Wallace Marital Adjustment Test (LWMAT; Locke & Wallace, 1959)

This instrument was developed to measure the marital happiness or marital satisfaction in married couples. Using selected, non-duplicated and statistically significant items from a variety of previously developed measures with high item discrimination, Locke and Wallace (1959) composed a 15-item marital adjustment scale. Because of its history and widespread use, it is used as a benchmark standard for assessing the degree of adjustment in marriage (Sperry, 2004). The LWMAT has a total of 15 questions that are ranked on different scales. The main scale that is provided on the LWMAT is a 6-point Likert-type scale that has a minimum score of 1, representing "Always Disagree," and a maximum score of 6, representing "Always Agree". The remaining questions that are provided on the LWMAT include multiple choice type responses. Some examples of these questions are, "When disagreements arose, they usually resulted in (a) husband giving in (b) wife giving in (c) agreement by mutual give and take" and "If you had your life to live over again, do you think you would: (a) Marry the same person? (b) Marry a different person (c) Not marry at all".

The validity of the LWMAT was illustrated by Krokoff (1989) using predictive validation. It was found that the scores for the husbands and wives in the sample had significant correlations with one another. The reliability of the LWMAT instrument was illustrated with internal consistency/reliability coefficients using Cronbach's alpha scores. In the original study by Locke and Wallace (1959), it was found that the reliability of the LWMAT was equal to .90 (Sanai, 2009). In the current study, reliability for LWMAT was $\alpha = .819$.

2.3 Data Analysis

The data analysis used in this study was the descriptive statistics to sum up data and report percentages and frequencies. Additionally Pearson's correlation coefficient was used to estimate the relationship between independent variable (family-of-origin experiences), and dependent variable (marital adjustment). Furthermore multiple regression used to examine the accurate prediction of a predictor.

3. Results

3.1 Descriptive Statistics

Table 1 shows that 54.1% of participants are within the age range of 25-35 years while 40.9% are between 36-45 years of age. A majority of the participants were doctoral students (58.2%) and 41.8 % were doing their master's degree. In terms of marriage duration, 86.8% of participants were within 1-17th year of their marital life and only 13.2% of them were living with their spouses between 17-34 years. With regard to the number of children, 42.3% of the respondents do not have children, 34.5% of them have one child, and 18.7% have two children while only 4.5 % have three children.

Table 1. Descriptive statistics for demographics variables, for the total sample and by gender

		Percent for All (n=220)	Percent For Males (n=107)	Percent For Females (n=113)
Age	25-35	54.1	52.3	55.8
	36-45	40.9	42.1	39.8
	46-60	4.5	5.6	3.5
	61 and more	.5	0	.9
	Total	100.0	100.0	100.0
Education	Master	41.8	28.0	54.9
	Doctoral	58.2	72.0	45.1
	Total	100.0	100.0	100.0
Duration of Marriage	1-17	86.8	87.9	85.8
	17-34	13.2	12.1	14.2
	Total	100.0	100.0	100.0
Number of Children	1	34.5	29.9	38.9
	2	18.7	25.2	12.4
	3	4.5	4.7	4.4
	None	42.3	40.2	44.2
	Total	100.0	100.0	100.0

Table 2 presents the descriptive statistics of dependent and independent variables. Marital adjustment score has a minimum of 63 with a maximum of 138 from maximum score of 158 (M=100.58, SD=15.83). Family-of-origin total scores ranged from 95 to 172 (the maximum is 200) and had a mean of 135.39 with a standard deviation of 14.25. Its sub-scales scores had a minimum of 5 with a maximum of 20. In addition, it seems that the participants' function with the respect of responsibility was the weakest and their mood and tone were the strongest factors in the family-of-origin sub-scales.

Table 2. Descriptive statistics of marital adjustment and family-of-origin subscales

Variables	No. of Items	Minimum	Maximum	Mean	Std. Deviation	Cronbach's Alpha
Marital adjustment	15	63.30	138.00	100.85	15.83	.758
Family-of-origin total	40	95	172	135.39	14.25	.815
Clarity of Expression	4	8.00	20.00	13.64	2.47	.820
Responsibility	4	7.00	17.00	11.89	1.67	.832
Respect for Others	4	7.00	18.00	13.22	2.04	.824
Openness to Others	4	9.00	17.00	12.63	1.70	.828
Acceptance of Separation and Loss	4	5.00	20.00	14.31	2.67	.828
Range of Feelings	4	7.00	20.00	12.08	2.41	.827
Mood and Tone	4	8.00	20.00	15.98	2.70	.820
Conflict Resolution	4	6.00	20.00	13.22	3.01	.817
Empathy	4	8.00	20.00	14.20	2.49	.821
Trust	4	7.00	20.00	14.22	2.55	.823

Note: n = 220

3.2 Correlations

In this step, the association between family of origin total scale and marital adjustment was examined through bivariate analyses. It was hypothesized that there is a significant relationship between family-of-origin scale and subscales and marital adjustment among married postgraduate Iranian students in Malaysia. Table 3 presents the Pearson correlation matrix. As it can be seen here, this table indicates that the family-of-origin total scale correlated significantly and positively with marital adjustment ($r = .514$, $p < .01$ $N = 220$). Among all the sub-scales more significantly correlated at .01 is conflict resolution with marital adjustment ($r = .412$, $p < .01$, $N = 220$), trust ($r = .387$, $p < .01$, $N = 220$), and openness to others ($r = .384$, $p < .01$, $N = 220$). As was the case with total family-of-origin scores, this is a positive relationship, hence we can conclude that, the higher perceived family-of-origin health was defined, the higher level of marital adjustment the participants experienced.

Table 3. Correlations between the family of origin sub-scales and marital adjustment

VAR	MA	FOS	CLE	RSP	RET	OPN	ACP	RAG	MOD	CFT	EMP	TST
MA	1											
FOS	.514**	1										
CLE	.295**	.764**	1									
RSP	.234**	.213**	0.076	1								
RST	.381**	.634**	.383**	0.122	1							
OPN	.384**	.469**	.255**	.151*	.286**	1						
ACP	.141*	.432**	.231**	-0.048	.173*	0.104	1					
RNG	.153*	.512**	.352**	0.081	.289**	.252**	.225**	1				
MOD	.322**	.744**	.525**	0.077	.404**	.236**	.228**	.210**	1			
CFT	.412**	.763**	.582**	0.116	.413**	.267**	0.12	.242**	.657**	1		
EMP	.375**	.704**	.527**	0.108	.418**	.280**	.273**	.249**	.495**	.431**	1	
TST	.387**	.579**	.445**	-0.089	.328**	.196**	0.102	.139*	.363**	.468**	.302**	1

Note: Correlation is significant at the 0.01 level (2-tailed), *p<.05, **p<.01, n=220 p = 0.1: small effect; p = 0.3: medium effect; p = 0.5: large effect Abbreviations: MA=marital adjustment; Family of Origin Scale=(FOS): CLE=clarity of expression; RSP=responsibility; RST=respect for others; OPN=openness to others; ACP=acceptance of separation & loss; RNG=range of feeling; MOD=mood & tone; CFT=conflict resolution; EMP=empathy; TST=trust

3.3 Multiple Regression Analysis

Multiple regression is a correlational procedure that examines the relationships among several variables. "Specifically, this technique enables researchers to find the best possible weighting of two or more independent variables" (Ary, Razavieh, Jacobs, & Sorenson, 2010, p. 360). When two variables were correlated perfectly Ho (2006) states that multiple regresion provide an opportunity to assess the importance of each of the predictors to the overall relationship.

Using the enter method; findings can be seen at Table 4. The findings revealed that two of the predictor variables were significant in explaining the marital adjustment. The two predictors variables were autonomy ($t = 3.398$; $p = .001$), and intimacy ($t = 3.647$; $p = .000$). The findings suggest that the data supported the two-predictor multiple linear regression model.

Table 4. Multiple regression analysis

Variables	Summary Of Regression	Un-Std Coefficient B	Un-Std Coefficient Std. Error	Std. Coefficient Beta	T	Sig. Value	Collinearity Statistics	
							Tolerance	VIF
(constant)		20.741	9.758		2.125			
Autonomy		.688	.202	.271	3.398	.001	.533	1.876
Intimacy		.497	.136	.291	3.647	.000	.533	1.876
Multiple R	.515							
R Square	.265							
Adjusted R Square	.259							
F-Statistics	39.192							

Note. Predictors: (Constant), Autonomy & Intimacy. Dependent variable: Marital Adjustment, p< .05, n = 220

An R-square value of .265 implies that the two-predictor model explained about 26.5 % of the variance in marital adjustment. Table 4 revealed that based on the reported value of the F-statistic (F = 39.192, p < .05), the model fits the data. This means that the slope of the estimated linear regression model line was not equal to zero, thus confirming that there was a linear relationship between marital adjustment and the two predictor variables.

Standardized regression coefficients are presented in Table 4. to explain the importance of two predictors in predicting marital adjustment. Independent variable with a high beta coefficient is highly important in contributing to the prediction of the criterion variable. Based on the beta values obtained, the beta coefficient for autonomy was .271 and for intimacy was .291. This means that intimacy relatively had a higher power than the autonomy in predicting the marital adjustment. Also this describes that a one standard deviation increase in autonomy was followed by a .271 standard deviation unit increase in marital adjustment and that one standard deviation increase in intimacy was brought about a .291 standard deviation unit increase in marital adjustment

Furthermore, result in this study indicated that men's perception of marital adjustment is more influenced by their families of origin experiences than women's. In other words, for men 37.7 % of the variance in marital adjustment increase was explained by family-of-origin experiences, while in women the overall regression model was successful in explaining approximately 17.9 % of the adjusted variance in marital adjustment. Thus, family-of-origin experiences measured predicted marital adjustment especially for men (Table 5).

Table 5. Multiple regression analysis by gender

variables	Male								Female							
	Summary Of Regression	Un-Std Coefficient B	Un-Std Coefficient Std. Error	Std. Coefficient Beta	t	Sig. Value	Tolerance	VIF	Summary Of Regression	Un-Std Coefficient B	Un-Std Coefficient Std. Error	Std. Coefficient Beta	t	Sig. Value	Tolerance	VIF
Constant		-2.065	13.519		-.153					37.972	13.811		2.749			
Autonomy		.977	.265	.382	3.682	.000	.557	1.795		.516	.298	.213	1.734	.086	.495	2.018
Intimacy		.581	.208	.290	2.791	.006	.557	1.795		.377	.190	.244	1.991	.049	.495	2.018
Multiple R	.614								.423							
R Square	.377								.179							
Adjusted R Square	.365								.164							
F-Statistics	31.446								11.981							

Note. Predictors: (Constant), Autonomy & Intimacy. Dependent variable: Marital Adjustment, p< .05, n = 113 female, n = 107 male

4. Discussion

The results of present study clearly indicate that 1) Family-of-origin experiences were positively correlated to marital adjustment of respondents. This implies that despite living out of the country of origin, Iran, the post graduate students in Malaysia are still influenced by the family of origin and the collectivistic cultures. This finding is in agreement with the results of Falcke et al. (2008) which indicated that there is an association between type of experience that the respondents live in their families of origin and the quality of their marital relationship. Since, Iranian culture is similar to the host country Malaysia, in terms of being a collectivist society, the influence of family of origin remains significant. 2) The family-of-origin dimensions (autonomy and intimacy) were statistically significant predictors of the marital adjustment. Indeed, the autonomy and intimacy were found to be the best predictors of marital adjustment. In addition, result in this study indicated that men's perception of marital adjustment is more influenced by their families of origin experiences than women's. So, the findings of this study support the presence of positive effects of family-of-origin experiences on married students' marital adjustment. For example, in line with this finding, Dennison (2011) examined the effect of family-of-origin characteristics (e.g., interparental conflict) on current marital satisfaction, within a sample of newlywed. Findings of the study stress the need to help individuals understand the significance of their family-of-origin experiences in their later relationships, particularly in their married lives. The present investigation was concluded that the experiences from families of origin can influence marital quality and awareness about these experiences can play a significant role in enhancing the quality of marriage among married individuals.

The limitation of this study lies in use of correlational statistical approach in the study of married persons' memories of their past experiences within their families of origin. To overcome this limitation, future studies may consider longitudinal, observational and experimental research design to evaluate their needs and enhance and develop their educational and clinical training. Also, future research will need to assess both members of a couple rather than assessing each married person individually. We also suggest that future studies examine function of family-of-origin experiences and marital adjustment of different samples of non-academic and business settings and compare the results obtained.

References

Akhtari-Zavare, M., & Ghanbari-baghestan, A. (2010). Iranian student's emotion in government university in Malaysia. *Global Journal of Health Science, 2*(2), 72-79.

Allen, J. P., Hauser, S. T., Bell, K. L., & O'Connor, T. G. (1994). Longitudinal assessment of autonomy and relatedness in adolescent-family interactions as predictors of adolescent ego development and self-esteem. *Child Development, 65*, 179-194. http://dx.doi.org/10.2307/1131374

Ary, D., Razavieh, A., Jacobs, L. C., & Sorenson, C. K. (2010). *Introduction to research in education* (9th ed.). Wadsworth Publishing Company.

Asadinik, S. (2009). *Differentiation of self, marital adjustment, and parental involvement among Iranian-Americans.* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. AAT 3428758).

Atta-Alla, M. (2009). *Perceptions of marital satisfaction among Coptic Orthodox Christian Egyptian-American husbands and wives.* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. AAT 3370909).

Bailey, J. (2003). *Unquiet Lives: Marriage and marriage breakdown in England, 1660–1800*. New York: Cambridge University Press.

Bahari, F., Fatehizade, M. S., Ahmadi, S. A., Moulavi, H., & Bharami, F. (2010). The effect of hope, forgiveness and combined marital counseling on interpersonal cognitive distortions of divorcing couples. *Journal of Research of Behavioral Science, 1*(8), 25-33.

Bali, A., Dhingra, R., & Baru, A. (2010). Marital adjustment of childless couples. *J Soc Sci, 24*(1), 73-76.

Botha, A., Berg, H. S. V. D., & Venter, C. A. V. (2009). The Relationship between family of origin and marital satisfaction. *Journal of Interdisciplinary Health Science, 14*(1), 441-447.

Bradbury, T. N., Fincham, F. D., & Beach, S. R. H. (2000). Research on the nature and determinants of marital satisfaction: A decade in review. *Journal of Marriage and Family, 62*(4), 964-980. http://dx.doi.org/10.1111/j.1741-3737.2000.00964.x

Carr, A. (2006). *Family therapy; Concepts, process and practice*. New York: Wiley

Delkhamoush, M. T. (2007). Marital values of Iranian youth. *Journal of Iranian Psychologists, 3*(12), 299-309.

Dennison, R. (2011). *The effect of family of origin on early marriage outcomes: A mixed method approach.* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. AAT 3432589).

Falcke, D., Wagner, A., & Mosmann, C. P. (2008). The Relationship between family of origin and marital adjustment for couples in Brazil. *Journal of Family Psychotherapy, 19*(2), 170-186. http://dx.doi.org/10.1080/08975350801905020

Fischer, J., & Corcoran, K. (2007). *Measures for clinical practice and researc: a sourcebook* (4th ed.). Oxford: New York Oxford University Press.

Gordon, C. L. (2006). *Intimacy and autonomy development in marriage: An examination of the first five years.* University of North Carolina, Chapel Hill.

Hechanova-Alampay, R., Beehr, T. A., Christiansen, N. D., & Horn, R. K. V. (2002). Adjustment and strain among domestic and international student sojourners: A longitudinal study. *School Psychology International, 23*(4), 458-474. http://dx.doi.org/10.1177/0143034302234007

Higgins, L. T., Zheng, M., Liu, Y., & Sun, C. H. (2002). Attitudes to marriage and sexual behavior: A survey of gender and culture differences in China and United Kingdom. *Sex Roles, 3*(4), 75-89. http://dx.doi.org/10.1023/A:1016565426011

Ho, R. (2006). *Handbook of univariate and multivariate data analysis and interpretation with SPSS*. CRC Press. http://dx.doi.org/10.1201/9781420011111

Horany, A. A., & Hassan, S. A. (2011). Marital adjustment among postgraduate students at universities in Malaysia. *Elixir Psychology, 37*, 3773-3776.

Hovestadt, A. J., Anderson, W. R., Piercy, F. P., Cochran, S. W., & Fine, M. (1985). A family-of-origin scale. *Journal of Marital and Family Therapy, 11*(3), 287-297. http://dx.doi.org/10.1111/j.1752-0606.1985.tb00621.x

Ibrahim, M., & Hassan, S. A. (2011). Quality of Supervision of Ph.D. Program among Public Universities in Malaysia: A research model analysis. *Journal of American Science, 7*(2), 563-575.

ISAM (2011). Iranian students Association Malaysia. Retrieved from http://www.upmisam.org/news

Kalantarkousheh, S. M., & Hassan, S. A. (2010). Function of life meaning and marital communication among Iranian spouses in Universiti Putra Malaysia. *Procedia Social and Behavioral Sciences, 5*, 1646-1649. http://dx.doi.org/10.1016/j.sbspro.2010.07.340

Kameli, M. J. (2008). Investigation in divorce reasons an factors as social threat in Iranian society regarding to present documents and statistics. *Journal of Disciplinary Knowledge, 3*(35), 179-180.

Kerr, C. (2008). Bowen Family Systems Theory (BFST) and family art therapy. In J. Hoshino, J. Sutherland, S. T. Parashak & L. L. McCarley (Eds.), *Family art therapy; Foundations of theory and practice*. New York: Taylor & Francis Group.

Kiernan, K. (2000). European perspectives on union formation. In L. Waite, H. Bachrach, M. Christine, E. Hindin & E. T. A. Thornton (Eds.), *The ties that bind: Perspectives on marriage and cohabitation* (pp. 40-58). New York: Aldine de Gruyter.

Krauss, S. E., & Ismail, I. A. (2010). PhD students' experiences of thesis supervision in Malaysia: Managing relationships in the midst of institutional change. *The Qualitative Report, 15*, 802-822.

Krokoff, L. J. (1989). Predictive validation of a telephone version of the Locke-Wallace Marital Adjustment Test. *Journal of Marriage and the Family, 51*, 767 - 775. http://dx.doi.org/10.2307/352175

Laham, J. W. (1990). Family of origin Intervention: An intergenerational approach to enhancing marital adjustment. *Journal of Contemporary Psychotherapy, 20*(4), 211-222. http://dx.doi.org/10.1007/BF00946037

Locke, H., & Wallace, K. (1959). Short marital-adjustment and prediction tests: Their reliability and validity. *Marriage and Family Living, 21*, 251-255. http://dx.doi.org/10.2307/348022

Luecken, L. J., Kraft, A., & Hagan, M. J. (2009). Negative relationships in the family of origin predict attenuated cortisol in emerging adults. *Hormones and Behavior, 55*(3), 412-417. http://dx.doi.org/10.1016/j.yhbeh.2008.12.007

Manley, C. M., Wood, P. K., Searight, H. R., Skitka, L. J., & Russo, J. R. (1994). A latent variable model of the Family-of-Origin Scale for adolescents. *Journal of Youth and Adolescence, 23*(1), 99-118. http://dx.doi.org/10.1007/BF01537144

Martin, P. D., Specter, G., Martin, D., & Martin, M. (2003). Expressed attributes of adolescents toward marriage and family life. *Adolescence, 38*(150), 359-367.

Martin, R. A. (2007). *An analysis of marital adjustment, optimal religious functioning, and length of marriage among new, continuing, and graduating students and their non-student spouses at Southwestern Baptist Theological Seminary in Fort Worth, Texas.* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. AAT 3289562).

Martinson, V. K. (2005). *How coming to terms with difficulties in the family of origin positively influences adult children's relationship/marital quality.* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Order No. AAT 3194366).

Mazer, G. E., Mangrum, O. l., Hovestadt, A. J., & Brashear, R. L. (1990). Further validation of the Family of Origin Scale: A factor analysis. *Journal of Marital and Family Therapy, 16*(4), 423-426. http://dx.doi.org/10.1111/j.1752-0606.1990.tb00060.x

MOHE. (2011). Malaysian Ministry of Higher Education. Retrieved from http://www.mohe.gov.my/portal/en/institution/pihe.html

Patterson, J., Williams, L., Edwards, T. M., Chamow, L., & Grauf-Grounds, C. (2009). *Essential skills in family therapy: From the first interview to termination* (2nd ed.). New York: Guilford Press.

Sabatelli, R. M., & Bartle, S. (2003). Family-of-origin experiences and adjustment in married couples. *Journal of Marriage and Family, 65*(1), 159-169. http://dx.doi.org/10.1111/j.1741-3737.2003.00159.x

Sanai, B. (2009). *Family and marriage scales*. Tehran, Iran: Besat Publishing Co.

Shokrkon, H., Khojastemehr, R., Atari, Y., Haghighati, J., & Shahniyeilagh, M. (2006). Investigation on personality traits, social skills, attachment style and demographic variables as indicator for marital relationship in divorce couples appeals compared with ordinary couples in Ahwaz city, Iran. *Journal of Educational Science and Psychology, 3*(13), 1-30.

Snyder, C. R., & Lopez, S. J. (2005). *Handbook of positive psychology*. New York: Oxford University Press.

Sperry, L. (2004). *Assessment of couples and families; Contemporary and cutting-edge strategies*. New York: Brunner-Routledge. http://dx.doi.org/10.4324/9780203308271

Steinberg, L., & Silverberg, S. B. (1986). The vicissitudes of autonomy in early adolescence. *Child Development, 57*, 841-851. http://dx.doi.org/10.2307/1130361

Topham, G., Larson, J., & Holman, T. (2005). Family-of-origin predictors of hostile conflict in early marriage. *Contemporary Family Therapy, 27*(1), 101-121. http://dx.doi.org/10.1007/s10591-004-1973-2

Zaidi, A. U., & Shuraydi, M. S. (2002). Perceptions of arranged marriages by young Pakistani Muslim women living in a western society. *Journal of Comparative Family Studies, 33*(4), 495-514.

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Exploring the Role of Art-making in Recovery, Change, and Self-understanding

----An Interpretative Phenomenological Analysis of Interviews with Everyday Creative People

Anjelique G. K. Stevenson-Taylor[1] & Warren Mansell[1]

[1] The School of Psychological Sciences, University of Manchester, Manchester, United Kingdom

Correspondence: Warren Mansell, The School of Psychological Sciences, Coupland 1 Building, Coupland Street, Oxford Road, Manchester, M13 9PL, United Kingdom. Tel: 44-161-275-8589. E-mail: warren.mansell@manchester.ac.uk

Received: July 26, 2012 Accepted: August 16, 2012 Online Published: August 22, 2012

doi:10.5539/ijps.v4n3p104 URL: http://dx.doi.org/10.5539/ijps.v4n3p104

Abstract

Most creativity theorists consider artists as "agents of control", capable of overcoming and controlling psychological distress. However, studies have yet to map the "healing" tendency for "everyday creative people" in detailing the process' effects on perception and change. This study was aimed to examine this process via a phenomenological and Perceptual Control Theory perspective (PCT: see Powers, W. T. (1973). *Behaviour: The control of perception.* Chicago: Aldine). We recruited and interviewed eleven participants who had engaged in art-making and experienced recovery from psychological distress. Interpretative Phenomenological Analysis was used to identify themes between participant responses, generated from self-created semi-structured interview schedules following Smith and Osborn's technique (IPA: see Smith, J. A., & Osborn, M. (2008). Interpretative phenomenological analysis. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods, 2nd edition,* (53-80). London: Sage). Data analysis identified six superordinate themes: 1) "the process of creating as a goal-oriented focus", 2) "internalising process and product", 3) "awareness shift and self-focus", 4) "emotion regulation", 5) "goal change, bonding, and conflict resolution", and 6) "feelings and perceptions within the art-making process". Disconfirming Case Analysis and participant feedback also indicated a seventh theme: 7) "the 'superficial' creative process". The results were interpreted to indicate that art-making involves the purposeful creation of perceptual experience to fulfil higher-order goals and values. The creative process is also a learning process which instigates and promotes positive affect, enhances skills, and facilitates change in higher-order goals. We consider these interpretations in the light of the components of PCT.

Keywords: control, artistic healing, creative process, Interpretative Phenomenological Analysis, creative change, art-making, goals, Perceptual Control Theory

1. Introduction

1.1 Issues with the Contemporary Art Therapy and Creativity Literature

Art therapy is a viable method of treatment and approach for self-understanding, emotional change and restoration to well-being. Art is considered a healing tool. Ostensibly, "healing" is the calming of emotions after distress and regaining of health and feelings of well-being during therapy (Malchiodi, 2007; Ornstein, 2006). Healing in art-making has been shown to work for women with cancer, sub-fertile women, African-Americans with Alzheimer's, and other investigated groups (e.g., Hughes, 2010; Johnson & Sullivan-Marx, 2006; Stafstrom & Havlena, 2003). There are a number of influential theoretical approaches to the benefits of art. Yet each approach is restricted in its breadth and is poorly integrated. These approaches can be broadly considered as: *the creative process* (e.g., Gaut, 2010), *"flow"* (e.g., Csikszentmihalyi, 1996), *problem-solving and meta-cognition* (e.g., Allen & Thomas, 2011), *insight and purposeful action* (e.g., Dewey, 1934 (reprint in 2005)), *self-actualisation* (e.g., Ryder, 1987), *emotional self-regulation* (e.g., Hamilton, Karoly, & Kitzman, 2004), and *occupational focus* (e.g., Laliberte-Rudman, 2002).

The aim of the current study was to address the fragmented literature by providing a novel, integrative,

mechanistic account of the benefits of art on recovery based directly on first-person accounts. Interpretative Phenomenological Analysis (IPA: Smith & Osborn, 2008) was used to extract the key themes from participant accounts and the framework of Perceptual Control Theory (PCT: Carver & Scheier, 1999; Mansell, 2005; Powers, Clark & McFarland, 1960) was used to build psychological models from these themes. PCT was selected because it is proposed to have the capacity to integrate psychological processes across diverse fields (Stevenson-Taylor & Mansell, 2012; Carey & Mansell, 2009).

1.2 Art-making and Everyday People—the Missing Link between Art Therapy Theory, Application, and Connection to Real Life Situations

In addition to the difficulties inherent in integrating widely different theoretical approaches, there is a paucity of research on the detailed creative process and its benefits *outside* therapeutic or experimental settings (Stevenson-Taylor & Mansell, 2012). It is believed that in order to properly consolidate theory, one must link the implications of art-making to everyday action and distress. This may yield more information about art-making's rehabilitative characteristic and close the widening gap that separates eminent artists, patients, and everyday persons (Stevenson-Taylor & Mansell, 2012).

Seldom is a rigorous exploration given to ascertaining the effects of psychological change in the long-term. When and how these changes occur are rarely addressed (Pelowski & Akiba, 2011). And, more alarmingly, the benefits of therapy are nearly always attributed to the superficial process of art-making rather than individuals' innate capability to self-heal (Stevenson-Taylor & Mansell, 2012). The justification for using "everyday creative persons" is to bridge theory with everyday application, and demonstrate where, when, how and why healing occurs within the creative process. People who have creative talents, but are *not* "professional artists" represent the majority who consider themselves "creative" but not "eminently creative" ("*mini-c*" and "*little-c*" individuals; Beghetto & Kaufman, 2007).

1.3 The Basic Premises of Art Psychology and Art Therapy Theory

Each of seven theoretical approaches to the benefits of art will now be summarised. First is the *creative process*—the dynamic model of creativity working across four spheres: the *person* (artist), the *environment* (domain), the *product*, and the *viewer of art* (audience) (Csikszentmihalyi, 1999; Mace, 1997; McIntyre, 2008). It has three stages: a) *Stage 1:* consists of choosing the elements of your creative endeavour, ignoring the problematic and unproductive; b) *Stage 2:* unconscious juggling of ideas propel the person to create, subliminal aesthetics setting in for free-play of ideas to invoke insight; and, c) *Stage 3:* the person implements the ideas and reviews the results (Bindeman, 1998; Gaut, 2010). This is not an automatic process and requires conscious deduction (Cohen-Shalev, 1986; Gaut, 2010). There is sense of agency and purpose behind creativity (Gaut, 2010). Researchers suggest that creativity helps clarify goals that are intrinsic and the individual wishes to reach (Jones, Runco, Dorman, & Freeland, 1997; Lubart & Getz, 1997; Lindauer, 1992).

Second, we cover the "flow" experience. Several theorists explicate that artists are normally *intrinsically motivated*, stemming from inner desires and goals perpetuating the act of creation (Burleson, 2005; Csikszentmihalyi, 1996; Getzels & Csikszentmihalyi, 1976). "*Flow*" is the threshold state in creative activity. It states that intrinsic motivation happens because people will meet their goals, as directed by their needs (Csikszentmihalyi, 1991, 1996; Carl III, 1994). Theory of flow assumes that high achievement is associated with complete immersion in creative activity, to an "autonomic", euphoric state. This is seen in some artist accounts, creating related to "automotive", "unconscious" movement—allowing "flow" of ideas in art-making (Bindeman, 1998; Cohen-Shalev, 1986; Csikszentmihalyi & Csikszentmihalyi, 1988). However, the creative process requires cognition along with periods of flow in order to achieve product-creation in art-making.

The third approach to creative thinking involves how it is facilitated by *cognitive controls*—"patterns of thinking that control the ways that individuals' process and reason about information" (Jonassen, 2000, p. 70; Allen & Thomas, 2011; Mace, 1997). Creative thought involves a search for "order" in "chaos". Within a higher-order perspective, creative individuals are better able to deal with conflict in creative pursuits (Barron, 1990; Mace, 1997; Ziv & Keydar, 2009). It has been proposed that deeper immersion in the project yields more ideas and possible solutions to conflict, garnered over successive transformations of the concept in the artwork (Mace, 1997). This successive organising of concepts and decision making within creativity instigates *meta-cognition*: affective elements aiding in an imaginative identification process between artist and the artistic problem (Gardner, 1988; Mace, 1997; Wakefield, 1989). Meta-cognition is inherent in problem-solving and insight within art-making (Burleson, 2005; Pelowski & Akiba, 2011; Pankova, 2009).

Fourth, it is suggested that *sudden insights* emerge from the ability to freely express (Bournelli, Makri, & Mylonas, 2009; Doyle, 1998; Fraser, 2006; Hellström, 2011). The act of expression and its experience is a

process in "duality"; it is the act of creating and the act of internalising the act of creating (Brown, 2008; Dewey, 1934/2005). We can integrate the early theoretical points if we consider that expression instigates realisation, illustrated as a reaching to intrinsic goals and enhancement in "flow", confidence, and self-esteem. This promotes the formation of a purposeful being, or an agent in society (*purposeful action*; Fidler & Fidler, 1978).

Links are seen here to a fifth theoretical approach guided by humanistic psychology. According to Abraham Maslow and Carl Rogers, there is a connection between the creative person and self-actualised person (Musick, 1977; Ryder, 1987). *Self-actualisation* is the search for becoming more "genuinely" human via realisation of the self and its potential (Maslow, 1968; Musick, 1977; Ryder, 1987). It can also make life's conditions more meaningful and expand one's capabilities (Rogers, 1969; Maslow, 1971). The stages of self-actualisation unfold awareness via openness to thoughts and experience, despite possible fear. Successful awareness depends on how close composition matched intrinsic ideas, (AKA: "creative unity"), which is necessary to achieve in creating (Arieti, 1976; Ryder, 1987). Becoming mindful of one's own emotions and goals (i.e., the ability to self-actualise) is also an important aspect of art therapy.

Moving to the therapy literature itself, *emotional self-regulation* and *mindfulness* are goal-centred modes, problem-solving and conflict strategies parallel with regulatory activity. Emotion is key in self-regulation, and activities linked with personal goals are likely to be perceived as important to the individual (Hamilton, Karoly, & Kitzman, 2004; Karoly, 1991, 1999). People who ruminate about goal-related stressful events are more likely to provoke focus on threat-reduction against the conflict and perceived unattainability of goals. This causes psychological distress (Cantor, Norem, Langston, Zirkel, Fleeson, & Cook-Flannagan, 1991). Research suggests that creative pursuits help to establish *"mood clarity"*—the ability to distinguish clearly between / tolerate negative emotions and control its intensity (Hamilton, Karoly, & Kitzman, 2004; Zautra, 2003). There is emerging evidence that mindfulness in therapy builds one's emotional complexity, broadens schemas, and strengthens resolve and adaptability against negative affect, which lowers focus on threats (Monti, Peterson, Shakin Kunkel, Hauck, Pequignot, Rhodes, & Brainard, 2006).

Finally, a separate field describes *occupation* involving art and its beneficial effects on healing *without* therapy (Laliberte-Rudman, 2002; Reynolds, 1997, 2002, 2003, 2004a, 2004b). In her studies, Reynolds researched how textile art-making beneficially affected women with chronic illness (Reynolds, 1997). Engaging with leisure activities helped to preserve a satisfactory self-image, sense of achievement and competence. The women gained a sense of identity in an active process of interpreting, constructing and reconstructing their personal and social identity. Creative pursuits improved quality of life and promoted feelings of self-worth and control—a catalyst for motivation and sense of mastery over craft (Reynolds, 1997, 2002; Reynolds & Prior, 2003, 2006).

In summary, the seven theories are linked because these different uses of art implicate the same basic premise: art-making's *purpose* is to help artists *control* their perceptions, attain their goals, and achieve final product creation (Stevenson-Taylor & Mansell, 2012). Creativity happens through the creative process, which incorporates the individual, the product, the environment, and aesthetical reflexivity. The creative process is also a problem-solving endeavour, comprising of strategies which invoke higher-level cognition and meta-cognitive states. Meta-cognitive states then affect changes to mood and emotion, shifting cognitive schema and inducing positive affect whilst reducing stress and prompting insight. Thus, the creative process enhances feelings of being a unified, purposeful person with meaning in their lives and understanding of this meaning. It is an emotional process, cathartic in power. The art "realm", its metaphoric language and imagery help to convey feelings and bring deeply felt concepts and philosophies to the fore.

1.4 Research Aims

This research was aimed to investigate the healing potential of art-making in everyday people, in order to "grasp the essential nature of, and deepen the understanding of [art therapy's] meaning" (Junge & Linesch, 1993, p. 63-64 & 66). According to several studies which examined how people recovered from psychological distress, PCT can help to inform how change is experienced (Carey, Carey, Stalker, Mullan, Murray, & Spratt, 2007; Gianakis & Carey, 2011; Higginson & Mansell, 2008). Currently, the existing literature does not connect all creative process theory together with its healing after-effects. There are also few accounts of the role of *control* on mental and lifestyle changes at different stages of the art-making process (e.g., Reynolds, 1997, 2002, 2003), and the literature rarely discusses the possible *negative* effects of art-making (e.g., Bensimon & Gilboa, 2010). Therefore, the aims of this research were:

1) To explore what freedom of expression does to the artists' perceptions and cognition while experiencing their individual modalities;

2) To find a model for why and how art-making works psychologically; and,

3) To identify how art uniquely contributes to personal recovery and change.

2. Method

2.1 Design

The research was qualitative, using *Interpretive Phenomenological Analysis* (IPA: Smith, 1995; Smith & Osborn, 2008) of semi-structured interviews.

2.2 Participant Characteristics

All participants were White/Caucasian, and eight were citizens of the UK (73%). Ages ranged from 21-48 years (average 26.2 years). See Table 1 for a summary of participant demographics.

Table 1. A summary of the demographic scores from across the eleven study participants

Participant Number	Age and Gender	Race / Nationality	Interest / Curiosity in the Arts	Hours of Leisure Reading	Hours of Artistic Practice	Formal Training?	Type of Formal Training	Art Modality
1	21 / F	White/British	9	0 hrs. per day	1 hr. daily	X	Teaching music certificate	Saxophone / drawing
2	23 / F	White/British	8	3 hrs. / day	2 hrs. daily			Poetry / poi dancing
3	21 / M	White/British	7	1 hr. / day	1 hr. daily	X	Tutoring in music & voice	Singing / drumming (in a band)
4	22 / F	White/British	8	1 hr. / day	Twice a week; 2-4 hrs.			Drawing
5	31 / F	White/British	9	.5 -1 hr. / day	1-2 hrs. per week	X	Art history / fine arts degree	Painting / drawing
6	31 / M	White / European	10	1-2 hrs. / day	1 hr. daily			Writing lyrics / music (singer in a band) / literal writing
7	24 / F	White/British	7	.5 -1 hr. / day	2-4 hrs. when able	X	ACSE & A-levels in fine arts	Painting / drawing
8	21 / M	White / American	9	3-4 hrs. / day	1-6 hrs. when able	X	Literature / theatre & drama A-level	Prose (fiction & non-fiction) / playwriting
9	48 / F	White/British	10	1.5 hrs. / day	2 hrs. / week			Arts & craft / needlework
10	23 / F	White/British	10	4-8 hrs. / day	Once or twice per month	X	Bachelors of Fine Arts (3 yrs.)	Painting / drawing / sculpting / 3D works
11	23 / F	White / Canadian	10	0 hrs. / day	Once a week	X	Arts & animation school (11 yrs.) / degree in fine arts	Painting / drawing / cartoon drawing

The demographics for study participants are shown in Table 1. As a note: X's indicate that the participant had reported having experienced the relevant item, either in the pre-interview questionnaire or their face-to-face

interviews. Also, leisure reading included fiction and non-fiction from a variety of text-based material (comic books, novels, online blogs, etc.)

Participants also rated artistic interest via a Likert scale questionnaire in increments from 1 (*Not Very Interested/Curious about the Arts*) to 10 (*Very Interested/Curious*). This was to gauge commitment to the arts. On average, participants were highly interested in the arts (M = 8.8, *SD* = 1.17). Participants did leisure reading an average of 1-2 hours daily, and engaged with their creative pursuit from 1-4 hours daily to a few times per month. Respondents covered a wide range of artistic modalities, including: *poi* (fire-dancing), drumming and singing (within the alternative and punk rock genres), fiction prose and script writing, poetry, abstract painting, and textile work/arts and craft.

2.3 Sampling Procedures

Participants were purposively sampled from undergraduate and postgraduate programmes, via poster adverts and the research volunteer website at the University of Manchester. Eleven participants were recruited, eight females and three males. To keep with IPA requirements for having a homogenous sample, and for ethical reasons, participants had to meet the criteria presented below to be eligible for interview.

Principle inclusion criteria declared:

1) Participants had to have felt change and maintain the use of their artistic craft for a minimum of two years (e.g., no more than 2-3 months apart from last creative project, pending lifestyle and personal circumstances); and,

2) …be stable and satisfied with their personal issues for at least a year.

Principle exclusion criteria included:

1) Persons who *have not* done anything artistic;

2) Persons who had little to no interest in the arts or creative pursuits;

3) Persons who were not 18 years old or older (for consent purposes); and,

4) Persons who could not speak, read, and write English fluently.

Respondents were notified of their rights of participation, and that participating was voluntary. All participants were required to sign an informed consent form to be audio recorded after reading the information sheet, and guaranteed that their information would be completely confidential. All information was kept securely on password protected / encrypted computers, data anonymised and audio recordings destroyed after transcription, per agreement with the ethical review board. In case of distress, participants were invited to take breaks, withdraw from the study, and/or call Samaritans or the University Counselling Services. This study was given ethical approval by the University of Manchester Research Ethics Committee.

2.4 Research Materials

An interview schedule, pre-interview questionnaire and focus group questionnaire were used and self-created. A digital audio-recorder was used for later transcription via the Express Scribe program, and a laptop was taken for participants' Internet use and file uploading. Memo notes were typed as a Word document. Interviews were transcribed, coded, and thematised by hand (Note 1).

2.5 Procedure

A pilot study was conducted before interviews commenced. The pilot helped to inform which questions could be kept, omitted, or reshaped for subsequent interviews. To further assist with the analysis, participants were invited to show and talk about examples of their work, and encouraged to give feedback about the interview at the end. All interviews were done within the University of Manchester's Psychology department.

2.5.1 Pre-interview

The pre-interview questionnaire was given to respondents prior to interviewing. After the questionnaire, a final statement of withdrawal was prompted to ensure that respondents were fully aware of their rights. Participants were also advised to keep the details of their personal issues to a minimum. In the case of personal disclosure, identifiable information was replaced with '[…]'.

2.5.2 The Interview

Interviews were conducted at the University of Manchester. Each interview took 45-60 minutes to complete. Discussions began with introductions, to establish a rapport with interviewees as part of IPA protocol (Eatough & Smith, 2008). The finalised interview schedule asked 12 questions across three parts (see Table 2). Interviews

ended with respondents giving feedback (if able) or asking questions about the interview.

Table 2. The basic finalised semi-structured interview schedule

Part A: About the Artist & Artist's Identity (Their Creative Environment)	**Part B: Artists' Views of the World & Perspectives within their Art**	**Part C: Follow-Up Questions and Information**
Q1: As a starting question, just to get a warm-up, what type of art / writing do you like to do?	**Q4:** What do you *feel* when you're doing your art / when you write? What specifically would you call the feeling, if you could wrap it up into *one* word?	**Q9:** Is there anything else in detail you can tell me about yourself or your work, and any sort of thoughts / feelings you gain from doing your work?
Q2: What does art do for you?	**Q5:** What do you *observe* of yourself through your art? [Observe] of your world? …The people associated with you and your work?	**Q10:** Is there anything you'd like to say to fellow artists / writers, or you think would be valuable to ask other participants during their interviews?
Q3: What do you think about while doing your art / writing?	**Q6:** Have there been past problems or issues that you've dealt with that are associated to your art / writing or made you feel like you needed to create?	**Q11:** Was there anything missed that I should have asked you or you'd like to share more of? Any questions or comments?
	Q7: Are there differences and/or realisations in how you see yourself and your world now, compared to when you first began making your art?	
	Q8: Are you doing any upcoming works / projects now?	

Table 2 shows the basic structure of the interview questions. The table includes the parts of the questionnaire and their relevant questions, but further and/or added prompts (such as the *why* and *how* queries) are not included.

2.5.3 Post-interview

A debrief of the study was sent to respondents via e-mail. Research authors' contact information was made available for further questions or comments. After data analysis, some participants (upon request) sent 1-3 examples of their artwork and summarised the works' meaning and purpose. This was to substantiate findings, follow-up questions created asking about how the examples affected respondents and their means to "heal" and "express". Some works were given consent for reproduction here by two respondents, presented later in this paper.

2.5.4 Focus Group

An amended version of the original focus group session questions and forms were sent to respondents by e-mail for member check purposes. Member checking is a way to help ensure results accurately reflect what participants had reported in their interviews (Elliott, Fischer, & Rennie, 1999; Lincoln & Guba, 1985; Mays & Pope, 1995, 2000). Four participants responded accordingly. A summary of study rationale and findings was included with the questionnaire.

3. Analyses

3.1 Rationale for Qualitative Analysis

Qualitative methods provide a rich analysis encompassing effective techniques that facilitate the making sense of personal experience (Smith, 2008). Important nuances can be examined closely—unlike in quantitative methods (Smith, Flowers, & Larkin, 2009). This is exceptionally helpful when analysing personal change and the

mechanisms that characterise the process (Junge & Linesch, 1993; Richards & Morse, 2007; Smith, 2008).

3.2 Interpretative Phenomenological Analysis

Interpretative Phenomenological Analysis (IPA: Smith, Flowers, & Larkin, 2009) is committed to the detailed analysis of an individual's lived experience. It is a dynamic process that constantly revisits the transcripts. And, there is consistent awareness of both participant's response and researcher's interpretation of that response (*double hermeneutics*; Smith & Osborn, 2008). IPA states that the primary concern of the researcher is the understanding of experience from the participant's point-of-view.

After transcribing interviews, analysis followed the process outlined by Smith and Osborn (2008). IPA has already been used extensively in both art therapy and PCT studies, which supports its use here (e.g., Bird, Mansell, & Tai, 2009; Gianakis & Carey, 2011; Higginson & Mansell, 2008; Reynolds, 1997, 2002, 2003, 2004a, 2004b).

3.2.1 Creation of Interview Schedule

The interview schedule was created based on the research aims. The schedule was semi-structured, *why* and *how* prompts motivated from suggestions by Smith and Osborn (2008). Probing questions yielded deeper responses, ideally unveiling stronger data and more opportunities for open discussion, to achieve a greater rapport between interviewer and interviewee (Smith & Osborn, 2008). Three different interview schedules were cross-analysed with the co-author and an independent researcher before finalising and implementing the final schedule.

3.2.2 Approach to IPA: Transcribing Interviews, Thematising, and Data Analysis

Interviews were transcribed verbatim. Conceptual interpretations were written aside target sections and memo notes through an *inductive* procedure (Braun & Clarke, 2006), in an open, multi-step process (*Figure 1*) (Note 2).

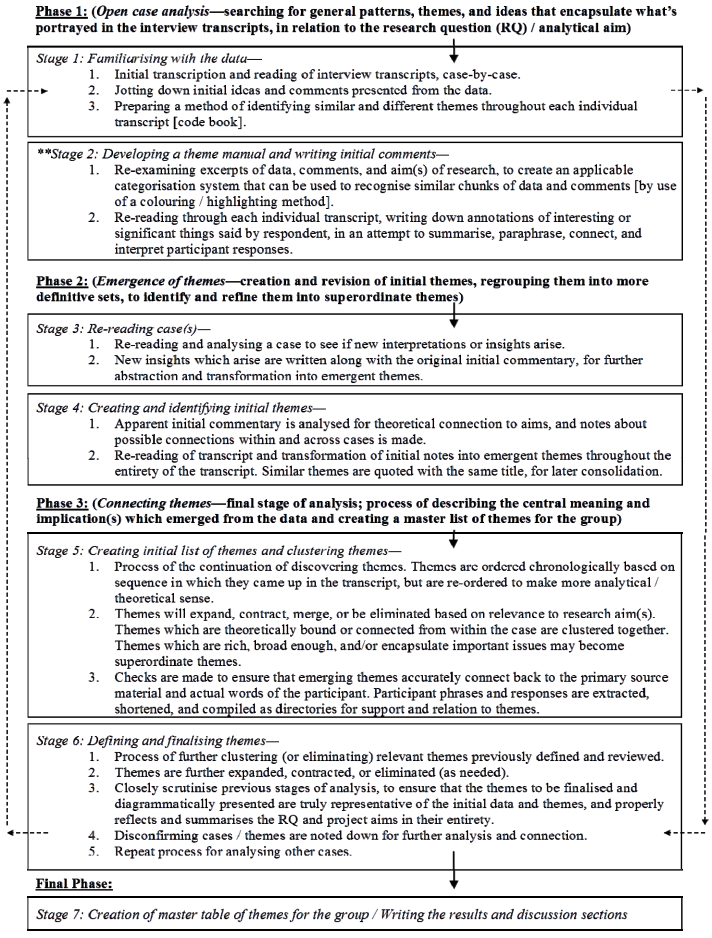

Figure 1. A diagrammatic representation of the stages of IPA

Figure 1 is a visual representation of the stages of transcription and analysis of the interview recordings. IPA analysis was undertaken in a cyclical, 'flowing' procedure to create codes and themes from the data. This was an integrative approach, assimilating concepts of analysis from Fereday & Muir-Cochrane (2006), Braun & Clarke (2006), and Smith & Osborn (2008).

Interviews were analysed in a random order to see if similar themes emerged, and saturation occurred after six interviews. The other five interviews were triangulated with the existing cases through Disconfirming Case Analysis (DCA) to test emerging hypotheses, systematically searching for data that did not fit the existing themes (Yardley, 2008; Mays & Pope, 1995).

3.2.3 Emergence of Themes

The analysis was done case-by-case. Themes emerged from initial comments made, and connections forged between themes were then organised. Themes that demonstrated participants' similar idiosyncrasies best were transformed into a superordinate theme. Subthemes which defined superordinate themes followed, along with identifiers which marked where supporting data could be found.

3.2.4 Trustworthiness and Credibility: Establishing Commitment, Coherence, Rigour, and Demonstrating Validity in the Research

Qualitative guidelines were used to monitor research reliability and validity, to aid in strengthening the research's publishable quality (Aldridge & Aldridge, 1996; Elliott, Fischer, & Rennie, 1999). Trustworthiness was established via IPA analysis and coherence between interpretation, data, and theory. Methodological skill and theoretical depth are evident by gathering a 'paper trail' of the research methods. Participant feedback was also used as part of triangulation, and the main researcher's themes were also shared with the co-author (as a second analyser), for validation purposes.

The focus group questionnaire helped with DCA and self-reflexive analysis on research procedures. 'Deviant' cases were also analysed to consider if any data did *not* fit the original findings. An additional theme was identified from an analysed case.

4. Qualitative Findings

4.1 Summary of the Superordinate and Subthemes

Using IPA, six superordinate themes emerged and one from DCA. Each main theme had several subthemes, illustrated by in-text examples (see Table 3). Pseudonyms were used to protect participants' identities.

Table 3. Superordinate themes and subthemes of the creative process experience

Superordinate Themes	Subthemes			
1. *The Process of Creating as a Goal-Orientated Focus*	**Planning and Implementation, Part 1—seed incidents and motivations**	**P & I, Part 2—matching product to artistic modality and needs**	**Making and creating [style and skill]**	**Final product and dissemination [process-end and sharing with others]**
2. *Internalising Process and Product*	**Stage 1: Initial Connection [Meta-Cognitive Level]**	**Stage 2: Intimate Connection [Transcendence Level ('Flow')]**	**Stage 3: Thinking and Feeling in the Aftermath [Threshold and Termination Level]**	
3. *Art-Making as Awareness Shift and Self-Focus*	**Awareness of self and issues [autonomous realisation of feelings and conflicts]**	**Increase / decrease in personal affect [mood clarity]**	**Elation of feelings towards self and others**	**Negative-to-Positive Affect Shift [Transformations]**
4. *Art-Making and Emotion Regulation*	**Conflict**	**Catharsis / Coping**	**Communication / Clarification**	**Change**
5. *Art-Making for Goal Change, Bonding, and Conflict Resolution*	**Creating higher-level goals**	**Withdrawing and loss of art**	**Bonding and dissemination (the risks)**	**Conflict resolution**
6. *Feelings and Perceptions within the Art-Making Process*	**Productiveness / meaningfulness**	**Attachment and ownership [art as self-identity]**	**Competence and skill mastery [gaining self-esteem]**	**Feelings of conflict / restoration to "happiness"**
7. *The "Superficial" Creative Process*	**Creativity for "escape"**	**Completion of product without internalising / meta-cognition**	**Short-term positive affect and change**	

4.2 The Process of Creating as a Goal-oriented Focus

This superordinate theme was interpreted to be the physical creative process. In this stage respondents initialised, planned, and executed their creative works. It goes down levels, from being aware of the outside world to immersion into creating. Participants began the process by obtaining creative ideas from "seed incidents" (e.g., everyday life, conflicts) and motivational factors (e.g., parents, genre of music, role models, etc.)

4.2.1 Planning and Implementation, Part 1: The Seed Incidents and Artists' Motivations

This part of the process (i.e., "zone") was interpreted to be where planning and thought are given to creating a product, for what and how to make it. Participants reported that products were normally inspired from their current ideals.

One participant spoke about getting ideas for her drawings from dreams (Sally: 4.26). (Note 3) Another participant spoke about getting inspired from daily life (Eliza: 2.16). Mood also affected planning. One participant wrote a poem based on her feelings of loneliness as a teenager:

"I wrote one called 'The Brick'. It was all about how it's part of a building, so it's integral to the upkeep of the whole structure, but no one ever notices the individual component(s). . . . I was kind of feeling like a 'brick'." (Laura: 1.20)

4.2.2 Planning and Implementation, Part 2: Matching Product to Artistic Modality and Intrinsic Needs

For participants, modality had to match mood and skill when planning, seemingly to optimally achieve the creative goal. Art-making apparently was not only motivated by "seed incidents", but intrinsic needs. Respondents reported art as "purposefully" done for the self, as "a sense of duty", "a compulsion", and means to "express" (Elena: 3.23; Sally: 16.31; Laura: 8.8; Steven: 5.3).

Participants also matched artistic modality with philosophical beliefs and goals to make them feel true. For example, Steven said punk rock was the "appropriate modality" for "spreading" his ideas to others (Steven: 3.9). And Nathan similarly related this to prose, saying it was the only means of relaying his ideas and analysing himself:

"I really like the aspect of writing. I feel that creating plays or movies is best for me. Poetry is very limited in where you can express yourself, whereas in prose you fully can…through the characters and story." (Nathan: 1.5 & 1.18)

4.2.3 The "Zone" of Making and Creating: About Style and Skill

Participants described this stage as using their style and skill to create and translate their thoughts and feelings into something physical. Respondents also recalled being concerned about the "craftsmanship" and "execution", before considering the product's connection to themselves (Laura: 20.17; Steven: 10.2).

4.2.4 The Finalised Product and Dissemination: Improvement of Skill and Sharing with Others

At the process's end, participants recounted making their final considerations before storing art or further sharing with others. However, as expressed, dissemination was not necessary and often not sought for until the time was right. It was creating in and of itself that was most important to a majority of respondents.

4.3 Internalising Process and Product—"What it Means to Me"

Many participants described their creative process as going from physical to mental awareness, then back again. Nathan called these "intervals", cycles between working, review and analysis between self and product (Nathan: 5.15). This interpretatively represented the (re)-workings of creating, to strengthen self-to-art attachment by making connections between pursuit, cognition, and emotion. Respondents seemed to engage in the physical process whilst instigating aesthetical reflection about their art.

4.3.1 Stage 1: Initial Connection—Meta-Cognitive Level

Respondents recalled moments of logical thinking in-between moments of creating. In this stage, some participants reported thinking on their situational issues and its relevancy to the product while attempting to establish an emotional connection to the art. Many times these connections seemed "implicit", hidden conflicts expressed "without realising it" (Laura: 24.4 & 24.20; Nathan: 3.6). But others remembered propelling this explicitly. Elena professed this as an "analytical way" to think (Elena: 2.13). For example, Nathan personified himself as a character to view another person's perspective, to "objectify" the situation and "analyse [his] behaviour without being emotional" (Nathan: 7.30). The creative process seemed to inform participants of their individual feelings, and art-making helped to "translate" feelings into the product (Eliza: 4.17).

4.3.2 Stage 2: Intimate Connection—Transcendence Level

Continuous drawing motions seemingly placed artists in a state where a "relationship" (between subject and product) could be made. And this "cerebral" "confrontation of the self" supposedly happened at any moment during the process (Elena: 7.23, 7.25 & 14.5). However, some respondents also reported moments of just "being" while creating, these moments recalled as a sudden lift to a "higher level" of "awareness" or "becoming one", as in being in a different "mode". There is no thinking, only the feeling of being present. This was interpreted as a "pull" away from reality to prompt self-awareness ("syncing" body to mind, or what Laura called being "expansive") (Sally: 3.15; Laura: 10.31, 13.5).

4.3.3 Stage 3: Thinking and Feeling in the Aftermath of the Creative Process—Threshold and Termination Level

Respondents reported a final step where important realisations, sudden insight and changes are made after-process. It is speculated that depth of relationship and analyses ignite an insightful moment primarily near the end of the creative process. Most participants experienced insight and made intimate life and work changes accordingly. However, these changes were also influenced by other factors such as dissemination and feedback. For example, poetry made Laura realise that she was reinforcing her own isolation away from people. In changing into a more independent person with improved goals, she stopped making poetry:

"After my parents split up, I realised that it was the dwelling over things that made me an "outsider" in school. . . . It was a holistic shift. I stopped being that angsty teenager. . . . I came here to get my shit sorted, and poetry didn't match with that." (Laura: 19.5 & 5.2)

4.4 Art-making as Awareness Shift and Self-focus

Respondents considered art-making as an autonomous way to be reflective about the past self or become aware of and focus on the present self. One participant proclaimed that painting and drawing was the "only way of really seeing herself" (Eliza: 5.27). For respondents, art-making was *the* means of "exploring the way [they felt] about things" (Elena: 11.26).

4.4.1 Awareness of Self and Issues: Personal Affect, Mood States, and Elation of Feelings towards Self and Others

Respondents proclaimed that the creative process affected their awareness. Art-making increased or decreased their personal affect and mood states. Making art also seemed to reinforce positive *and* negative feelings associated with the art, others and the self. Respondents recalled moments of calming down and "cheering up", enjoyment, and changes in feelings (Sally: 2.27). The creative process helped all participants understand their own mood and feel "whole" again after conflict, awareness a way to "break down" the issues and "dissect" them bit by bit (Laura: 8.29; Nathan: 9.31).

The creative process worked to make some participants feel happier and amplify positive emotions:

"It's like a spiral, I would say. The better I feel, the more I feel. The more I write, the better I feel afterwards, and it just charges all the members of the band this way. So it becomes this 'exclamation' of emotion." (Steven: 2.28)

The process can also amplify negative feelings as well:

"They're not as good as they could be, because I rush right through them. And that annoys me, that I'm just that impatient. But, I think that's more something I feel about myself than what I feel about my art. . ." (Elena: 9.5)

4.4.2 Negative-to-positive Affect Shift

To become aware and have a more positive attitude, respondents frequently seemed to engage in negative-to-positive affect shift ("transformations") while working. It was deemed an effective way to change negative feelings to positive ones, and a skill which carried on in handling other life situations. Both visual artists and writers used metaphors or imagery to change negative situations into something positive. The musicians even reported using their anger to create beautiful music or lyrics which reflected the conflictions in their beliefs. Shifts were shown to happen both in the literal physical rendering of the issue and its perceptual outlook. An example of this was given by Laura in regards to her poetry writing versus diary writing:

"And instead of putting it down, like: "oh, this happened today. . . " I could write in a way that I thought was…beautiful. And my favourite thing to do was to write about quite horrific things, but using very beautiful metaphors." (Laura: 15.22)

4.5 Art-making and Emotion Regulation

Art-making allegedly helped respondents to regulate emotional states, attain clarity of mood, and understand where these originated from. The process was perceived to enable validation and clarification of feelings, which

included accepting or rejecting the current or past identity. Respondents claimed each aspect helped them feel in control and be more stable after conflict (speculated to be the *"6 C's of Creative Healing"*). Art-making was referred to as a safe "haven" to shield against life stresses.

4.5.1 Conflict

Conflict was reported to be the foremost topic in product-creation. Some respondents characterised the creative process and conflict as being reciprocal; their issues influenced creation and creation influenced thinking on the issues. Internal and external conflict invoked Steven's lyrics, Laura's poems, and Nathan's book "Symphony of a Paedophile". For example, metaphors in Laura's poem of the crushed orange captured the moment of her father abusing her mother, showing powerful consideration between conflict and product:

"It was all that whole bit of prose was based around. …An orange. When they get crushed and the skin splits. In a way, it should be violent, but the colours underneath…the pure orange flesh is so vibrant and so beautiful. . . ." (Laura: 18.29)

4.5.2 Catharsis

Catharsis was presented as one of the most important aspects to art-making. The ability to "purge" the self of negative emotions and "cleanse" the mind was significant, the word "cathartic" present in every account. Respondents frequently expressed using their creative pursuit to "escape", "control", or "vent". Many connected this to feeling "emotionally good", a "cleansing of emotions", as "soul searching", and other similar connotations (Sally: 11.22; Laura: 18.9; Steven: 2.6; Nathan: 14.17, 14.30; Elena: 3.14; Eliza: 2.10). It was synonymous with "letting go", even physically by discontinuing use of art, and was a means of coping with threatening life situations.

Picture 1. "Embroidery with Mice", needlework piece, (completed late 1980s, early 1990s)

Comments from Pamela: "I did this when I was still married to my ex-husband, at a time when I had considerable pressure from my job but no family responsibilities. As I think I told you, this marriage ended

unhappily and although at the time I thought I was using my craft work to relax outside my job, I now suspect I was also possibly escaping the pressures of my personal life. I often felt lonely and misunderstood at home, and craved going out to socialise, which I suspect was to compensate for this. The hobbies I had at that time were all solitary (e.g., knitting, sewing, embroidery) and I would choose the most involving and intricate patterns to attempt, which needed great concentration…."

4.5.3 Coping

Every respondent reported their own coping strategies. Some used art to simply "escape", while others to "cope" until being able to deal with the issue head-on. For example, Sally used art primarily to avoid the violence and fear in her home, yet Steven used song-writing to cope with the near-loss of his child (Sally: 2.10; Steven: 9.1). Cases suggest that primary use for art affects whether it yields to short or long-term benefits, and modality affects strategy used based on individual predispositions (e.g., Nathan used pain in doing kung-fu to ignore his problems, whereas in writing he actively "faced up to" and "analysed" them) (Nathan: 5.1, 5.23).

4.5.4 Communication and Clarification

Respondents used art to communicate and clarify their feelings. Communication could be with the self and with others. Rather than deal with issues, all respondents reported, at one time or another, using art-making as a means to "talk it out" autonomously. Interpretatively art acted as a "proxy-person"; some respondents expressed that the creative piece "understood" them in ways no one else could (Eliza: 9.10). When trying to communicate, art was said to be a means of "getting the point across", whilst attempting to relate to others.

For example, Eliza used her paintings to communicate with her mother. Without words she reconciled the relationship and made peace about past negative feelings between them. Painting helped to clarify these emotions:

"Sometimes when you're confused you don't know what you want. I don't know what happens when I have a paintbrush, but everything kind of makes sense in my head. I guess I try to think of how to present how I'm feeling right now, and it's a way of usually becoming aware." (Eliza: 3.22)

4.5.5 Change

Changes varied for respondents, and included: "bringing [the self] back to being 'me'", feeling a "great relief of everyday stress" and living the life that is wanted (e.g., being an individual in society, not part of the "herd"), not "needing to analyse" the problem anymore and it feeling "less intense", gaining "sympathy and understanding" (from others), and ones' painting becoming more "colourful" and "full of life" (Laura: 21.7; Steven: 2.15 & 13.28; Nathan: 3.13 & 6.31; Elena: 11.5 & 14.25; Eliza: 9.24 & 8.17). Respondents also increased skills and mastery of modality, finding that the complexity and subject matter of works had changed along with their mood and outlooks on life.

***Humanity** (The Herd)*

WELCOME TO THE HERD!

In the shell of eternity humanity counts its days.

Running around the vicious circles, drawn to the ground, the sheep has no mind and no face.

And in the bottom of existence it's only a slave to itself – digging to find the meaning of life, sinking deeper in its grave.

There could be answers out there the sheep don't know of.

It never heard of shooting stars. The weather broadcast is more important. "The more the rain, the more the grass."

"The machine is built. Get ready for the start! Don't forget your flying card.

It's easy as a joyride. From our mind-modulator. You have nowhere to hide. The barcode is in the centre of your forehead. Check in before you fly. Now push the button, dear (number) 5499. It's time to say goodbye."

Picture 2. Excerpt of: "Humanity (The Herd)"

This is an excerpt of lyrics presented by one of the participants, Steven, for his band BFH (*Burned from Hope*).

4.6 Art-making for Goal Change, Bonding, and Conflict Resolution

According to participants, art-making yielded some long-term effects. Participants reported these moments happening primarily after product completion, but some respondents (e.g., Nathan and Laura) observed ways of solving conflict whilst still at play. This seemed to normally occur around *stage 2* or *3* of the internal process.

4.6.1 Creating Higher-level Goals

Respondents recalled moments after creating which lead to different levels of positive and negative change. Art-making helped participants recognise and achieve higher-level goals, some even making their creative pursuit a goal in itself. In having realisations, some participants self-actualised and uncovered their needs to direct for a new goal, which sometimes included making their art a profession. Sally had pursued a "qualification to teach music" (Sally: 1.3). Laura utilised poi to achieve "more than one goal", now focusing on the goals which were "implicit" since not feeling "distraught" anymore (i.e., no longer working to get away from her father or meet his expectations) (Laura: 23.19). And writing had become a goal for Nathan:

"…I don't think I'll be working for that company longer than the next 3 years. I want to get a job, and then while I'm working, try to get my books published." (Nathan: 2.3)

4.6.2 Withdrawing / Loss of Art, Bonding, and Dissemination—the Risks

Some respondents reported how negative feelings instilled a want to change goals or behaviours, but this was interpreted to be a double-edged sword. Dissemination and loss of art seemed to affect change in good and bad ways. Only five participants mentioned the effects, but dissemination was stated to either: 1) lead to a loss of art, or 2) strengthen/create relationships with others and the artwork. Three participants had loss the will to continue art when it was deemed ineffective against conflict, reinforced negative feelings, or was not accepted by peers or parents. Rejection of art by a parent is extremely detrimental. For Sally, it deepened her feelings of no control over the situation at home (i.e., her mother's dismissal of her rap lyrics made her instantly stop writing them) (Sally: 7.16).

Rejection of art by social peers is also damaging. Laura stopped writing when she felt she was "tricked" into sharing something so private with her classmates and with the realisation that poetry was instilled in her to do by her father's punishments. As part of "letting go" of her past self, she let go of her poetry as well (Laura: 21.13 & 19.8). Disuse of art also affected Eliza, after she realised it was reinforcing her negative feelings towards art school:

"I felt lost in an abyss. I started doing stupid things. I wasn't doing well. . . . I got into drugs, and I didn't have anything to do. I didn't know how to sort of deal with things, and then I got into abuse. . . ." (Eliza: 14.25 & 15.1)

However, sharing also created bonds with social structures and reconciled failing relationships. Also, some respondents realised that losing art negatively affected them, and later continued the modality stronger than ever. Steven told how life for him without his music was extremely hard, and he felt a "complete lack of productivity" for a long time (Steven: 8.3). This reinforced his bond with his music and compelled him to play or write whenever possible while attending university. Elena also felt sharing made her feel good about herself when accepted, and helped her to bond, especially if "someone [could] relate to it" (Elena: 4.8). When positive connections were made, respondents stated it raised their self-esteem and instilled a sense of pride towards themselves and their work.

Picture 3. "Various Pokémon: Togepi, Happiny and Finneon", in polystyrene egg, boiled egg, plastic fruit beads, pipe-cleaners, etc. (made in 2009)

Comments from Pamela: "This was really fun to do. My daughter took the lead on designing the Pokémon as only she knew what they looked like! I contributed by finding potential materials we could use and cutting out shapes until they looked about right, then we assembled them together. I really enjoyed this, partly because Pokémon is one of those kiddie obsessions you don't really take any interest in, and can actually be quite irritating to keep hearing about, so you tune it out. But for this, I had to get involved in my daughter's particular interest in order to help her. So, I felt closer to her as a result, which was lovely. Also, I seem to remember she took great pleasure in being able to teach me about Pokémon and pass on some of her knowledge, as I knew nothing (she just had to tell me again who they all were). I also found out for the first time who her favourites were (so we could find the most appropriately egg-shaped amongst them). She seemed to appreciate being "allowed" to tell me all about her Pokémon for once, and for me to be listening and joining in, and I enjoyed visiting "her world" for a while. A good bonding session."

4.6.3 Conflict Resolution

Several participants seemed to find that art-making was useful, even short-term, in dealing with conflict. When conflict was resolved, the creative process also seemed to help develop skills and strategies that could be utilised in other pursuits, including school. Laura's poi gave her the strength to deal with her problems head-on, feeling less like a "fragmented", conflicted person, and able to unify her mind and body together to feel "ready" for anything (Laura: 11.29). Nathan found that his writing was effective for processing and analysing his issues, and dealing with them (Nathan: 2.29). And Eliza simply found painting a way of understanding herself, without outside help:

"I didn't have to be asked how I felt. I could just get it down on canvas. It was a way to be autonomous. . . " (Eliza: 7.26)

4.7 Feelings and Perceptions within the Art-making Process

Some participants stated that art-making invoked deep positive and negative feelings. Speculatively, this informed the acuity of the creative pursuit's effect on change and its level of importance. The deeper the feeling of attachment to the art modality, the more likely and longer respondents seemed to feel its beneficial effects. Participants also demonstrated that art closely associated with negative affect tended to become discontinued, and its benefits short-term. However, when respondents identified art with the self, it was regularly used despite conflict and made a stronger, lasting impact on positive change.

4.7.1 Productivity and Productiveness: Meaningfulness and Being Mindful

According to most participants, being creative made them feel like mindful individuals, with a sense of purpose in their life. Art-making seemed to give them the feelings of being productive with an enhanced sense of self, each product holding personal meaning to the individual. Some participants attributed this as bringing a "contribution" to the world:

"At the end of the day, you're left with a drawing, and you feel that you've completed it. So, for me it's an emotional process, in that you feel better. Cause there's a feeling of achievement after doing something, and it's not just pleasure." (Elena: 1.20 & 2.15)

4.7.2 Attachment and Ownership: "Art as Self"

The creative process is speculated to cultivate the strength of attachment to art. Art was 'owned' and a very personal, emotionally felt matter for participants. Usual terms used to express this were "art is me" and "it's my 'arena'":

"I really started to enjoy it. I feel more passionate about my saxophone. So, yeah…it's my baby. Whenever I play it, it's sort of like 'my time', and it's 'my thing', and nobody can take it away from me." (Sally: 1.30)

Picture 4. The album cover for *Burned from Hope* (Steven's band)

4.7.3 Competence and Mastery of Skill: Gaining Self-esteem and Self-confidence

Four participants felt more competent from the process, identifying it as intellectually stimulating. They reported that art-making increased their sense of mastery, feeling of uniqueness and self-esteem, yet art could also lower these feelings when skill was lost or when the product did not come out the way it was imagined.

Art-making creates elated positive feelings:

"I'm gaining a skill that I can take with me everywhere, and it applies to everything I do now. I'm WAY more coordinated now--" (Laura: 11.22)

…But may also rouse negative feelings and disappointment:

"I would say that I'm a bit crappier at art than I used to be. When I took that little hiatus, I lost a lot of skill. Which I'm most disappointed at. And at times I still get frustrated when I'm doing art now." (Eliza: 15.9)

4.7.4 Feelings of Conflict, Crisis and Ill-control: Restoration to Being "Happy"

Although there were feelings of conflict in dealing with real-life issues, it was interpreted that the realisation and overcoming of conflict was most helpful for participants like Laura, Elena, and Eliza. For example, despite feelings of no control over the situation at home, Sally still felt "more content" and "accepting" of herself presently (Sally: 15.24). Steven found music to be stressful since moving away from home. Yet, that realisation helped him to overcome those feelings by switching to writing lyrics and using his writing skills for school, outside his band (Steven: 3.26 & 4.8). Feelings of conflict seemed to increase attachment to art, and yield to sudden insight and permanent change for some participants. Laura explained it best when she recalled how useful poi had been to her to restore her happiness:

"There were times when I'm really unhappy, and when I get unsure of myself, or parts of myself feels conflicted. Anytime I can feel collected together, that always makes me feel like I have higher self-esteem and better general well-being. . . ." (Laura: 13.24)

4.8 Disconfirming Case Analysis

In searching for cases deviating from the original themes, a new superordinate theme arose. The five participants reserved for DCA had their accounts briefly compared to the other six. Two participants said that although useful cathartically, they had no serious conflicts associated with art-making. Also, art did not contribute to strong permanent change. This was supported by the feedback from Sam, who reported that she did not go into an "internalising zone", nor was art "all that important". Feedback from Denise and Pamela also noted that personal reflection with art might not always be explicit.

4.8.1 A "Superficial" Creative Process

Sally's re-analysed case presented an auxiliary process for those who did not follow the same process as other cases. This was dubbed the *superficial ("quick-method") creative process*. "Superficial" is not equivalent to negative affect or no change; however, it may be associated with using art as avoidance behaviour. It grants similar benefits like the full process, but these seemed short-term, with limited change.

In Sally's case, the *phase of making* comprised of her playing music "just because [she] could". She reported no goal in mind, music played to "express herself" only (5.1). Sally said her art was improvised, not planned, and she expressed that her reason for art-making was just to go "crazy" and "vent", because she felt there was "no other solution" (14.9). She had no one to speak about her problems with, and her mother did not listen to her:

"I think that (s)he's not going to do anything, in that (s)he's not going to have a solution. I just don't even attempt it. ...I'd just rather play around with my saxophone. . . ." (Sally: 9.5)

She used art to avoid the negativity at home. For her, art-making was a semi-linear process. Little to no thinking was involved, other than some of the realisations she made in the interview (4.14 & 16.31). However, when she played on her saxophone to "escape", she did feel better afterwards. It reportedly helped her to cope (11.22). But these feelings were purportedly only short-lived; true change only occurred when she completely moved away to take residence on campus:

"I'd sort of feel better, but I wasn't feeling like 'on top of the world', just because all the issues still remained. . . . I just didn't feel that much better about myself, but it did help me to calm down." (Sally: 6.30)

Afterwards, she no longer felt the need to draw, and rarely used her saxophone, now only playing to enjoy it and improve her skills. She reported still feeling her problems were present, and art-making apparently did not help her much.

It appears that art did not help Sally because of the negatives related to it. She never reported positive bonding moments or feelings other than the enjoyment she felt in playing her saxophone. Her main modality was waning in its use, indicating that too much or too little conflict may result in the 'superficial process', and a loss of art.

5. Discussion

5.1 Reflexive Evaluation of the Qualitative Approach

Upon a review of the qualitative methods, some concerns arose. According to the feedback of three participants, they did not believe they explicitly went into an *internalising* process, nor felt a strong attachment to their artwork. One participant also seemed displeased with her interview, feeling her account did not "fit the preconceptions" of the researchers. Honestly, personal experiences in art-making aided the analysis and some

themes may not have emerged without knowledge of the literature (e.g., the Meta-Cognitive and Transcendental Levels). Probing questions and a "conversational" approach to interviewing helped establish a greater rapport with participants, but may have biased responses. The IPA strategy indeed has pros and cons as a qualitative method (Brocki & Wearden, 2006; Smith, 2007). Further research may be needed to evaluate the degree to which art-making actively facilitates recovery across individuals.

Nevertheless, the interview process seemed to positively impact most participants. Three in particular felt enlightened by their interviews. They reported realising more than what they knew before about themselves, and felt they were becoming stronger attached to art by talking about it.

5.2 Summary of Results

In pursuing the aims of the study, the following superordinate themes emerged from IPA and DCA: 1) *the process of creating as a goal-oriented focus*, 2) *internalising process and product*, 3) *art-making as awareness shift and self-focus*, 4) *art-making and emotion regulation*, 5) *art-making for goal change, bonding, and conflict resolution*, 6) *feelings and perceptions within the art-making process*, and 7) *the "superficial" creative process*. A process of change was inferred from these themes. The emergent themes are described below, with respect to the theories presented in the introduction.

5.2.1 The Process of Creating as a Goal-oriented Focus

Echoing the literature, respondents engaged in dynamic, goal-directed stages of reflection between the self, environment, and product (Gaut, 2010). Participants chose elements which best suited their creative endeavour, juggled ideas, used aesthetical consideration for free-play of ideas, and reported feeling in "control", with a sense of purpose to creating their work (e.g., Bindeman, 1998). The physical part of the process was not automatic, and required some discipline to initiate (e.g., Gaut, 2010). The findings were also consistent with Mace (1997) and Csikszentmihalyi (1996), who proposed that beliefs and intrinsic needs are motivational factors to achieve creative goals.

5.2.2 Internalising Process and Product

Respondents engaged in an internalising process that appeared to be consistent with Pelowski and Akiba's (2011) model of aesthetical change. Aesthetical engagement helped to block stress-related, "unproductive" ideas, aiding creative immersion through "stages", from logical thinking, to "transcendence", then a threshold where sudden insight occurred. Respondents also experienced "flow"-states via pure immersion and "meditative motion" whilst creating (e.g., Carl III, 1994). It is speculated that "flow" helped participants translate feelings into the product during the transcendence stage. Yet, against Csikszentmihalyi's (1996) "rules" for "flow", some participants seemed conscious of "flow"-states, saying they became "more aware" during those times. This begs the question whether self-consciousness is really absent in "flow".

5.2.3 Art-making as Awareness Shift and Self-focus

Respondents reported using the creative process autonomously to be reflective and become "aware". Similar strategies are found in work by Mace (1997) and Ziv and Keydar (2009). Respondents' creativeness appeared to help them search for "order" within "chaos" by "breaking down" issues. They did this by transforming negative outlooks to positive ones via metaphorical concept shift within the artwork, which seemingly inspired an imaginative identification process between self and one's own issues (e.g., Eliza transforming her feelings of manipulation by her family into a painting of a game of chess). Respondents claimed that the process affected their awareness by rousing more self-attention, away from the outside world. As in art therapy literature, immersion in art-making was linked to decrease in psychological distress (e.g., Reynolds & Prior, 2003).

5.2.4 Art-making and Emotion Regulation

Art therapy's main posit is the idea that living with illness is an emotional balancing act, and moving attention from *negative affect* promotes healing. As found in studies like Reynolds' (1997, 2002, 2003), art-making is propelled by conflict, and catharsis, communication, and clarification of feelings are all *strategies of coping* and lead to *change*. These components were identified in the current study. Respondents reported gaining the ability to control and regulate their emotional states through art-making. Like the literature, participants validated feelings and accepted or rejected their current or past identities through their art (e.g., Monti et al., 2006). However, it seemed the coping strategies participants used were determined by perceived level of control. This affected healing and art's utility. Difference in coping methods was the *need to "escape" / ignore issues* versus the *need to "relax"* in participant accounts. This strategy variance is rarely recognised by researchers in contemporary literature.

5.2.5 Art-making for Goal Change, Bonding, and Conflict Resolution

Participants frequently reported various changes after the creative process, which included creating higher-level goals and the creative pursuit itself becoming a goal. Similar results were shown in Reynolds' work. Some respondents reported to now be achieving more than one goal, or focusing on more "implicit" rather than arbitrary goals directed by the self or imposed by others (e.g., art teachers). However, not every participant experienced long-term benefit. Some respondents confirmed that "healing" was still an on-going process, and others did not fully overcome conflict solely through art-making (e.g., Sally).

Bonding occurred for participants via sharing their creativity with others. This is similar to the *dissemination stage* considered by Allen and Thomas (2011). Most participants' reported that sharing helped to create family bonds, reconcile failing relationships, and lead to feelings of social acceptance (e.g., Alder & Fisher, 1984; Bensimon & Gilboa, 2010). However, some participants reported that dissemination was not important, and sometimes led to "losing art" and negative affect. Certain literature suggests that rejection of the creative pulse, especially by parents, does lead to a loss of creativity (Bournelli, Makri, & Mylonas, 2009).

The stages of creating reported were relatively parallel to the five stages suggested by Allen and Thomas (2011). Creativity helped participants to clarify and achieve goals via a problem-solving strategy. This included *conceptualising the artistic problem*, *incubation* (setting aside creating to just think about the process), *illumination* (insight), and *verification* of creative ideas (via meta-cognitive analysis). Unlike Allen and Thomas's theory, however, most respondents underwent creative thinking for solutions to their issues and the product itself, rather than creative contribution on a social- or domain-construed level (i.e., for "artistic recognition" by superiors of their creative domain).

5.2.6 Feelings and Perceptions within the Art-making Process

Many participants felt emotional side-effects after art-making, which included: gaining feelings of being productive, attained competence in skill and self-esteem, and restoration to being "happy". These positive affects keenly match patient outlooks after art therapy and are considered the basis for becoming a "purposeful being" (Fidler & Fidler, 1978). Respondents seemed to self-actualise and become more mindful of themselves and their goals via the process (e.g., Ryder, 1987). Seemingly the longer and more deeply felt positive emotions were, the more respondents felt creativity's beneficial effects. However, contrasting the art therapy literature, art-making sometimes reinforced negative perceptions, especially if used for "escaping" rather than "relaxing".

5.2.7 Art-making and Change

Findings are supported by previous research on the experience of change without therapy (e.g., Gianakis & Carey, 2011; Reynolds, 1997, 2002, 2003). Participants detailed feelings of change even minimally after art-making. Changes were derived from motivation and readiness, moving towards a new identity, and perception of the self as a person no longer identified with the problem (e.g., Carey et al., 2007; Higginson & Mansell, 2008). Some participants described change as an "on-going" (gradual) process, and some as sudden (e.g., Higginson & Mansell, 2008). Alike to findings in Gianakis and Carey (2011), change occurred most often with the realisation, acceptance, and experience of strong negative affect (e.g., Laura realising her poetry was reinforcing her negativity). The creative process seemed to work best when negative affect and memories were transformed purposefully by participants (e.g., Laura's poems about the "crushed orange" and "brick").

Comparable to the literature, conflict signalled to participants that current strategies in daily life to maintain control were not succeeding, and change was needed (Mansell, 2005; Mansell & Carey, 2009). Like findings by Bournelli, Makri, and Mylonas (2009) and James, Chen, and Goldberg (1992), rise in conflict (and poor dissemination) helped to generate new ways of dealing with conflict, but also diminished area of interest, which steered some participants to use maladaptive behaviours instead (e.g., Laura and Eliza using drugs and alcohol). Yet, some participants rebuilt interest in a different or the same artistic modality. This seemingly strengthened continuance of art, and increased self-worth and capacity for insight more than working in a single area of creativity would (e.g., Burleson, 2005).

Participants reported experiencing increased satisfaction by matching creative modality to individual needs, which enabled emotional self-regulation without therapy. This matches Reynolds' (1997, 2004a, 2004b) and Gianakis and Carey's (2011) conception that there is a self-healing tendency in those who engage with art. Participants' change correlated with maintaining a sense of their own identity, enhanced relationships with others, and changes in their art styles. These ideas of gaining control over disturbing emotional experiences and pursuing personal goals thereafter match the findings from recent qualitative studies (e.g., Alsawy & Mansell, 2012; Brown & Carey, 2012; McEvoy, Schauman, Mansell, & Morris, 2012).

Our findings were often consistent with the literature, yet there were some exceptions noted and the theories are scattered across several paradigms. An integrative framework would therefore be beneficial. First, we have illustrated how the findings are consistent with other studies that have utilised a Perceptual Control Theory framework (e.g., Gianakis & Carey, 2011). Second, concepts of control theory are already introduced in the art literature (e.g., Csikszentmihalyi, 1996; Mace & Ward, 2002; Pelowski & Akiba, 2011). As such, a PCT approach may be used to build a suitable model of the healing creative process because it is a mechanistic theory and provides the components necessary to model controlled processes (e.g., Powers, 2008).

5.3 The Perceptual Control Theory Approach to Healing in Art-making

Perceptual Control Theory proposes that life is a process of control (PCT: Carver & Scheier, 1999; Mansell, 2005; Powers, Clark, & McFarland, 1960). People control their own sensory input by flexibly varying their behaviour within the world. They achieve their long term goals through setting subordinate goals in a cascading hierarchy. For example, "to be a good person", one might pursue the principles of being honest, friendly and kind. These, in turn, are achieved through lower-level programs such as "greeting a neighbour" to fulfil the principle of "being friendly".

PCT postulates that *conflict* occurs across a minimum of three levels within the hierarchy. The highest-level of the control system sets incompatible goals at the middle-level. The problems people experience generally occur at the lowest-level (e.g., uncertainty, stress, anxiety), whereby a person may strive to satisfy one goal, but increases error for other goals and ignores where conflict may reside. This instigates a problem where neither goal can be achieved. When conflict arises, a learning process called reorganisation occurs (Powers, 1973). It is then important for reorganisation to be directed towards the level that is setting the conflicting goals, and this is experienced as a shift in awareness.

5.3.1 Art-making as a Feedback Loop

We propose that people use art-making to control their perceptual experiences and that this process is driven by higher-level goals (e.g., "I want to be unique"). A simple example of art-making acting for a goal is presented in *Figures* 2 and 3.

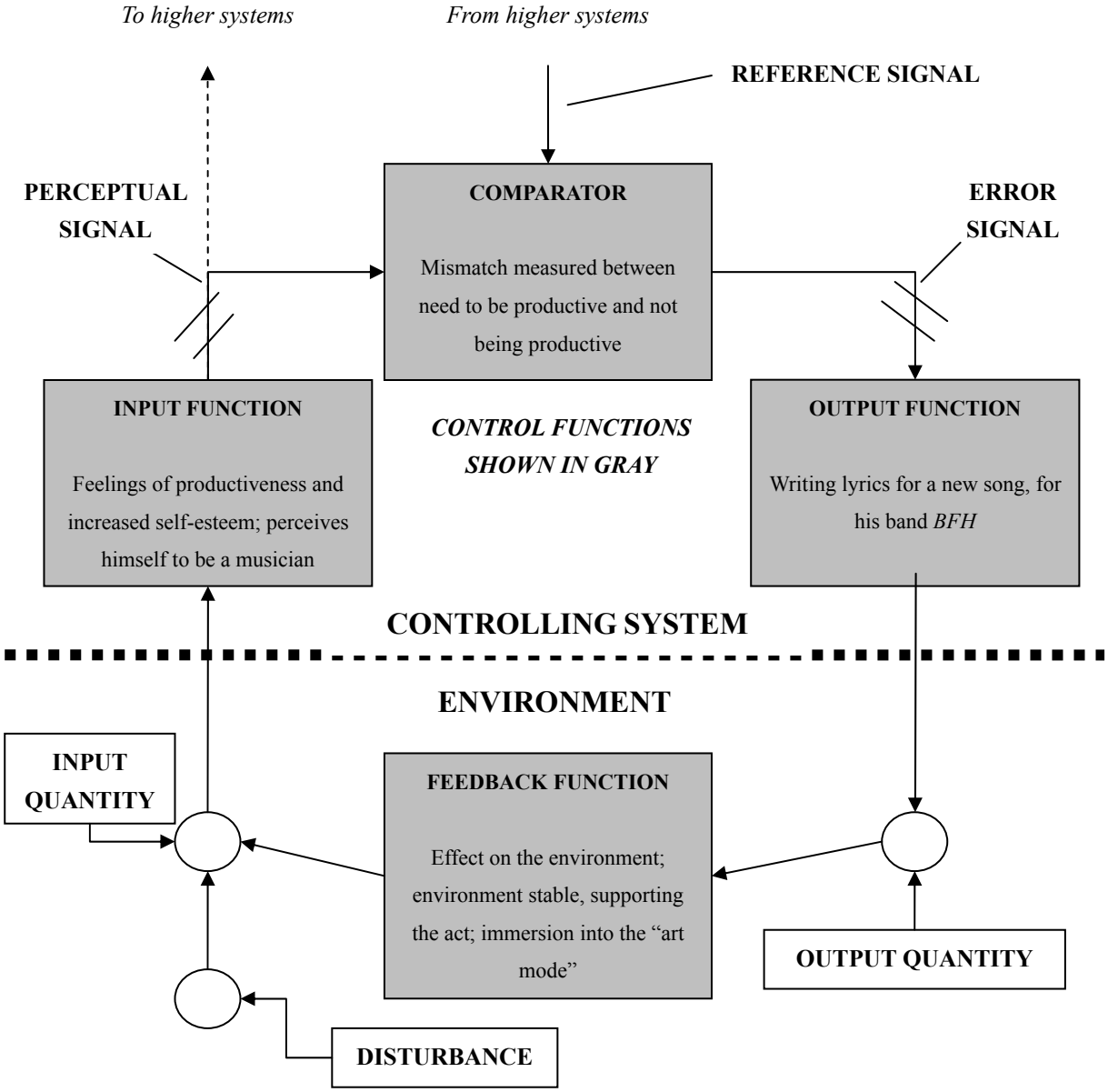

Figure 2. The simplified negative feedback loop of art-making

This figure was based on Steven's account, reporting that he needed to uphold his philosophical beliefs of being productive and doing something that is not a "9 to 5 job". Cross-hatch marks: // indicate that the feedback loop is connected to many other loops within the hierarchy, meaning that other aspects affect the moment of art-making and is not just delineated as a single loop. In this loop, the input function of 'feeling productive' is a high-level perception. The figure was adapted from Mansell (2011) and Powers (2008).

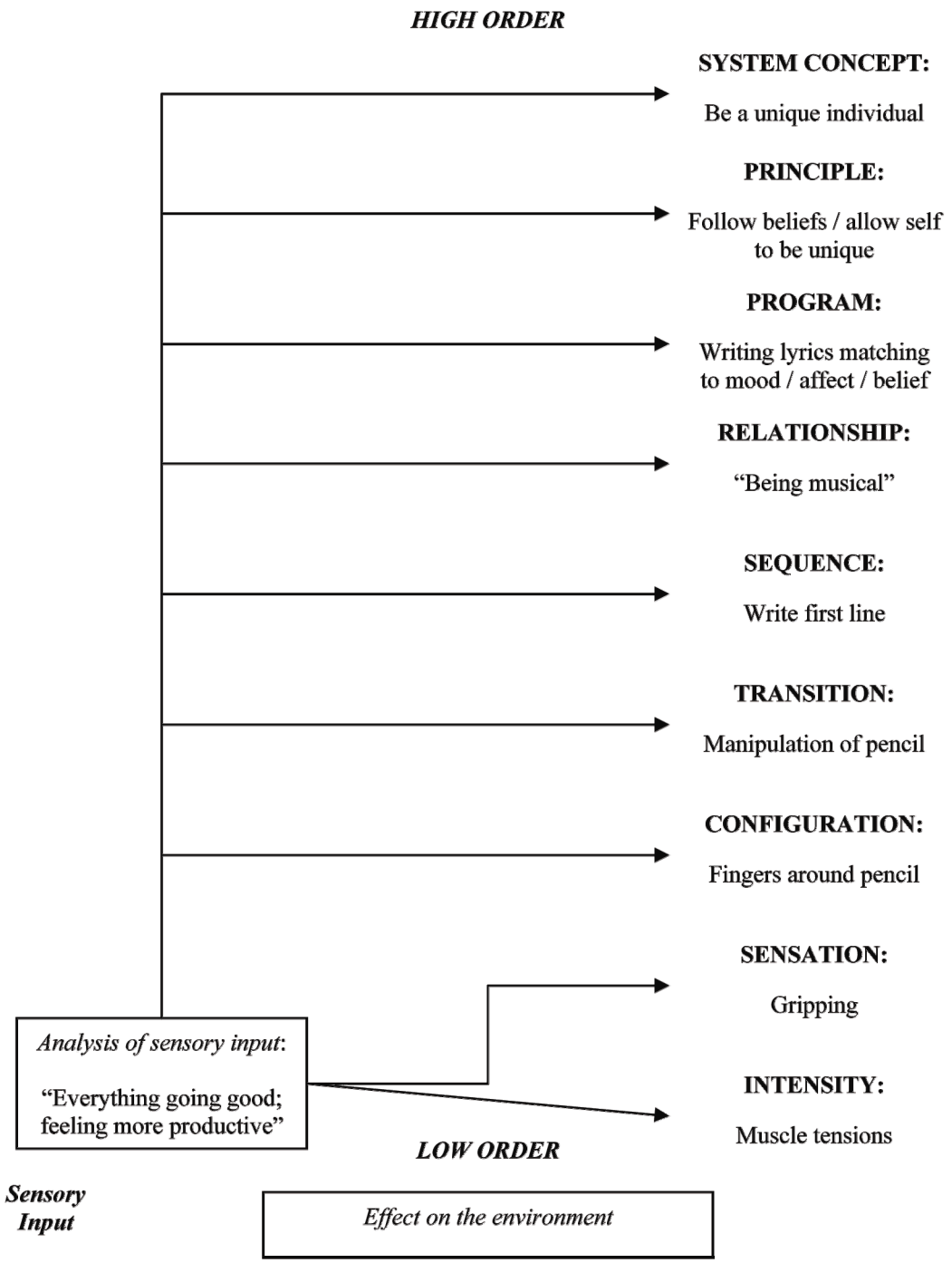

Figure 3. A concrete behavioural illustration of an artist's hierarchy of control

The behaviour described here in Figure 3 is that of Steven writing his lyrics to uphold his philosophical beliefs of being productive and doing something that is not a "9 to 5 job". This figure is adapted from Powers (1973), Mansell (2005), and Carver & Scheier (1999).

Powers (1973, 1998) states that program-level control is behaviour carried out to satisfy principle-level reference values (Carver & Scheier, 1999; Mansell, 2005; Mansell & Carey, 2009). In the adequate condition, art-making was utilised to satisfy whatever principle drove it and system concept (self-ideal) the participant held. Most respondents sought to satisfy their system concepts by confirming their pre-existing beliefs, and purposefully maintained perceptions by defending against unsupportive information or reinforcing their self-ideals/identity (e.g., being a musician). Successful control and feedback was demonstrated by artistic modality matching goals

and the finished product being created.

5.3.2 The Creative Process as a Reorganisational "Healing Tool"

Reorganisation seems compatible with the art-making process. This is because when participants became aware of the cause of their unhappiness, they appeared to change their goals to resolve the conflict. Change was sought and maintained from gaining insights about the self and issues in relation to the creative product.

We propose that art-making utilises and directs reorganisation to the systems necessary to resolve conflict. This is because when daily life became too disruptive for participants, their need to express their art seemed to increase and the creative process took place. Indeed, the participants reported clear goal conflicts and they explicitly controlled their art-making with effort, putting time and craftsmanship into its process as a means of "escape" or "urge" to create. Yet, for most, art-making as "relief" from conflict eventually caused its confrontation and the invocation of insight, which within PCT would be recognised as reorganisation of the higher level systems (e.g., those that involve self-ideals) creating the conflict (e.g., Higginson & Mansell, 2008). This process is followed by a recovery of control as the individual now pursues higher-level goals that are less conflicted.

Notably, some participants engaged in a "quick-method" process which seemingly established "flow", but did not actively invoke self-awareness. This method occurred typically when a participant made art to "escape", rather than to "cope". Within PCT, this is termed *arbitrary control*—the attempt to control an experience without regard to the other goals that it may interfere with or inhibit. Thus, a PCT account can explain how art-making can both be used as an effective way to recover from distress—through shifting awareness to higher-level goals, and yet at times involve properties that simply shift awareness away from the problem, or rarely, exacerbate it if art-making is systematically used to prevent any awareness of the conflicting goals.

5.4 Study Limitations

The limitations of the present study are: 1) its retrospective nature, 2) use of university students, 3) limited participant pool, and 4) caution in generalisation of results. These are presented below:

1) Due to the nature of qualitative research, it is hard to know if participants made realisations during their experiences or their interviews. Past experiences were retold retrospectively, which may not accurately capture change as it actually occurred.

2) This study used university students and staff as its sample. Although care was taken to include persons *specifically* involved in art, most were from the Postgraduate Psychology programmes in the University of Manchester.

3) Out of the eleven participants, only three were male. Also, most participants considered themselves "White British". There are issues with sample size and breadth of the sample. Also, not everyone experienced change in the same way.

4) This limits generalisability of results and presents some ecological validity issues, like those present in related literature (e.g., Chan & Horneffer, 2006). It is recommended that creative persons *outside* university be evaluated and compared with this study, to see how accurate current findings are with a more pervasive sample.

5.5 Suggestions for Future Research

We could examine art-making's function within specific modalities and how modality directs the creative process of change. Modality, as well other factors (e.g., dissemination) may affect artistic healing and manipulate change in various ways. Findings also suggest that researchers should study art-making as maladaptive avoidance behaviour, to determine the effects of the negative use of art. To note, because this study demonstrates that healing is intrinsic in art-making, and art-making is a survival strategy for everyday people, we suggest that clinicians from diverse disciplines could help facilitate art-making for those who identify that they would benefit from it.

Acknowledgements

We would like to thank everyone who made this research possible, including all from the School of Psychological Sciences at the University of Manchester who gave feedback on or was involved in / participated in the full project.

References

Alder, R. F., & Fisher, P. (1984). My self…through music, movement and art. *The Arts in Psychotherapy, 11*, 203-208. http://dx.doi.org/10.1016/0197-4556(84)90040-6

Aldridge, D., & Aldridge, G. (1996). A personal construct methodology for validating subjectivity in qualitative research. *The Arts in Psychotherapy, 23*(3), 225-236. http://dx.doi.org/10.1016/0197-4556(96)00023-8

Allen, A. P., & Thomas, K. E. (2011). A dual process account of creative thinking. *Creativity Research Journal, 23*(2), 109-118. http://dx.doi.org/10.1080/10400419.2011.571183

Alsawy, S., & Mansell, W. (2012). *How do people achieve and remain at a comfortable weight? An interpretative phenomenological analysis.* Manuscript submitted for publication.

Arieti, S. (1976). *Creativity: The magic synthesis*. New York: Basic Books, Inc.

Barron, F. (1990). *Creativity and psychological health.* Buffalo, NY: Creative Education Foundation.

Beghetto, R. A., & Kaufman, J. C. (2007). Toward a broader conception of creativity: A case for "mini-c" creativity. *Psychology of Aesthetics, Creativity, and the Arts, 1*(2), 73-79. http://dx.doi.org/10.1037/1931-3896.1.2.73

Bensimon, M., & Gilboa, A. (2010). The music of my life: The impact of the Musical Presentation on the sense of purpose in life and on self-consciousness. *The Arts in Psychotherapy, 37*, 172-178. http://dx.doi.org/10.1016/j.aip.2010.03.002

Bindeman, S. (1998). Echoes of silence: A phenomenological study of the creative process. *Creativity Research Journal, 11*, 69-77. http://dx.doi.org/10.1207/s15326934crj1101_9

Bird, T., Mansell, W., & Tai, S. (2009). Method of Levels: Initial steps in assessing adherence and the development of a qualitative framework for mapping clients' control hierarchies. *The Cognitive Behaviour Therapist, 2*, 145-166. http://dx.doi.org/10.1017/S1754470X09990158

Bournelli, P., Makri, A., & Mylonas, K. (2009). Motor creativity and self-concept. *Creativity Research Journal, 21*(1), 104-110. http://dx.doi.org/10.1080/10400410802633657

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*, 77-101. http://dx.doi.org/10.1191/1478088706qp063oa

Brocki, J. M., & Wearden, A. J. (2006). A critical evaluation of the use of interpretative phenomenological analysis (IPA) in health psychology. *Psychology and Health, 21*(1), 87-108. http://dx.doi.org/10.1080/14768320500230185

Brown, J. (2008). The inward path: Mysticism and creativity. *Creativity Research Journal, 20*(4), 365-375. http://dx.doi.org/10.1080/10400410802391348

Brown, J. C., & Carey, T. A. (2012). Perceptual control theory and the phenomenological analysis of the experience of autism: A case study. *The International Journal of Psychological Studies, 4*(2), 67-74. http://dx.doi.org/10.5539/ijps.v4n2p67

Burleson, W. (2005). Developing creativity, motivation, and self-actualization with learning systems. *International Journal of Human-Computer Studies, 63*, 436-451. http://dx.doi.org/10.1016/j.ijhcs.2005.04.007

Cantor, N., Norem, J., Langston, C., Zirkel, S., Fleeson, W., & Cook-Flannagan, C. (1991). Life tasks and daily life experience. *Journal of Personality, 59*(3), 425-451. http://dx.doi.org/10.1111/j.1467-6494.1991.tb00255.x

Carey, T., & Mansell, W. (2009). Show us a behaviour without a cognition and we'll show you a rock rolling down a hill. *The Cognitive Behaviour Therapist, 2*, 123-133. http://dx.doi.org/10.1017/S1754470X0999016X

Carey, T. A., Carey, M., Stalker, K., Mullan, R. J., Murray, L. K., & Spratt, M. B. (2007). Psychological change from the inside looking out: A qualitative investigation. *Counselling and Psychotherapy Research, 7*(3), 178-187. http://dx.doi.org/10.1080/14733140701514613

Carl III, W. J. (1994). Flow—a theory of optimal experience: History and critical evaluation. Retrieved from http://www.waltercarl.neu.edu/PDFs/flowpaper.pdf (July 12, 2011)

Carver, C. S., & Scheier, M. F. (1999). Control theory: A useful conceptual framework for personality-social, clinical, and health psychology. In R. F. Baumeister (Ed.), *The self in social psychology* (pp. 299-316). Philadelphia, PA: Taylor & Francis.

Chan, K. M., & Horneffer, K. (2006). Emotional expression and psychological symptoms: A comparison of writing and drawing. *The Arts in Psychotherapy, 33*(1), 26-36. http://dx.doi.org/10.1016/j.aip.2005.06.001

Cohen-Shalev, A. (1986). Artistic creativity across the adult life-span: An alternative approach. *Interchange, 17*(4), 1-16. http://dx.doi.org/10.1007/BF01807013

Csikszentmihalyi, M. (1991). *Flow: The psychology of optimal experience.* New York: HarperPerennial.

Csikszentmihalyi, M. (1996). *Creativity: Flow and the psychology of discovery and invention.* New York: HarperCollins Publishers.

Csikszentmihalyi, M. (1999). Implications of a systems perspective for the study of creativity. In R. J. Sternberg (Ed.), *Handbook of creativity* (pp. 340). New York: Cambridge University Press.

Csikszentmihalyi, M., & Csikszentmihalyi, I. S. (1988). *Optimal experience: Psychological studies of flow in consciousness*. Cambridge University Press.

Dewey, J. (2005). *Art as experience.* New York: The Berkeley Publishing Group. (Original work published 1934).

Doyle, C. L. (1998). The writer tells: The creative process in the writing of literary fiction. *Creativity Research Journal, 11*(1), 29-37. http://dx.doi.org/10.1207/s15326934crj1101_4

Eatough, V., & Smith, J. A. (2008). Interpretative phenomenological analysis. In C. Willig & W. S. Rogers (Eds.), *The SAGE handbook of qualitative research in psychology* (pp. 179-194). London: Sage.

Elliott, R., Fischer, C. T., & Rennie, D. L. (1999). Evolving guidelines for publication of qualitative research studies in psychology and related fields. *British Journal of Clinical Psychology, 38,* 215-229.

Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods, 5*(1). Retrieved from http://www.ualberta.ca/~iiqm/backissues/5_1/pdf/fereday.pdf (February 14, 2011)

Fidler, G. S., & Fidler, J. W. (1978). Doing and becoming: Purposeful action and self-actualisation. *The American Journal of Occupational Therapy, 32*(5), 305-310.

Fraser, D. (2006). The creative potential of metaphorical writing in the literacy classroom. *English Teaching: Practice and Critique, 5*(2), 93-108. Retrieved from http://education.waikato.ac.nz/research/files/etpc/2006v5n2art6.pdf (May 22, 2011)

Gardner, H. (1988). Creativity: An interdisciplinary perspective. *Creativity Research Journal, 1*(1), 8-26. http://dx.doi.org/10.1080/10400418809534284

Gaut, B. (2010). The philosophy of creativity. *Philosophy Compass, 5*(12), 1034-1046. http://dx.doi.org/10.1111/j.1747-9991.2010.00351.x

Getzels, J. W., & Csikszentmihalyi, M. (1976). *The creative vision: A longitudinal study of problem finding in art.* New York: Wiley Publications.

Gianakis, M., & Carey, T. A. (2011). An interview study investigating experiences of psychological change without psychotherapy. *Psychology and Psychotherapy: Theory, Research and Practice, 84*(4), 442-457. http://dx.doi.org/10.1111/j.2044-8341.2010.02002.x

Hamilton, N. A., Karoly, P., & Kitzman, H. (2004). Self-regulation and chronic pain: The role of emotion. *Cognitive Therapy and Research, 28*(5), 559-576. http://dx.doi.org/10.1023/B:COTR.0000045565.88145.76

Hellström, T. G. (2011). Aesthetic Creativity: Insights from classical literary theory on creative learning. *Educational Philosophy and Theory, 43*(4), 321-335. http://dx.doi.org/10.1111/j.1469-5812.2008.00502.x

Higginson, S., & Mansell, W. (2008). What is the mechanism of psychological change? A qualitative analysis of six individuals who experienced personal change and recovery. *Psychology and Psychotherapy: Theory, Research and Practice, 81*(3), 309-328. http://dx.doi.org/10.1348/147608308X320125

Hughes, E. G. (2010). Art therapy as a healing tool for sub-fertile women. *Journal of Medical Humanities, 31*(1), 27-36. http://dx.doi.org/10.1007/s10912-009-9098-0

James, K., Chen, J. & Goldberg, C. (1992). Organisational conflict and individual creativity. *Journal of Applied Social Psychology, 22*(7), 545-566. http://dx.doi.org/10.1111/j.1559-1816.1992.tb00989.x

Johnson, C. M., & Sullivan-Marx, E. M. (2006). Art therapy: Using the creative process for healing and hope among African American older adults. *Geriatric Nursing, 27*(5), 309-316. http://dx.doi.org/10.1016/j.gerinurse.2006.08.010

Jonassen, D. H. (2000). Toward a design theory of problem solving. *Educational Technology Research and*

Development, 48(4), 63-85. http://dx.doi.org/10.1007/BF02300500

Jones, K., Runco, M. A., Dorman, C. & Freeland, D. C. (1997). Influential factors in artist's lives and themes in their artwork. *Creativity Research Journal, 10*(2-3), 221-228. http://dx.doi.org/10.1080/10400419.1997.9651221

Junge, M. B., & Linesch, D. (1993). Our own voices: New paradigms for art therapy research. *The Arts in Psychotherapy, 20*(1), 61-67. http://dx.doi.org/10.1016/0197-4556(93)90032-W

Karoly, P. (1991). Goal systems and health outcomes across the lifespan. In H. Schroeder (Ed.), *New directions in health psychology assessment.* Bristol, PA: Hemisphere.

Karoly, P. (1999). A goal-systems self-regulatory perceptive on personality, psychopathology, and change. *Review of General Psychology, 3*(4), 264-291. http://dx.doi.org/10.1037/1089-2680.3.4.264

Laliberte-Rudman, D. (2002). Linking occupation and identity: Lessons learned through qualitative exploration. *Journal of Occupational Science, 9*(1), 12-19. http://dx.doi.org/10.1080/14427591.2002.9686489

Lincoln, Y., & Guba, E. (1985). *Naturalistic inquiry*. Beverly Hills, CA: Sage.

Lindauer, M. S. (1992). Creativity in aging artists: Contributions from the humanities to the psychology of old age. *Creativity Research Journal, 5*(3), 211-231. http://dx.doi.org/10.1080/10400419209534436

Lubart, T. I., & Getz, I. (1997). Emotion, metaphor and the creative process. *Creativity Research Journal, 10*(4), 285-301. http://dx.doi.org/10.1207/s15326934crj1004_1

Mace, M. (1997). Toward an understanding of creativity through a qualitative appraisal of contemporary art making. *Creativity Research Journal, 10*(2-3), 265-278. http://dx.doi.org/10.1080/10400419.1997.9651225

Mace, M. A., & Ward, T. (2002). Modelling the creative process: A grounded theory analysis of creativity in the domain of art making. *Creativity Research Journal, 14*(2), 179-192. http://dx.doi.org/10.1207/S15326934CRJ1402_5

Malchiodi, C. A. (2007). *The art therapy sourcebook.* New York: McGraw-Hill.

Mansell, W. (2005). Control theory and psychopathology: An integrative approach. *Psychology and Psychotherapy: Theory, Research and Practice, 78*(2), 141-178. http://dx.doi.org/10.1348/147608304X21400

Mansell, W. (2011). *Perceptual Control Theory as a framework for computer modelling across the social sciences* [PowerPoint slides]. Retrieved by personal communication, June 15, 2011.

Mansell, W., & Carey, T. (2009). A century of psychology and psychotherapy: Is an understanding of "control" the missing link between theory, research, and practice? *Psychology and Psychotherapy, 82*(3), 337-353. http://dx.doi.org/10.1348/147608309X432526

Maslow, A. H. (1968). *Toward a psychology of being.* New York: D. Van Nostrand Company.

Maslow, A. H. (1971). *The farther reaches of human nature*. New York: The Viking Press.

Mays, N., & Pope, C. (1995). Qualitative research: Rigour and qualitative research. *British Medical Journal, 311*, 109-112.

Mays, N., & Pope, C. (2000). Assessing quality in qualitative research. *British Medical Journal, 320*, 50-52. http://dx.doi.org/10.1136/bmj.320.7226.50

McEvoy, P., Schauman, O., Mansell, W., & Morris, L. (2012). The experience of recovery from the perspective of people with common health problems: Findings from a telephone survey. *International Journal of Nursing Studies*. http://dx.doi.org/10.1016/j.ijnurstu.2012.06.010

McIntyre, P. (2008). The systems model of creativity: Analysing the distribution of power in the studio. Retrieved from http://www.artofrecordproduction.com/content/view/172/109/ (July 12, 2011)

Monti, D. A., Peterson, C., Shakin Kunkel, E. J., Hauck, W. W., Pequignot, E., Rhodes, L., & Brainard, G. C. (2006). A randomised, controlled trial of mindfulness-based art therapy (MBAT) for women with cancer. *Psycho-Oncology, 15*(5), 363-373.

Musick, P. L. (1977). Paintings and poetry: A teaching/learning experience in self-actualisation. *Leonardo, 10*(4), 315-316.

Ornstein, A. (2006). Artistic creativity and the healing process. *Psychoanalytic Inquiry, 26*(3), 386-406. http://dx.doi.org/10.2513/s07351690pi2603_7

Pankova, R. (2009). Self-reflexivity and art. *Journal of Art Psychology, 1*, 1-3. Retrieved from http://artpsychology.net/?cid=25 (May 11, 2011)

Pelowski, M., & Akiba, F. (2011). A model of art perception, evaluation, and emotion in transformative aesthetic experience. *New Ideas in Psychology, 29*(2), 80-97. http://dx.doi.org/10.1016/j.newideapsych.2010.04.001

Powers, W. T. (1973). *Behaviour: The control of perception.* Chicago: Aldine.

Powers, W. T. (1998). *Making sense of behaviour: The meaning of control.* New Canaan, CT: Benchmark Publications.

Powers, W. T. (2008). *Living control systems III: The fact of control.* New Canaan, CT: Benchmark Publications.

Powers, W. T., Clark, R. K., & McFarland, R. L. (1960). A general feedback theory of human behaviour: Part I. *Perceptual and Motor Skills, 11,* 71-88. http://dx.doi.org/10.2466/PMS.11.5.71-88

Reynolds, F. (1997). Coping with chronic illness and disability through creative needlecraft. *British Journal of Occupational Therapy, 60*(8), 352-356. Retrieved from http://bura.brunel.ac.uk/handle/2438/1988 (February 3, 2011)

Reynolds, F. (2002). Symbolic aspects of coping with chronic illness through textile arts. *The Arts in Psychotherapy, 29*(2), 99-106. http://dx.doi.org/10.1016/S0197-4556(01)00140-X

Reynolds, F. (2003). Conversations about creativity and chronic illness I: Textile artists coping with long-term health problems reflect on the origins of their interest in art. *Creativity Research Journal, 15*(4), 393-407. http://dx.doi.org/10.1207/S15326934CRJ1504_7

Reynolds, F. (2004a). Conversations about creativity and chronic illness II: Textile artists coping with long-term health problems reflect on the creative process. *Creativity Research Journal, 16*(1), 79-89. http://dx.doi.org/10.1207/s15326934crj1601_8

Reynolds, F. (2004b). Textile art promoting well-being in long-term illness: Some general and specific influences. *Journal of Occupational Science, 11*(2), 58-67. http://dx.doi.org/10.1080/14427591.2004.9686532

Reynolds, F., Lim, K. H., & Prior, S. (2008). Images of resistance: A qualitative enquiry into the meanings of personal artwork for people living with cancer. *Creativity Research Journal, 20*(2), 211-220. http://dx.doi.org/10.1080/10400410802060059

Reynolds, F., & Prior, S. (2003). "A lifestyle coat-hanger": A phenomenological study of the meanings of artwork for women coping with chronic illness and disability. *Disability and Rehabilitation, 25*(14), 785-794. Retrieved from http://bura.brunel.ac.uk/handle/2438/2041 (February 3, 2011)

Reynolds, F., & Prior, S. (2006). Creative adventures and flow in art-making: A qualitative study of women living with cancer. *British Journal of Occupational Therapy, 69*(6), 255-262. Retrieved from http://bura.brunel.ac.uk/bitstream/2438/2038/1/Flow.pdf (February 4, 2011)

Richards, L., & Morse, J. M. (2007). *Read me first for a user's guide to qualitative methods* (2nd ed.). Thousand Oaks, CA: Sage.

Rogers, C. R. (1969). *Freedom to learn.* Columbus, OH: Charles E. Merrill Publishing Company.

Ryder, W. W. (1987). The role of art in self-actualisation. *Art Education, 40*(2), 22-24. Retrieved from http://www.jstor.org/stable/3193064 (March 23, 2011)

Smith, J. A. (1995). Semi-structured interviewing and qualitative analysis. In J. A. Smith, R. Harre & L. V. Langenhove (Eds.), *Rethinking methods in psychology* (pp. 9-26). London: Sage.

Smith, J. A. (2007). Hermeneutics, human sciences and health: Linking theory and practice. *International Journal of Qualitative Studies on Health and Well-Being, 2*(1), 3-11. http://dx.doi.org/10.1080/17482620601016120

Smith, J. A. (2008). *Qualitative psychology: A practical guide to research methods, second edition.* London: Sage.

Smith, J. A., Flowers, P., & Larkin, M. (2009). *Interpretative phenomenological analysis: Theory, method, and research*. London: Sage.

Smith, J. A., & Osborn, M. (2008). Interpretive phenomenological analysis. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (2nd ed.) (pp. 53-80). London: Sage.

Stafstrom, C. E., & Havlena, J. (2003). Seizure drawings: Insight into the self-image of children with epilepsy.

Epilepsy & Behaviour, 4(1), 43-56. http://dx.doi.org/10.1016/S1525-5050(02)00684-4

Stevenson-Taylor, A., & Mansell, W. (2012). Art psychotherapy and psychological theory: Revisiting the ideas of control and purpose. Unpublished manuscript.

Wakefield, J. F. (1989). Creativity and cognition: Some implications for arts education. *Creativity Research Journal, 2*(1-2), 51-63. http://dx.doi.org/10.1080/10400418909534300

Yardley, L. (2008). Demonstrating validity in qualitative psychology. In J. A. Smith (Ed.), *Qualitative psychology: A practical guide to research methods* (2nd editon) (pp. 235-251). London: Sage.

Zautra, A. J. (2003). *Emotions, stress, and health.* New York: Oxford University Press.

Ziv, N., & Keydar, E. (2009). The relationship between creative potential, aesthetic response to music, and musical preferences. *Creative Research Journal, 21*(1), 125-133. http://dx.doi.org/10.1080/10400410802633764

Notes

Note 1. Supplementary material from the project (e.g., study advert, participant information sheets, consent forms, interview tools, examples of transcribed and analysed cases, memo notes, master table of themes, etc.) are available from the lead author on request.

Note 2. **Creation of theme manual was done during the full analysis, and revised after identification of disconfirming cases. (Theme manual creation began around Stage 2, as indicated within the figure).

Note 3. (Sally: 4.26) = (participant pseudonym: page number.line number)

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

An Inter-rater Reliability Study of a Self-assessment for the Multiple Intelligences

C. Branton Shearer[1]

[1] MI Research and Consulting Inc, Kent, Ohio, USA

Correspondence: C. Branton Shearer, MI Research and Consulting Inc., 1316 South Lincoln Street, Kent, Ohio 44240, USA. Tel: 1-330-687-1735. E-mail: sbranton@kent.edu

Received: July 19, 2012 Accepted: August 8, 2012 Online Published: August 22, 2012

doi:10.5539/ijps.v4n3p131 URL: http://dx.doi.org/10.5539/ijps.v4n3p131

Abstract

This paper describes the results of an inter-rater reliability study of a self-assessment for the multiple intelligences (Gardner, 1983/1993). Previous studies found the *Multiple Intelligences Developmental Assessment Scales* (MIDAS; Shearer, 2007) demonstrate content, criterion group, concurrent and construct validity (Shearer, in press) but that respondent reliability needed further investigation. An original multi-informant study (n=74) reported moderate to high levels of categorical agreement among raters (40% exact and 80% within one category). This cross-cultural replication study found even higher levels of agreement (46% exact and 92% within one category) among primary and secondary raters (n=173) for respondents from five different countries. Implications for both theory and practice are discussed.

Keywords: multiple intelligences, assessment, self-report, inter-rater reliability

1. Introduction

The use of self-report questionnaires in education and psychology as a means to obtain valid information about adults and students has a long and checkered history. Before the advent of the first successful IQ test (Binet, 1916) as a measure of cognitive abilities, introspection was a widely accepted method of assessment. Standardized IQ tests developed in lockstep with the industrial revolution as objective, quantitative measures that gained respectability as "scientific instruments". Once performance tests became the accepted standard for measuring various cognitive abilities researchers strongly criticized self-report methods of gathering data as being "merely subjective" and lacking validity due to respondent bias and distortion. (DeNisi & Shaw, 1977; Mabe & West, 1982)

The *Multiple Intelligences Developmental Assessment Scales* (MIDAS) were first developed in 1987 with the goal of gathering valid and clinically useful information regarding the multiple intelligences' profiles of person's undergoing cognitive rehabilitation following brain trauma. The theory of multiple intelligences (MI; Gardner, 1983/1993) was chosen as the basis for this assessment because of its broad, unique and practical approach of describing intelligence in everyday, observable terms. This was essential because family members needed to be interviewed regarding the pre-morbid intelligence of memory impaired patients as a means of creating strengths-based, client-centered treatment plans.

Multiple intelligences theory differs from IQ in a number of ways but perhaps most critically in its essential definition (Gardner, 1999): "*a biopsychological potential to process information that can be activated in a cultural setting to solve problems or create products that are of value in a culture*" (p. 34). Based on this definition and using eight criteria Gardner's research identified seven (and later research added an eighth) candidate intelligences: linguistic, logical-mathematical, spatial, musical, kinesthetic, intrapersonal, interpersonal and naturalist.

Some critics view MI as being "anti-IQ" but this is not true because IQ-related skills are integral components of the linguistic and logical-mathematical intelligences. However, MI expands beyond academic skills to include creative (poetry, novels) and practical abilities (technical manuals, explanations) associated with each of eight intelligences.

The visual-spatial intelligence is likewise an essential part of many standard IQ-type tests as visual problem-solving but MI extends this set of abilities to include the creative arts and imagination. The same holds

true for the musical and kinesthetic intelligences where there are obvious academic aspects to each (ballet and classical music) as well as creative (choreography, jazz and improvisation) and pragmatic applications (handcrafts and social music). The naturalist intelligence is represented in the standard academic curriculum in science but it also includes understanding of living things and pattern recognition.

The intrapersonal and interpersonal intelligences have been the subject of a great deal of research in recent years in terms of metacognition and social-emotional abilities, respectively. (Goleman, 1995 and 2006; Sternberg, 1985) The core features of these two intelligences are the understanding of oneself (Intra) and the understanding of other people (Inter). As common sense would indicate, along with linguistic these two intelligences are strongly associated with success in school.

The eight intelligences are neither monolithic nor simplistic, but rather each is comprised of a set of specific skills that are all related to the core cognitive components. For example, musical intelligence is expressed in skills related to musical composition, vocal ability, instrumental skills and the understanding of music. Detailed definitions of each intelligence are presented in Appendix 1.

The MIDAS is unique because it is not a simplistic checklist, but instead was carefully designed as a structured interview where respondents could describe their skills and abilities in both quantitative and qualitative terms. Each question is written to describe specific behaviors associated with core cognitive components of the target intelligence. Response choices are lettered and not numbered and are uniquely written to match with the content of each question so that respondents are encouraged to answer in a thoughtful rather than superficial manner. See sample question in Appendix 3.

Each response choice is given a numerical value by the scoring program (0 to 4) so that the main and subscale scores are calculated as percentages from the total number of answers provided. *I don't know* or *Does Not Apply* choices are not included in the calculations. A majority of items score only on their primary designated scale, but a small number of items are scored on two, and in a few instances three, scales. These co-scored items were identified from factor analytic results and a qualitative analysis of item content. Scale scores are expressed as simple percentages ranging from 0 to 100%. Using both large scale data and criterion group statistics skill level categories are defined thus: 0 – 19%= Very Low; 20% - 39% = Low; 40 – 59%= Moderate; 60% - 79%= High and 80% - 100= Very High (Shearer, 2007).

Starting in 1987 a series of preliminary validity and reliability studies of the MIDAS were conducted to determine if, indeed, a respondent (or informant who knew the person well) could provide a realistic appraisal of one's abilities in each of the eight intelligences. Numerous studies around the world have investigated the validity of the MIDAS and many research results are summarized in detail in *The MIDAS Professional Manual* (Shearer, 2007). The MIDAS provides a profile of the respondent's "intellectual disposition" that has been favorably evaluated in Buros Mental Measurements Yearbook (Prackard & Trevisan, 1999) suggesting support for use within educational contexts. See summary in Appendix 2.

Early inter-rater reliability investigations were promising but additional studies are necessary to confirm their results. In the 25 years since those initial studies a number of investigations have provided consistent support for the scales' validity (Shearer, in press) but important questions remain regarding respondents' reliability.

The first inter-rater reliability study reported in the *Professional Manual* involved 74 self-reports and an additional 138 assessments by primary and secondary respondents. To describe rates of agreement in practical terms, scale scores are divided into five categories from Very High to Very Low. An exact agreement rate of 40% was obtained. An 80% rate of agreement that is plus-or-minus one category between self, primary and secondary respondents was also found. Given the difficulty of observing high rates of agreement among independent raters, these percentages were judged to be more than adequate.

This paper describes the results of an inter-rater reliability study of the MIDAS that addresses the question, *How well does a self-report correspond with the assessments provided by significant others who know him or her well?* The goal of this study is to replicate the original inter-rater reliability investigation that found high levels of agreement among self, primary and secondary respondents (Shearer, 2007).

2. Method

Educators in a variety of contexts (universities, community colleges and high schools) volunteered to recruit students and colleagues to participate in a multi-informant study of the MIDAS questionnaire. Students were offered extra credit for completing their own MIDAS assessment and then asking two people "who know you well" (designated as Primary and Secondary) to also complete the questionnaire online. All participants were voluntary and provided with their own profiles. Data was aggregated anonymously for statistical analysis.

2.1 Participants

The total sample of 173 participants included 65 self-reports, 62 Primary and 46 Secondary respondents. There are respondents from five different countries: Canada (21), United Kingdom (18), Germany (14), US (8) and Ireland (4). Fifty-nine percent are female (38) and 26 are male. The mean age is 26.3 and ranges from 14 through 59 years. Included in the sample are 26 adults, 21university students and 13 teenagers. The types of primary and secondary respondents are predominantly parents (30), friends (18) and spouses (11). See Table 1 for more details.

Table 1. Type of primary and secondary respondents

	Respondents	
	Primary	Secondary
Child	1	**0**
Parents	15	15
Spouse	7	4
Family	6	5
Boss	0	0
Co-Worker	5	4
Friend	6	12
Boy/girlfriend	3	1
Classmate	1	1
Teacher	1	1
Counselor	0	0
Other	3	0
Totals	*47*	*43*

Self respondents were asked to describe how long the chosen Primary and Secondary respondents have known him or her. A majority knew the person for more than ten years (68%). See breakdown in Table 2.

Table 2. How long has primary and secondary respondent known you?

	Primary	Secondary
More than 10 years:	73%	63%
5 – 10 years	7%	15%
3 – 5 years	5%	20%
1 – 2 years	10%	3%
Less than 1 year	4%	

3. Results

Out of a total number of 742 paired comparisons (Self to Primary; Self to Secondary), there was a 46% rate of exact categorical agreement. When ratings are compared within plus-or-minus-one category the agreement rate increases to 92%. There are seven percent of ratings that are different by two categories and only one percent differs by three categories.

Table 3. Agreement rates between self and primary and secondary respondents

Respondent				
Scale	Primary		Secondary	
	±1	Exact	Exact	±1
Musical	94%	45%	*39%*	*85%*
Kinesthetic	93%	51%	50%	**96%**
Logical-math	92%	50%	41%	*83%*
Spatial	88%	39%	33%	91%
Linguistic	93%	46%	39%	95%
Interpersonal	93%	36%	35%	*89%*
Intrapersonal	93%	54%	**60%**	**95%**
Naturalist	92%	57%	51%	93%
Total mean	92%	47%	44%	91%
Grand means	92% ±1 cat		46% exact	

Note. Italtics = Primary agreement higher than Secondary (n=8)

Bold = Secondary agreement higher than Primary (n= 5)

The Primary informant agrees exactly with the self-rating more frequently than does the Secondary informant (five scales vs. one; 47% and 44% agreement). However, the Secondary informant agrees with the self-rating within one category more often than does the Primary information (four scales vs. three).

Both Primary and Secondary informants tend to provide higher ratings than does the person rating him or her self. This is most evident in a number of extreme ratings that are two or three categories higher than the self-rating (48 are higher vs. 22 lower).

The Naturalist and Intrapersonal scales have the highest percentage of exact agreement (57% and 60%, respectively) while the Spatial and Interpersonal scales have the lowest (33% and 35%, respectively). The overall highest rates of agreement ±1 category is 96% for Kinesthetic and 95% for Intrapersonal.

4. Discussion

The results of this investigation confirm that respondents are able to provide "reasonable descriptions" of their multiple intelligences strengths and limitations as compared with knowledgeable informants. In fact, these data are surprisingly robust given two hurdles. The first hurdle was that participants of varying ages came from five different countries and participated under a variety of circumstances. The respondents in Germany completed the questionnaire in English, their non-native language. The second hurdle was that primary and secondary informants had to complete the online questionnaire about someone else when the questions were written in second person (e.g., *Do you ever*….). There was concern that informants would have difficulty making this mental translation and thus provide inaccurate reports. This does not appear to have been a problem and indicates the ease with which respondents are able to provide accurate ratings using the MIDAS questions.

Reliability is an important yet often overlooked attribute of assessments intended for research, classroom and clinical applications. The essential validity of the multiple intelligences construct is a matter of ongoing debate and investigation. Researchers typically use standard performance measures to examine MI validity (Gottfriedson,1998; Herrnstein & Murray, 1994; Visser, et al, 2006; White, 1988) but these provide skewed results because each of the eight intelligences are comprised of more than the convergent problem-solving skills assessed by performance tests. The MIDAS includes the divergent thinking and practical tasks associated with each MI and it has empirical research support for its cross cultural validity (Kim, 2007; Pizarro, 2003; Shearer, in press; Wu, 2007; Yoong, 2001). The data reported here add crucial evidence of reliability as a solid basis for judging the essential validity of the MIDAS to assess the eight multiple intelligences. Taken together these investigations provide large scale empirical support for the idea that the human brain possesses at least eight distinct, relatively independent forms of intelligence that are evident across cultures.

The MIDAS "process approach" toward assessing the multiple intelligences is unique because it gathers both quantitative and qualitative information describing the intellectual disposition of the respondent—from his or her perspective. This phenomenological approach respects the person as an important source of information that will be useful for both educational and clinical purposes. However, it is equally important to be able to gauge the trustworthiness of the scores and descriptions generated from a particular respondent's responses to the questionnaire.

This research provided two surprising results pertinent to practical applications. First, the highest rate of agreement was for the Intrapersonal scale and the Spatial scale was among the lowest. A common sense assumption is that the scales with the most observable behaviors would have the greatest rate of agreement between informants, and this is true for the Kinesthetic and Interpersonal but not for the Spatial and Intrapersonal scales. It is affirming, but a bit perplexing why the least tangible of intelligences-Intrapersonal-would be one of the scales with the greatest agreement among raters. This finding is particularly important because if informants were unable to agree on behaviors associated with Intrapersonal ability then the fundamental validity of a MIDAS self-assessment would be called into question. Instead, our confidence in the results of the questionnaire is strengthened by the knowledge that external raters agree 95% of the time with the Intrapersonal scale (plus-or-minus one category). Knowing that the Spatial and Interpersonal scales have a tendency to differ from external raters can help administrators during Profile verification and interpretation.

5. Conclusions

Three points are of particular note. First, the higher agreement rates among respondents obtained from these diverse participants as compared to the original inter-rater research indicate that respondents are generally able to be reliable self-reporters using the online MIDAS questionnaire. However, the results are not perfect and so profile verification strategies described in the *Manual* should be followed to enhance educational utility. Second, contrary to some expectations, self-ratings are rarely higher than the ratings provided by people who know the respondent well. Third, these strong reliability data from five countries support the cross-cultural validity of both the multiple intelligences construct and the unique design of the MIDAS "process approach" to assessment (Shearer, in press).

Critics of "introspection" as a method of data collection may be right in their negative appraisals but not because people cannot be accurate self-reporters in general. The problem may be due to the theoretical design and construction of the introspective methods and the questions employed. The MIDAS originated as a structured interview using the theory of multiple intelligences as a guide to the selection and construction of items that could be accurately responded to by an outside informant. It was then refined into a self-report through a series of investigations both in-depth and large scale so as to sharpen the focus of both questions and response choices that are uniquely written to match the content of each question. This research supports the common sense adage that it is important both *what* you ask about and *how* you go about asking if reliable information is to be obtained. These data indicate that MIDAS self-reports are generally reliable, but of course on a case-by-case basis distortions can occur. This is true for any form of cognitive measurement. There are no perfectly reliable tests and so all test administrators are wise to trust but verify the accuracy of any profile, if maximum benefit is to be obtained.

Finally, contrary to some research findings, these data support the idea that people know themselves well enough. The importance of Intrapersonal intelligence is a key human ability that has supported our survival in the face of adversity for millennia as well as the development of a complex civilization. We must be able to deploy our cognitive capacities to our best advantage and an accurate self-appraisal is an essential skill in this process.

References

Binet, A., & Simon, T. (1916). *The development of intelligence in children*. Baltimore: Williams & Wilkens.

DeNisi, A., & Shaw, J. (1977). Investigation of the uses of self-reports of abilities. *Journal of Applied Psychology*, *62*(5), 641-644. http://dx.doi.org/10.1037/0021-9010.62.5.641

Gardner, H. (1999). *Intelligence reframed: Multiple intelligences for the 21st century*. New York: Basic Books.

Gardner, H. (1983/1993). *Frames of mind: The theory of multiple intelligences.* New York: Basic Books.

Goleman, D. (2006). *Social intelligence*. New York: Bantam Dell.

Gottfredson, L. (1998). The General Intelligence Factor, *Scientific Americ*an, *9*(Winter), 4.

Goleman, D. (1995). *Emotional intelligences*: *The new science of human relationships.* New York: Bantam Dell.

Herrnstein, R., & Murray, C. (1994). *The bell curve*. New York: Free Press.

Kim, J. (2007). *Validation studies of the Korean translation of the multiple intelligences developmental assessment scales*. Multiple Intelligences Institute, Seoul, Korea

Kim, M., & Kim, Y. (1996). Multiple intelligences analysis of secondary school students. *Hanyang Education Review*, *12*, 151-183.

Mabe, P., West, S. (1982). Validity of self-evaluation of ability: A review and meta-analysis. *Journal of Applied Psychology*, 67(3), 280-296. http://dx.doi.org/10.1037/0021-9010.67.3.280

Prackard, A., & Trevisan, M. S. (1999). Review of the MIDAS: Multiple intelligences developmental assessment scales. In B. S. Plake & J. C. Impara (Eds.), *The supplement to the thirteenth mental measurements yearbook* (pp.154-157). Lincoln, NE: Buros Institute of Mental Measurements.

Pizarro, S. R. (April, 2003). *Psychometric analyses of the multiple intelligences developmental assessment scales*. Paper presented at the annual conference of the American Educational Research Association (AERA), Chicago, Ill. Research Association, Montreal, CA.

Shearer, C. B. (in press). Cross cultural factor analytic studies of a multiple intelligences self-assessment. *International Journal of Educational and Psychological Assessment.*

Shearer, C. B. (2007). *The MIDAS: Professional manual.* (Rev.ed.) Kent, Ohio: MI Research and Consulting, Inc.

Shearer, C. B. (2006a). *Math skill and the multiple intelligences: An investigation into the MI profiles of high school students with varying levels of math skill.* Kent, Ohio: MI Research and Consulting, Inc.

Shearer, C. B. (2006b). *Reading skill and the multiple intelligences: An investigation into the MI profiles of high school students with varying levels of reading skill.* Kent, Ohio: MI Research and Consulting, Inc.

Shearer, C. B. (2005). *Large scale factor analysis of the Multiple Intelligences Developmental Assessment Scales*. Paper presented at the annual meeting of the American Educational.

Shearer, C. B. (2004). *Criterion related validity of the MIDAS scales*. Kent, Ohio: MI Research and Consulting, Inc.

Sternberg, R. (1985). *Beyond IQ: A triarchic theory of human intelligence*. New York: Cambridge University Press.

Visser, B., Ashton, M., & Vernon, P. (2006). Beyond g: Putting multiple intelligences theory to the test. *Intelligence, 34,* 487-502. http://dx.doi.org/10.1016/j.intell.2006.02.004

Waterhouse, L. (2006). Multiple intelligences, the Mozart effect, and emotional intelligence: A critical review. *Educational Psychologist, 41*(4), 207-225. http://dx.doi.org/10.1207/s15326985ep4104_1

White, J. (1988). *Do Howard Gardner's Multiple Intelligences Add Up?* London: Institute of Education, University of London.

Wiswell, A., Hardy, C. R., & Reio, T. G. (2001). An examination of the Multiple Intelligences Developmental Assessment Scales (MIDAS). Paper presented at the annual meeting of the Academy of Human Resource Development, Tulsa, OK.

Wu, W. (2007). *Manual for C-MIDAS Chinese translation*. Taipei, Taiwan: Psychological Publishing Company.

Yoong, S. (2001). *Multiple intelligences: A construct validation of the MIDAS scale in Malaysia*. Paper presented at the International Conference on Measurement and Evaluation, Penang, Malaysia.

Appendix

Appendix 1. Description of the multiple intelligences

Intelligence	Description
Interpersonal	To think about and understand another person. To have empathy and recognize distinctions among people and to appreciate their perspectives with sensitivity to their motives, moods and intentions. It involves interacting effectively with one or more people in familiar, casual or working circumstances.
Intrapersonal	To think about and understand one's self. To be aware of one's strengths and weaknesses and to plan effectively to achieve personal goals. Reflecting on and monitoring one's thoughts and feelings and regulating them effectively. The ability to monitor one's self in interpersonal relationships and to act with personal efficacy.
Kinesthetic	To think in movements and to use the body in skilled and complicated ways for expressive and goal directed activities. A sense of timing, coordination for whole body movement and the use of hands for manipulating objects.
Linguistic	To think in words and to use language to express and understand complex meanings. Sensitivity to the meaning of words and the order among words, sounds, rhythms, inflections. To reflect on the use of language in everyday life.
Logical-Mathematical	To think of cause and effect connections and to understand relationships among actions, objects or ideas. To calculate, quantify or consider propositions and perform complex mathematical or logical operations. It involves inductive and deductive reasoning skills as well as critical and creative problem solving.
Musical	To think in sounds, rhythms, melodies and rhymes. To be sensitive to pitch, rhythm, timbre and tone. To recognize, create and reproduce music by using an instrument or voice. Active listening and a strong connection between music and emotions.
Naturalist	To understand the natural world including plants, animals and scientific studies. To recognize, name and classify individuals, species and ecological relationships. To interact effectively with living creatures and discern patterns of life & natural forces.
Visual-Spatial	To think in pictures and to perceive the visual world accurately. To think in three-dimensions and to transform one's perceptions and re-create aspects of one's visual experience via imagination. To work with objects effectively.

Appendix 2. Summary of reliability and validity research of the MIDAS*

Reference Citation of Study	Results of Investigation
Wiswell, Hardy, & Reio (2001)	Reliability coefficients for MIDAS scales range from .85-.90.
Shearer (2006a, 2006b)	Scores on the Mathematics MIDAS subscale are moderately correlated (r = .58) with scores on the Ohio State Math Achievement Test; scores on the Reading-Writing MIDAS subscale are moderately correlated with scores on the Ohio State Reading Test.
Pizarro (2003)	Seven factors identified in analysis of MIDAS Spanish translation on Chilean sample (n = 429). Mean Alpha= .81.
Shearer (2005)	Large scale exploratory and confirmatory analyses (n = 23,000) find nine factors that correspond with MIDAS main scales and two Spatial subscales. Alpha reliabilities for scales range from .79 - .89.

Yoong (2001)	Eight factors confirmed for MIDAS-BH Bahasa translation on Malaysian sample (n= 644). Alphas range .72 - .91. Concurrent validity results find significant correlations between Logical-math and math achievement; science with Naturalist; language achievement with Linguistic scales.
Wu (2007)	Initial reliability and validity studies of the C-MIDAS Chinese MIDAS translation correspond strongly with original English version data.
Shearer & Jones (1994)	A review of several concurrent validity studies concludes that MIDAS provides a "reasonable estimate" of the respondent's intellectual disposition.
Shearer (2007)	Test-retest correlations range from .77 - .92; inter-rater reliability ranges from 40% exact agreement to 80% $\pm$ 1 category. Minimal differences between African-American and Caucasian university students observed. Validity studies find adequate rates of discrimination and convergence with matched tests.
Kim, J.(2007); Kim, H. (2004)	Criterion groups validity study of K-MIDAS Korean translation finds significant and appropriate pattern of correlations among MIDAS scales and student groups.
Shearer (2004)	Matched criterion group mean scale scores conform with theoretical predictions for matched student and adult groups.

*This chart was previously published in *Career Development Quarterly, 2009, 58, 1, 3– 13.*

Appendix 3. Sample MIDAS question

Do you have a good voice for singing with other people in harmony?

A= A little bit.

B= Fair.

C= Good.

D= Very good.

E= Excellent.

F= I don't know.

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Is Being "Smart and Well Behaved" a Recipe for Happiness in Western Australian Primary Schools?

John O'Rourke[1], Martin Cooper[1] & Christina Gray[1]

[1] School of Education, Edith Cowan University, Perth, Western Australia, Australia

Correspondence: John O'Rourke, School of Education, Edith Cowan University, Perth, Western Australia, 6105, Australia. Tel: 61-393-706-517. E-mail: j.o_rourke@ecu.edu.au

Received: July 2, 2012 Accepted: August 3, 2012 Online Published: August 22, 2012

doi:10.5539/ijps.v4n3p139 URL: http://dx.doi.org/10.5539/ijps.v4n3p139

Abstract

Little is known about the relationship between students' perceptions of their behaviour and intellectual status within the classroom and their happiness. Educational practitioners consistently confront misbehaviour and academic failure; whether this is an indicator of student happiness is unclear. In this exploratory research two hundred and fifty six students were asked to self-rate their happiness via a faces scale. These students also completed a self-concept scale focussed on behavioural adjustment and intellectual and school status to determine whether these were factors that impacted on their happiness. Additionally, parents and teachers rated the participant's happiness. The findings of this research indicate that the students' perceptions of their behaviour and academic capability accounted for variance in their self-rated happiness. Both sub-scales accounted for more variance in the students' self-reported happiness than the teachers' and parents' ratings. The findings of this research are consistent with the few previous studies that attribute social factors such as belonging to childhood happiness.

Keywords: happiness, behaviour, well-being, academic, primary school

1. Introduction

Remember the days of the old school yard...when we had imaginings and we had all kinds of things and we laughed and needed love...yes I do...and I remember you! (Cat Stevens, 1976)

Elvin's (1965) early assertion that, "children and young people cannot learn properly if they are emotionally disturbed or deeply unhappy" (p. 173) made explicit what teachers know instinctively. Several decades on, Michalos (2008) pondered whether a relationship exists between education and happiness. He operationalised education as both the highest formal level of educational achievement one has achieved, plus non-formal and informal education (such as life experiences and social interactions). Michalos (2008) pointed out that in real terms, education impacts on health, income, life choices and job security; however, adult research on factors associated with happiness rarely mention it. Reviews on happiness and wellbeing in the academic literature such as Myers and Diener (1995), Myers (2000), Diener and Seligman (2004), and indeed the Time magazine *Happiness* edition (Wallis, 2004) likewise do not single out education as being a connected factor. Lyubomirsky (2008) in the *How of Happiness* looks towards other life factors for improved wellbeing, while Seligman (2002) in his bestselling *Authentic Happiness* describes education as "a means to higher income, [sic] not a means to higher happiness" (p. 59). Adults surveyed about their feelings on school, reflect on a time in their past, often with a sense of nostalgia. This current research on primary-aged students explores those receiving education services now and its impact on their happiness and wellbeing.

What is known about children's happiness is that factors such as household income and physical appearance are not significant contributors, rather social aspects such as friendships (Holder & Coleman, 2009) and a positive view on life (O'Rourke & Cooper, 2010) contribute more. Therefore, for those exploring happiness and the potential influence of schools and classroom teachers towards it, such findings suggest that classroom environments and teacher practice could contribute to individual student happiness. Sargeant (2010) asked nearly 400 Yr 7 students from England and Australia what they would need to make them happy and as with adult research, the dominant theme for students of both countries was the importance of relationships. While there was acknowledgment of personal and school themes, often it was things already in their lives (such as a "family that loves me [p. 419]") that enhanced happiness. An Australian participant in this research encapsulated many of the

responses when he said: "all I need is someone who I know cares for me and I am happy" (p. 419). Holder and Coleman (2008) in their exploration of happiness for primary aged children aged 9-12 years in British Columbia also found that social factors were influential. Similarly, O'Rourke and Cooper (2010) found those children with wider friendship networks tended to be happier. Diener and Seligman (2002), in their semester-long investigation of college students, reported that students who were very happy had "rich and satisfying social relationships" (p. 83), and a positive and stable outlook on life (with few great highs or lows). Lyubomirsky (2001) identified happy individuals as being less sensitive to social comparison information (such as achievements, status, possessions, level of education), using it selectively to protect their wellbeing and self-esteem. There are other factors that impact on happiness, but when these are contextualised within schools, it is student comparisons to others that could be the lasting legacy of this time.

The present study authored by three former classroom practitioners currently working with pre-service teachers, adds to the emerging picture of children's happiness (Holder & Coleman, 2007; Holder & Coleman, 2009; Holder & Klassens, 2010; O'Rourke & Cooper, 2010) by examining whether students' perceptions of problematic behaviour and intellectual status are indicators of happiness. Additionally, the research seeks to determine whether behaviour and intellectual status are predictors of variance towards the manner in which parents and teachers rate student happiness. This is the first such research with primary-aged students and attempts to fill a gap in current understanding. The overall goal of the research is to begin a discussion that connects student behaviour and academic performance with individual happiness and wellbeing and to develop an emerging appreciation amongst educators that these behaviours require thoughtful consideration.

1.1 Happiness and Classroom Behavior

Student behaviour in classrooms is quite often seen as an articulation of an individual's true feelings (Albert, 1996); therefore, displays of positive behaviour and misbehaviour may be a result of many emotions. There is no research that directly links children's classroom behaviour to aspects of happiness, however, the rise in mental health issues in young people in Australian schools (Sawyer, Arney, Baghurst et al., 2000; McGorrey, Parker & Purcell, 2006) suggests that teachers should appreciate what underlies student actions.

Why students misbehave in schools has been a focus for many researchers. While the reasons for misbehaviour are debated in the academic literature, researchers unanimously agree that it is both complex and multifaceted (Alberto & Troutman, 2006). Hyman (1994) claims that teachers who are poorly trained, overly punitive in their classroom management methods and ineffective in providing engaging instruction for their students, can exacerbate disruptive behaviour in their classes by alienating students. Research has identified that students who are better behaved are often those that enjoy being in the class, are given choice, and understand their teacher cares for them [shown by the teacher having high expectations and respect for submitted work] (Adler, 2002; Daniels & Arapostathis, 2000; Gransden & Clarke, 2001; Oldfather, 1993).

Further, what appears to be critical towards student classroom behaviour is the need to belong and the ability to develop strong attachments to peers and to the school itself (Albert, 2006; Anderman, 2003; Anderson, Kerr-Roubineck & Rowling, 2006; Newberry & Davis, 2008; Osterman, 2000). Osterman (2000) in an extensive synthesis of the literature on school belonging, identified clearly that students who are accepted, "are more highly motivated and engaged in learning" and in turn this impacted on the "quality of relationships with others" (p. 359). Without a sense of belonging it is easy to surmise that negative experiences with peers may impair friendships and lead to loneliness and depression (Nangle, Erdley, Newman, Mason & Carpenter, 2003). Margalit and Heiman (1998) highlight that the influence of only one friend on students with mild disabilities (MD) appears to be enough to ward off depressive symptoms. This in itself is encouragement to explore classroom behaviour and its connection with positive emotions.

Stanley, Richardson and Prior (2005) highlight the importance of early school attachments in providing "the essential environments for satisfying kinds of social interaction and healthy psychological development in the longer term" (p. 19). Further, Brendtro, Mitchell and McCall (2009) champion the importance of children developing strong connections with trusted adults to further guide and mentor them during times of need. Here they provide a snapshot of a guiding adult and the pathways for those who do not have these people in their lives;

For millennia, the image of education was a group of children gathered around a respected elder. Children crave such guidance; and if they do not receive it from adults, they learn important life lessons by default from a gang of immature peers (p. 19).

Given O'Rourke and Cooper (2010) identified that those students who are happier tend to have larger friendship groups; without positive teaching mentors, students with few friends may struggle to find positive mentorship;

peer or otherwise. This sense of belonging and being mentored is an integral part of the "Circle of Courage" model (Brendtro, Brokenleg & Van Bockern, 2002); whereby Brendtro et al., (2002) claim that specific universal needs (such as belonging, making choices, mastery orientations and a spirit of generosity) are required for children to thrive. Students who flourish in school are generally those who are engaged and participating in a range of school activities, both in and outside the classroom (Osterman, 2000). Stanley et al., (2005) additionally suggest: "we flourish in social contexts where we are valued and we value others, and where we can also have a sense of 'the public good' to which we will contribute" (p. 23).

This appears to be commonsense, after all, most of us want to belong, but as Osterman (2000) highlights, "the concern here is how schools, as social organisations address what is defined as a basic psychological need" (p. 323). A current interpretation of Classroom Management is to ask pre-service teachers to visualise what their future classrooms will look like, sound like and feel like (McDonald, 2009). Often pre-service teachers respond with simple terms such as: happy, safe and excited. It is one thing to want to create classrooms where students feel happy, safe and excited to learn, but another to create these environments. Models such as the "Circle of Courage" are useful for teachers in understanding how children thrive and how their classrooms can be conducive to these needs. Classrooms where students feel they belong, can achieve, take on responsibility and contribute to the good of the group are surely good places to be. A student, who feels socially alienated, academically vulnerable and unable to make choices, presents very differently (Anderson, et al., 2006).

1.2 Happiness and Intellectual Status

So why should we be concerned with learning and happiness? Put simply, Seligman, Ernst, Gillham, and Linkins (2009) declare that "more well-being is synergistic with better learning" (p. 294). Despite this the academic literature describing students' awareness of their academic capabilities and their self described happiness has had limited attention. Aspects of student emotional states such as anxiety and loneliness are connected with child happiness (Holder & Coleman, 2008; O'Rourke & Cooper, 2010) and while research indicates that students with learning difficulties often present in this manner (Margalit & Heimen, 1998; Raymond, 2008), the direct connection between the way students see themselves academically and their general wellbeing is largely unexplored. Proctor, Linley and Maltby (2009) examined 141 peer reviewed articles to present important emotional, social and behavioural constructs associated with life satisfaction in youths. In this meta-analysis those adolescents and children with extremely high life satisfaction had the highest levels of support from all sources, the least number of internalising (self put downs) and externalising behaviour (exhibitions of anger and frustration), the lowest levels of neuroticism, and significantly higher levels of academic, emotional and social self-efficacy. Conversely, Gilman and Huebner (2006) found adolescents with low life satisfaction had a poor attitude to school, poor attitude towards teachers, social stress, anxiety, depression and external loci of control.

Whether students who are academically successful or those who struggle are happy or otherwise is a moot point. Certainly, individual students become aware of their academic status by age 6-7 (Weinstein, Marshall, Sharp & Botkin, 1987). If the underpinnings of academic self construct are developed at such an early age, then for those who by comparison appear inferior to their peers, school can be a long journey. As to whether these feelings impact on individual student's happiness may only be speculated upon, but most appreciate that life experiences associated with academic success or failure can be profound.

Learners with low self-concept (Friend & Bursock, 2009) are often caught in a failure spiral (Raymond, 2008, p. 300), whereby poor academic outcomes result in lower goals and lower efforts, followed by associated failure and even lower goals and efforts. These behaviours often result in students feeling that failure is inevitable, regardless of their investment of effort and that achievement could only occur as a result of the efforts of others. Indeed, those who struggle to find connections with classroom curriculum, gradually look towards others to assist in their quest for success and are often identified as displaying "learned helplessness" (Seligman, 1975). Alternatively, those who have strong self-belief or a mastery orientation (Woolfolk, 2011) often move in an opposite direction towards a success spiral, whereby "success breeds success" (Raymond, 2008). And what becomes of these individuals? There is little evidence to suggest that academic success leads to happiness, but there is evidence that these individuals are rarely excluded in a curricular sense and often times will be given opportunities to develop their skills further. When students feel included and find success, they begin to take more control of their lives (Osterman, 2000; Seligman, 1975).

Research has identified that teachers are more likely to view students with a mastery orientation as "harder working, have better in-class social skills [sic] and more likely to succeed than low-mastery students" (Schraw & Aplin, 1998, p. 218). Those who have poor academic self-concept and associated failure experiences can often times be excluded or streamed and this may ultimately impact on the choices they can make in the future (Pinto,

2006). To feel separated from others based on academic ability appears to have the capacity to impact on individual happiness. The following conversation included in O'Rourke and Houghton's (2009, p. 31) exploration of the experiences of adolescents with MD in inclusive classrooms, perhaps captures the feelings associated with exclusion:

Interviewe: Do you like working in groups?

John: Mmm sometimes.

Interviewer: When don't you like it?

John: Hmm I don't know.

Interviewer: So when do you like it?

John: When it's a fun activity.

Interviewe: What if you had to work in a group where you didn't know the people well?

John: Yes it's tricky….It's not that good because I don't belong.

Interviewe: How? Is it scary?

John: I don't know.

Interviewe: Is it because of what people might think?

John: Probably.

Interviewe: Well what might they think?

John: That I don't know anything or something like that.

Teachers need to imagine what it is that students who struggle may feel. Noddings (2003) discusses that teacher focus should not be on students being happy all the time, but that it should be a major aim of education. She emphasises its importance by simplifying an overview of the interconnection, "happy students learn better than unhappy students….and happy people, are rarely mean, violent or cruel" (p. 2). Huebner, Gilman and Suldo (2006) report that students with high levels of happiness display more appropriate behaviour, obtain higher school grades, have better peer and teacher relationships and engage at a greater level in classroom and extra-curricular activities (p. 3). Finally, O'Rourke and Houghton (2008) explored 28 classroom variables to determine what students with MD found helpful in terms of academic and social outcomes; the most positive of these for academic outcomes was the teacher making the subject "interesting and enjoyable". Classrooms where teachers make student enjoyment a learning objective must surely impact on student behaviour and feelings.

2. Method

This paper is based on a larger study. A full exposition of the data from this research is available in O'Rourke and Cooper (2010). A smaller cohort exists for this exploration of the Behavioural Adjustment and Intellectual and School Status subscale of the Piers-Harris 2, as three schools failed to complete these scales.

2.1 Participants

Primary schools in the metro area of Perth, Western Australia (N=817), both in the public and private school systems, were given information letters, consent forms and survey forms to be viewed by their parents/guardians/caregivers. Of these 325 consented (37.3%) to participate. Thirteen students (4%) were excluded from the research either because their forms were incomplete or they were away at the time of data collection. The final number of students involved in the study was 312. Of these an administrative error resulted in three schools not completing aspects of the Piers-Harris 2 reported herein and as such the cohort described here is 256 students.

2.2 Survey Materials

Students completed three questionnaires to indicate their happiness levels; the Piers-Harris 2 Children's Self-Concept scale Happiness and Satisfaction sub-scale (Piers & Hertzberg, 2002), the children's questionnaire (made up of a variety of factors used as indicators of happiness i.e., perceptions of wealth, number of friends etc) and a faces scale. In addition, parents completed a questionnaire focussed on demographic and lifestyle factors, with questions presented in a Likert-style format similar to the children's questionnaire and a faces scale describing the happiness of their own child. Finally, teachers were asked to describe how happy the students involved in the research were, again using a faces scale.

Each of these measures will be presented below.

a) *The Piers-Harris 2 (PH2)* is made up of six sub-scales designed to assess components of self-concept. In this current research, three sub-scales were used: Behavioural Adjustments, Intellectual and School Status, and Happiness and Satisfaction. The "Behavioural Adjustments" sub-scale measures admissions or denial of problematic behaviours (Piers & Herzberg, 2002, p. 24). It contains items such as "I am well behaved at school", "It is usually my fault when something goes wrong" and "I am often mean to other people". The "Intellectual and Social Status" sub-scale measures "a child's assessment of his or her abilities with respect to intellectual and academic tasks" (Piers & Herzberg, 2002, p. 24). It contains items such as "I am good in my schoolwork", "I am slow in finishing my schoolwork" and "my classmates in school think I have good ideas". Finally, the "Happiness and Satisfaction" sub-scale aims to elicit indications of happiness, with items such as "I am easy to get along with" and "I am a happy person". The PH2 has been used in many settings and with varied groups of students, including those with additional needs, ethnic minorities, and students ranging from 6 through to 20. It consistently demonstrates high internal reliability, with the total scale averaging an alpha of 0.91 and consistently reliable alphas through the subscales for all participant age groups (Piers & Herzberg, 2002). In this present study the sub-scale alpha for Behaviour Adjustment was 0.74 and for "Intellectual and Social Status" was 0.86, both indicating reasonable reliability.

b) The *faces scale* was a replication of the scale used by Holder and Coleman (2008; 2009; Holder & Klassen, 2010) and comprised a seven-item Likert type scale (see Table 1) showing a range of simple faces that ranged from "very happy" to "very sad". These were used to address the question; "How happy are you most of the time"? Parents similarly rated their child's happiness using the same faces scale and addressed the question "How happy is your child most of the time ?" In line with the approach taken in Holder and Coleman's (2008), teachers rated students who participated in the study using a similar faces scale, but completed it by answering two questions; "How happy is (student's name) when she/he is doing normal work in your classroom?" and "How happy is (student's name) when she/he is doing fun activities ?" As some students appear much happier when engaged in less traditional academic classes (O'Rourke & Houghton, 2009), the teacher's measure of individual student happiness was the average of the two responses. Table 1 shows the data from the faces scale in this research.

c) *Children's questionnaire* contained demographic and lifestyle questions similar to those used in adult research and recently explored in children's research on happiness (De Neve & Cooper, 1998; Holder & Coleman, 2008; Lyubomirsky & Lepper, 1999; Myers & Diener, 1995). The questionnaire sought to determine whether students were popular, confident, extroverted and optimistic; all indicators of children's happiness.

d) The *Parent questionnaire* was a brief survey providing personal demographic information on the parent and child, such as gender of person completing the survey, who the child predominately lives with, marital status of parents, age of mother and father, gross family income and "how many hours does your child watch tv?" Again this was a Likert type scale, with a range of responses available.

Of the parents who consented to participate in the research, 87% were female and 13% male. The gender breakdown of students was 56.6% girls and 43.4% boys and these were drawn from 11 schools and 28 classrooms. The students ranged in age from 9 years through to 12 years. The mean age of the Year 4 cohort was $M = 9.54$ $SD = 0.408$ and the Year 6 cohort was $M = 11.11$ $SD = 0.412$. To ensure a broad sample, the researchers selected schools with a wide range of socio-economic levels, with 13% within the 0-40k gross income range, and 20% > 150 K.

Seventy four percent of parents within this research were married, 5% were in *defacto* relationships, 3% were separated, 8% were single, 3% were divorced and 1% widowed.

2.3 Procedure

Upon gaining appropriate ethics clearances, schools from a variety of inner city and suburban locations, representing a variety of socio-economic areas, were posted a package describing the proposed research and current understanding of happiness. Approximately 10 days later, a phone call was made to the School Principals and for those receptive towards involvement in the research a face-to-face interview with the first author was organised. Where both the Principal and classroom teachers of a school agreed to participate, a letter was sent home to parents of students in Yr 4 and 6 requesting consent and the completion of the parent questionnaire. It is worth adding, that the responses from School Principals were mixed, many describing the research as nebulous and that their teachers would not be interested in participating in such a vague study. On the other hand, other School Principals were enthusiastic and connected the research goals with their own sense of developing positive school communities.

Only the students who returned the consent form and parent questionnaire were included in this research. When

these forms were returned, the main researcher visited the school and coded the participants against the class lists for later data analysis. During this visit the main researcher organised a time to collect data and met with individual classroom teachers to discuss aspects of the research. Data collection generally occurred within one week of parent returns depending on the school program. During the student data collection, the teacher's faces scale was collected for those students involved. A set explanation of the format, goals of the research and the idea that we were hoping to measure how they felt "most of the time" was presented at each school. Each data collection session was completed in 20-30 minutes, without assistance of teachers or support staff.

3. Results

A total of 256 questionnaires were entered into an SPSS spreadsheet for data analyses. A one-way ANOVA was conducted to determine if there was a statistically significant difference on any of the four happiness scores between groups of Year 4 (n = 195) and Year 6 (n = 117) primary school children (see Table 1). No significant differences were revealed.

3.1 Happiness Ratings

Using the face scales, children were rated happy by themselves (i.e., ChildOwnFace), their parents (i.e., ParentChildFace), and their teachers (i.e., TeacherChildFace). At least 88% of the child responses, above 96% of the parent and 90% teacher responses were within the three happiest categories (see Table 1). The fact that the parents rated their children consistently higher than the children and teachers is worth some consideration.

Table 1. Percentage of respondents within each category of the three Faces Scales

Score Respondent Group	1	2	3	4	5	6	7
	☹	☹	😐	😐	🙂	🙂	🙂
ChildOwnFace	0.4	0.4	3.1	8.2	20.3	45.7	21.9
ParentChildFace	0.4	0.0	0.8	2.3	15.2	54.3	27.0
TeacherChildFace	0.0	0.8	0.0	9.3	25.0	45.0	19.9

Note. Percentage of children's self-ratings (Child Own Face), parents' rating of their children (Parent Child Face), and teachers' ratings of the children (Teacher Child Face), in each of the seven response options on the Face Scale.

The results were similar to Holder and Coleman's (2008) research, although 14% more of the Canadian students (of similar age) placed themselves in the highest category of happiness. For a more thorough analysis of the faces scales used in this research see O'Rourke and Cooper (2010).

3.2 Behaviour and Intellectual Status Sub-scales

In line with Holder and Coleman (2008; 2009) and O'Rourke and Cooper (2010); multivariate regression analyses was used to explore the relationship between the student's self-reported measure of happiness (Child-own Faces Scale) and the individual items within the BEH and INT sub-scales. The results (see Table 2) highlighted that the BEH and INT sub-scales accounted for upwards of 25% in the variance of self-reported happiness on the children's faces scale. Within the sub-scales several items were significant contributors to this variance.

Table 2. Variance in ChildOwnFace (COFS) predicted by the Piers-Harris 2 sub-scales

Piers-Harris Sub-scale	Variance in happiness (COFS) predicted by sub-scale	Piers-Harris 2 – significant items
Behaviour Adjustment Sub-scale	25.5%	Item 12: I am well behaved at school. Item 13: It is usually my fault when something goes wrong. Item 36: I hate school. Item 58: I think bad thoughts.
Intellectual and Social Status Sub-scale	25%	Item 12: I am well behaved at school. Item 18: I am good at my school work. Item 26: My friends like my ideas.

This is comparable to the variance of other elements of the PH2 such as "Freedom from Anxiety" and "Popularity" identified in O'Rourke and Cooper (2010); although less than the combined items of the PH2 representing negative relationships with peers (32%) in Holder and Coleman (2009).

3.3 Perceptions of Behaviour

To determine whether there was a statistical difference between the mean happiness scores of students who rated themselves in the low range and those in the average and above average range of the BEH, an independent t-test was conducted (see Table 3). There was a statistically significant difference ($p<0.01$) between the means of the happiness scores for the Child's own Faces Scale (CFS). The same process was followed to compare these groups by way of mean score for the Teacher's own Faces Scale (TFS) and the Parent's Faces Scale (PFS). A significant difference ($p<0.01$) was identified with TFS, however, this was not evident for the PFS.

Table 3. Differences in self-reported happiness for students, parent view and teacher view for those in the low versus average/above average range for the behavioural adjustment sub-scale

	Behavioural	N	Mean	Std. Deviation
Child FS**	Low Group	29	4.76	1.354
	Others	227	5.85	.949
Parent FS	Low Group	29	5.86	1.125
	Others	227	6.05	.783
Teacher FS**	Low Group	29	5.5517	.95753
	Others	227	6.0110	.83274

The individual items on the BEH sub-scale were often positively correlated with the four measures of happiness used, in many cases significantly so (see Table 4). The only item that was highly significant for all four measures of happiness was; I am often in trouble. While the items appeared to be good indicators of variance for the child's self-reported happiness, they were not always as positively correlated for the teachers and parents perceptions of child happiness. The parent's view of their own child's happiness showed little connection with the behavioural factors identified in this sub-scale.

Table 4. Pearson product-moment correlations between happiness measures and the BEH sub-scale (Note 2)

Item names	HapPH2	COF	PCF	TCF
PH13: Usually my fault	0.26**	0.15*	0.12	0.08
PH14: Cause trouble	0.36**	0.21**	0.04	0.1
PH18: Good at schoolwork	0.36**	0.32**	0.14*	0.18*
PH19: Do many bad things	0.35**	0.27**	0.17**	0.13*
PH20: Behave badly at home	0.25**	0.21**	0.14*	0.15*
PH27: Often in trouble	0.34**	0.24**	0.25**	0.19**
PH30: Parents expect too much	0.31**	0.26**	0.13*	0.18**
PH36: Hate school	0.24**	0.28**	0.09	0.22**
PH38: Often mean	0.32**	0.26**	0.09	0.1
PH45: Get into fights	0.33**	0.22**	0.03	0.1
PH48: Family disappointed	0.34**	0.23**	0.12	0.17**
PH58: Bad thoughts	0.24**	0.22**	0.1	0.13*
PH 60: Good person	0.36**	0.21**	0.06	0.15*

Note. **p< 0.01; * p < 0.05. HapPH2 = Piers-Harris 2 Happiness & Satisfaction sub-scale; COF = Child Own Face ratings; PCF = Parent Child Faces rating; TCF = Teacher Child Faces rating.

3.4 Perceptions of Intellectual and Social Status

As with the BEH sub-scale the mean happiness scores of students who rated themselves in the low-range and those in the average and above-average range of the INT were compared using a t-test (see Table 5). There was a statistically significant difference ($p<0.01$) between the means of the happiness scores for the CFC, TFC and PFC when comparing those students with a low INT score (as defined in the Piers-Harris 2 documentation) and the remainder of the students for each of the face scales.

Table 5. Differences in self-reported happiness for students, parent view and teacher view for those in the low versus average/above average range for Intellectual and Social Status sub-scale

	PH2: Intellectual and Social Status (INT) sub-scale	N	Mean	Std. Deviation
Child FS**	Low Group	13	4.23	1.589
	Others	243	5.80	.963
Parent FS**	Low Group	13	5.38	1.502
	Others	243	6.06	.766
Teacher FS**	Low Group	13	5.1154	1.10215
	Others	243	6.0041	.82195
	Others	243	19.16	3.065

The individual items on the INT sub-scale were also often positively correlated with the four measures of happiness used (see Table 6). There were several items that were highly significant for all four measures of happiness; I am smart; my friends like my ideas; and I forget what I learn. Unlike the BEH the items on the INT appeared to be a more consistent indicator of happiness for the students, parents and teachers.

Table 6. Pearson product-moment correlations between happiness measures and the INT sub-scale (Note 3)

Item	HapPH2	COF	PCF	TCF
PH5: I am smart	0.31**	0.26**	0.20**	0.22**
PH7: I get nervous	0.20**	0.11	0.10	0.13*
PH12: Well behaved at school	0.39**	0.31**	0.24**	0.06
PH16: Important member of family	0.31**	0.16*	0.13*	0.11
PH18: Good in my schoolwork	0.36**	0.32**	0.14*	0.18**
PH21: I am slow in finishing my schoolwork	0.18**	0.22**	0.07	0.14*
PH22: Important in my class	0.26**	0.15*	0.13*	0.15*
PH24: I can give a good report	0.20**	0.15*	0.18**	0.17**
PH25: In school I am a dreamer	0.19**	0.19**	0.03	0.08
PH26: My friends like my ideas	0.40**	0.27**	0.23**	0.27**
PH34: I often volunteer	0.25**	0.17**	0.13*	0.03
PH39: My classmates think I have good ideas	0.43**	0.24**	0.17*	0.27**
PH43: I am dumb about most things	0.24**	0.17**	0.10	0.16**
Ph50: I will be an important person	0.26**	0.17**	0.14*	0.05
PH52: I forget what I learn	0.25**	0.23**	0.17**	0.19**
Ph55: I am a good reader	0.08	0.13*	-0.01	-0.05

Note. **p< 0.01; * p < 0.05. HapPH2 = Piers-Harris 2 Happiness & Satisfaction sub-scale; COF = ChildOwnFace ratings; PCF = Parent Child Faces rating; TCF = Teacher Child Faces rating.

4. Discussion

The Associated Press & MTV survey (2007) of 1280 youth (618 in the 13-17 age group) describe 13% as unhappy with school and 12% unhappy about grades; for the majority of those surveyed school and school performance generally elicited positive emotions or had no influence. The current research described herein, sought to explore a younger cohort and examine their self-perceptions of behaviour and academic status, to determine whether these impacted on their self-reported happiness. Comparison of the results from the "Behavioural Adjustment" (BEH) and "Intellectual and School Status" (INT) sub-scales of the Piers-Harris 2 Self-Concept scale (Piers & Herzberg, 2002) and four measures of happiness, allowed the authors to appreciate the variance accounted for by these variables. Further, the study explored whether those students who were positive about their perceptions of behaviour and intellectual status, were identified as happier by teachers and parents than those with more negative perceptions. As this is an emerging area of research, the findings of this study merely present an initial foray into the discussion, but the data presented allows researchers and practitioners to consider implications of school and classroom practice.

In the main, the 256 students involved in this research were happy with 88% rating themselves in the highest three places on the faces scale. The levels of self-reported happiness of these same aged students were similar to the students in Holder and Coleman (2008), although more students in the Canadian research put themselves in the top level of the faces scale (O'Rourke & Cooper, 2010). Most students in the current study were happy and generally optimistic about life and their ability to perform in school. Of those who identified themselves as very happy (in the top segment of the faces scale), all declared that they would "do well at school this year". Further, 98% of these individuals were also in the above average range for the BEH and INT sub-scales of the PH2. It appears within this survey those students who were happiest saw themselves as being in control within their school and home environments.

4.1 Student Behaviour and Happiness

Twenty five percent of the variance predicted in self-reported happiness of students in this study could be accredited to the BEH sub-scale. Additionally, the items of the BEH were generally positively correlated to all measures of happiness used in this research. The variance predicted is similar to that of the PH 2 "Freedom from Anxiety" and "Popularity" sub-scales (O'Rourke & Cooper, 2010) and highlights that aspects of temperament appear to be indicators of happiness with primary-aged students. The findings in this research are also consistent with Holder and Coleman's (2009) exploration of select social items of the PH 2.

The BEH accounted for considerably less variance in the parent and teachers perception of these students happiness. As this is the first research to explore connections between classroom and home behaviour with happiness, it is difficult to generalise the findings, but positive and negative affirmations to the significant sub-scale items for students such as; "I am well behaved", "It is usually my fault when something goes wrong", "I hate school", and "I think bad thoughts", presents a profile that many teachers and parents can recognise. Given that 50% of those in the low range of the BEH sub-scale within this study identified themselves as unhappy, suggests that many of these cohorts are not thriving within schools and this is cause for concern.

Making comparisons between these findings and adult happiness literature is difficult, however, several studies examining youth happiness (Baker, Lilly, Aupperlee & Patil, 2003; Gilman & Huebner, 2006; Park & Peterson, 2006; Proctor, Linley & Maltby, 2009) parallel trends indicated in this study. Gilman and Huebner (2006) revealed that youth (from Yr 6-12) reporting high levels of life satisfaction were more likely to have positive relationships, less intrapersonal stress, higher levels of hope and personal control than those with low life satisfaction; positive affirmations in the PH2 appear indicative of these individuals. Diener and Seligman (2002) in their exploration of college students suggest that "there is no single key to high happiness" (p. 83); however, low neuroticism and relatively low levels of psychopathy appear important. The PH2 manual presents descriptors of typical students within the three score ranges of the sub-scales; students in the low range on the BEH sub-scale are described as "frequently causing trouble and as being unable to adhere to the standards of conduct set by their parents and/or teachers" (Piers & Herzberg, 2002, p. 24); given the repercussions for children unable to meet recognised school and home standards of behaviour, it is not surprising that this sub-scale should contribute to variation in self-reported happiness by students.

What became apparent within this study is that while the PH2 was positively correlated to measures of the students' happiness and that of the teachers, these were not replicated consistently by the students' parents. Additionally, while there were significant differences between the mean happiness scores for the CFS and TFS for those in the low range for BEH when compared against those in the average and above average range; this was not evident for the PFS. It appears for parents the behaviour of their children may not impact on their

perceptions of their happiness. Drolet, Paquin and Soutyrine (2007) identified that parents often see the conduct of their poorly behaved children through a different focus and may have different explanations for what is happening at school. The findings of this study suggest their parents and their children having conflicting views on how behaviour impacts on their happiness, and a deeper appreciation of this area appears warranted.

4.2 Student Intellectual Status and Happiness

Similar, to the BEH, the Intellectual and Social Status (INT) also accounted for considerable variance (25%) towards measures of happiness. Like the BEH, the INT accounted for considerably less variation for the TFS (15%) and the PFS (14%). However, unlike the BEH, the items of the INT were consistently positively correlated with all measures of happiness in this study. Similarly, when those in the low range of the INT were compared against those in the average to above range, there was a significant difference on the means for students, parents and teachers. In contrast to behaviour, one can surmise from this that poor academic performance is considered by all to impact on happiness.

While the INT item "I am good in my schoolwork" was significant and a clear indicator of academic status, the other significant item of this sub-scale, "my friends like my ideas", appears linked to social aspects of the classroom. The currency of social connections is consistently associated with children's happiness (Dockery, 2005; Gilman & Huebner, 2006; Holder & Coleman, 2008; 2009; Holder & Klassen, 2010; O'Rourke & Cooper, 2010) and perhaps this item is a clearer indicator of wellbeing than others such as, "I forget what I learn", "I am slow in finishing my schoolwork" or "I am a good reader". Although there are limited studies that focus on primary students, Suldo, Riley and Shaffer (2006) point out in their review of academic correlates and life satisfaction for adolescents, that IQ, grade point averages and diagnosed learning disabilities were not strong indicators of life satisfaction, while care and support was a factor. Further, Natvig, Albrektsen and Qvarnstrom (2003) in their exploration of whether academic competence was associated with adolescent happiness, found no such evidence, rather their research pointed to social skills (as in the ability to cope with bullying, making friends and getting involved in school activities) as being strongly connected. Finally, Van Petegem, Aelterman, Rosseel and Creemers (2007) identified that student wellbeing is directly affected by interpersonal relationships that exist with teachers.

4.3 Implications for Schools and Classrooms

The findings from the current research provide initial evidence that behaviour and intellectual status may be associated with happiness among primary students. The small group within this study, who described themselves as unhappy, tended to be the same students in the low range in the PH2 sub-scales measuring behaviour and intellectual status. The WA Curriculum Framework (1998) highlights a commitment to celebrating student strengths, whereby, "each person should acknowledge his or her own uniqueness and be encouraged to develop self-respect and dignity" (p. 1). For teachers working under this framework, it is expected that the needs of students who are failing to thrive in classrooms are addressed. While there are a variety of classroom interventions that may address individual student behaviour and their capacity to engage with the curriculum, student happiness and wellbeing may require more holistic interventions.

One such consideration currently being explored in schools is Positive Education (Seligman, 2008; Seligman, Ernst, Gillham, Reivich, & Linkins, 2009). The approach advocated by Seligman and others, embeds aspects of positive psychology into academic classrooms, pastoral situations and even on the sporting field (Seligman et al., 2009, p. 305). A particular focus is exploring virtues and strengths (Peterson & Seligman, 2004). These include six virtues and 24 character strengths such as creativity, curiosity, open-mindedness, love of learning and perspective (Seligman, Steen, Park & Peterson, 2005, p. 412). It is via a deeper appreciation of individual strengths that students are encouraged to address classroom and school obstacles. Initial research at Geelong Grammar School (GGS), has found positive education improved strengths associated with learning and in specific situations academic achievement compared to those not in the program (Seligman et al., 2005).

Another approach that primary classroom teachers could contemplate is a focus on engaging curriculum. Not only does student engagement and corresponding self-determined behaviour (Ryan & Deci, 2000) promote academic success (Greenwood, Horton & Utley, 2002), but as Csikszentmihalyi (1997) identified, those involved in meaningful and challenging activities often achieve a sense of flow, recognised as contributing to individual happiness. If students are to be positively acknowledged by their peers as being capable within the classroom, it may be via activities that are meaningful to all. While it may be difficult to please all students in the classroom equally, a focus on a Universally Designed curriculum may be a useful approach (McGuire, Scott & Shaw, 2006). Particularly important to Universal Design for Learning (UDL) is the multiple means of engagement advocated by the Centre for Applied Technology (CAST, 2011). The INT sub-scale item "My friends think I have good

ideas", could only be achieved when students are engaged in classroom activities that are personally meaningful. O'Rourke and Houghton (2009) explored social engagement within inclusive classrooms, and indentified that it could be enhanced via meaningful and well structured activities. Such activities that create interest and enhance friendship opportunities appear vital to enhancing wellbeing.

5. Conclusion

It should be noted that there are specific limitations to this research and the findings need to be interpreted with caution. Firstly, participating schools and individuals (simply on the basis of their involvement) may have had positive viewpoints or at least an interest in the topic of happiness and this may have impacted on the results obtained from students, parents and teachers. Secondly, as outlined in O'Rourke and Cooper (2010) the make-up of the group was predominately English speaking parents and the need to complete a questionnaire to participate may have denied access to many. Finally, in any research involving self-reported happiness, researchers cannot be sure what students are referring to when asked to measure this feeling. Nevertheless, the use of reliable instruments such as the Piers-Harris 2, replication of Holder and Coleman's (2009) original research methodology, and findings consistent with the limited research set on happiness for this student group, provides positive (albeit tentative) evidence towards this emerging research area.

In closing, it would appear that discussions about enhancing happiness and wellbeing for our students appear to be just another item on a growing list of 'to dos' for classroom teachers. While some teachers may be reluctant to take on the responsibility that goes with developing and enhancing happiness, the findings presented in this paper suggest that the traditional foci of "behaviour and academic status" impacts on primary student wellbeing. Noble and McGrath's (2007) exploration of positive educational practices, highlights feelings aligned to student wellbeing such as; safety, satisfaction and pride, connectedness, enjoyment and fun, optimism, and a sense of being cared for (p. 3-4). Of these it is a true sense of connectedness with others and the curriculum that appears to be at the core of student's happiness and wellbeing. Malouf (2011) describing "the happy life" states; "Yes, it is true that we have little to complain of. Most of the conditions that might have made us 'miserable' have been legislated for and ameliorated. But the externals that govern our lives seem more alien and impersonal in their new form than in the old (p. 47-48)". Let us as educators ensure that we become far more personal and create a less alien curriculum for our students, and see this as a way forward.

References

Adler, N. (2002). Interpretations of the meaning of care: Creating caring relationships in urban middle school classrooms. *Urban Education*, *37*(2), 241-266. http://dx.doi.org/10.1177/0042085902372005

Albert, L. (1996). *Cooperative Discipline.* Circle Plains, MN: American Guidance Service.

Alberto, P. A., & Troutman, A. C. (2006). *Applied behaviour analysis for teachers* (7th ed.). New Jersey: Pearson.

Anderman, L. H. (2003). Academic and social perceptions as predictors of change in middle school students' sense of belonging. *The Journal of Experimental Education, 72*(1), 5-22. http://dx.doi.org/10.1080/00220970309600877

Anderson, S., Kerr-Roubineck, H., & Rowling, L. (2006). Staff voices: What helps students with high mental health support needs connect to school? *Australian Journal of Guidance & Counselling*, *16*(1), 1-13. http://dx.doi.org/10.1375/ajgc.16.1.1

Associated Press & MTV. (2007). *Youth Happiness Survey*. Retrieved from http://www.mtv.com/thinkmtv/about/pdfs/APMTV_happinesspoll.pdf

Baker, J. A., Lilly, L. A., Aupperlee, J. A., & Patil, S. A. (2003). The developmental context of school satisfaction: Schools as psychologically healthy environments. *School Psychology Quarterly, 18*(2), 206-221. http://dx.doi.org/10.1521/scpq.18.2.206.21861

Brendtro, L., Mitchell, M., & McCall, H. (2009). *Deep brain learning: Pathways to potential with challenging youth*. Albion, MI: Starr Commonwealth.

Brendtro, L., Brokenleg, M., & Van Bockern, S. (2002). *Reclaiming youth at risk: our hope for the future.* Bloomington, Indiana: Solution Tree.

CAST. (2011). Centre for Applied Special Technology. *About CAST.* Retrieved from http://www.cast.org/about/

Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life.* U.S.A.: Perseus Books.

Daniels, B., & Arapostathis, J. (2005). What do they really want? Student voices and motivation research. *Urban Education*, *40*(1), 34-59. http://dx.doi.org/10.1177/0042085904270421

De Neve, K. M., & Cooper, H. (1998). The happy personality: A meta-analysis of 137 personality traits and subjective well-being. *Psychological Bulletin, 124*, 197-229. http://dx.doi.org/10.1037/0033-2909.124.2.197

Diener, E., & Diener, C. (1996). Most people are happy. *Psychological Science, 7*, 181-185. http://dx.doi.org/10.1111/j.1467-9280.1996.tb00354.x

Diener, E., & Seligman, M. (2002). Very happy people. *Psychological Science, 13,* 81-84. http://dx.doi.org/10.1111/1467-9280.00415

Diener, E., & Seligman, M. (2004). Beyond money: Toward an economy of wellbeing. *Psychological Science in the Public Interest, 5*(1), 1-31. http://dx.doi.org/10.1111/j.0963-7214.2004.00501001.x

Dockery, A. M. (2005). The happiness of young Australians: Empirical evidence on the role of the labour market experience. *The Economic Record: The Economic Society of Australia, 81*(255), 322-335. http://dx.doi.org/10.1111/j.1475-4932.2005.00272.x

Drolet, M., Paquin, M., & Soutyrine, M. (2007). Strengths-based approach and coping strategies by parents whose young children exhibit violent behaviour: Collaboration between schools and parents. *Child Adolescent Social Work*, *24*, 437-453. http://dx.doi.org/10.1007/s10560-007-0094-9

Elvin, H. L. (1965). *Education and contemporary society.* Oxford, UK: Alden Press.

Fetherston, A. (2008). *Becoming an effective teacher*. South Melbourne, Vic: Thomson.

Friend, M., & Bursock, W. D. (2006). *Including students with special needs*. USA: Pearson Education.

Gilman, R., & Huebner, E. S. (2006). Characteristics of adolescents who report very high life satisfaction. *Journal of Youth and Adolescence, 35*(3), 311-319. http://dx.doi.org/10.1007/s10964-006-9036-7

Gransden, B., & Clarke, P. (2001). Student perceptions of factors impacting on their learning. *Improving Schools*, *4*(1), 34-41. http://dx.doi.org/10.1177/136548020100400106

Greenwood, C. R., Horton, B. T., & Utley, C. A. (2002). Academic engagement: Current perspectives on research and practice. *School Psychology*, *31*(3), 328-350.

Heiman, T., & Margalit, M. (1998). Loneliness, depression and social skills among students with mild mental retardation in special education and in mainstreamed classes. *Journal of Special Education*, *32*(3), 154-163. http://dx.doi.org/10.1177/002246699803200302

Holder, M., & Coleman, B. (2008). The contribution of temperament, popularity, and physical appearance to children's happiness. *Journal of Happiness Studies*, *9*(2), 279-302. http://dx.doi.org/10.1007/s10902-007-9052-7

Holder, M., & Coleman, B. (2009). The contribution of social relationships to children's happiness. *Journal of Happiness Studies*, *10*, 329-349. http://dx.doi.org/10.1007/s10902-007-9083-0

Holder, M., & Klassen, A. (2010). Temperament and Happiness in Children. *Journal of Happiness Studies, 11*(4), 419-439. http://dx.doi.org/10.1007/s10902-009-9149-2

Huebner, E. S., Gilman, R., & Suldo, S. M. (2006). Life satisfaction. In G. Bear & K. Minke (Eds.), *Children's needs III* (pp. 357–368). Bethesda, MD: National Association of School Psychologists.

Hyman, I. A. (1994). *Policy and Practice in School Discipline: Past, Present and Future*. Washington, DC: ERIC Document Reproduction Service (No. ED383960).

Lyubomirsky, S. (2001). Why are some people happier than others? The role of cognitive and motivational processes in wellbeing. *American Psychologist*, *56*(3), 239-249. http://dx.doi.org/10.1037/0003-066X.56.3.239

Lyubomirsky, S. (2008). *The how of happiness*. *A scientific approach to getting the life you want.* New York, NY: Penguin Press.

Lyubomirsky, S., & Lepper, S. (1999). A measure of subjective happiness: preliminary reliability and construct validation. *Social Indicators Research, 46*(2), 137-155. http://dx.doi.org/10.1023/A:1006824100041

Lyubomirsky, S., Caldwell, N. D., & Nolen-Hoeksema, S. (1998). Effects of ruminative and distracting responses to depressed mood on the retrieval of autobiographical memories. *Journal of Personality and*

Social Psychology, *75*, 166-177. http://dx.doi.org/10.1037/0022-3514.75.1.166

Malouf, D. (2011). *The happy life: The search for contentment in the modern world*. Quarterly Essay 41: Black Inc.

McDonald, T. (2010). *Classroom management: engaging students in learning.* South Melbourne, Vic: Oxford.

McGorrey, P., Parker, A., & Purcell, R. (2006). Youth mental health services. *Australian Psychological Society*. Retrieved from http://www.psychology.org.au/publications/inpsych/youth_mental_health/

McGuire, J. M., Scott, S. S., & Shaw, S. F. (2006). Universal design and its applications in educational environments. *Remedial and Special Education, 27*(3), 166-175. http://dx.doi.org/10.1177/07419325060270030501

Michalos, A. (2008). Education, happiness and wellbeing. *Social Indicators Research*, *87,* 347-366. http://dx.doi.org/10.1007/s11205-007-9144-0

Myers, D. G. (2000). The funds, friends, and faith of happy people. *American Psychologist, 55*, 56-67. http://dx.doi.org/10.1037/0003-066X.55.1.56

Myers, D. G., & Diener, E. (1995). Who is happy? *Psychological Science, 6*, 10-19. http://dx.doi.org/10.1111/j.1467-9280.1995.tb00298.x

Myers, D. G., & Diener, E. (1997). The science of happiness. *The Futurist*, *31*(5), 1-7.

Nangle, D. W., Erdley, C. A., Newman, J. E., Mason, C. A., & Carpenter, E. M. (2003). Popularity, friendship quantity and friendship quality: Interactive influences on children's loneliness and depression. *Journal of Clinical Child and Adolescent Psychology*, *32,* 546-555. http://dx.doi.org/10.1111/j.1467-9280.1995.tb00298.x

Natvig, G. K., Albrektsen, G., & Qvarnstrom, U. (2003). Associations between psychosocial factors and happiness among school adolescents. *International Journal of Nursing Practice, 9*, 166-75. http://dx.doi.org/10.1046/j.1440-172X.2003.00419.x

Newberry, M., & Davis, H. A. (2008). The role of elementary teachers' conceptions closeness to students on their differential behaviour in the classroom. *Teaching and Teacher Education*, *24*, 1965-1985. http://dx.doi.org/10.1016/j.tate.2008.02.015

Noble, T., & McGrath, H. (2007). The positive educational practices framework: Leadership transforming schools through optimism. Paper presented at the ACEL/ASCD Conference: *New Imagery for Schools and Schooling: Challenging, Creating, and Connecting*, Sydney, Australia.

Noddings, N. (2003). *Happiness and Education*. New York, NY: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511499920

Oldfather, P. (1993). What students say about motivating experiences in whole language classroom. *The Reading Teacher, 46*(8), 672-681.

O'Rourke, J., & Houghton, S. (2009). The perceptions of secondary teachers and students about the implementation of an inclusive classroom model for students with mild disabilities. *Australian Journal of Teacher Education, 34*(1), 23-41.

O'Rourke, J., & Cooper, M. (2010). Lucky to be happy: A study of happiness in Australian primary students. *Australian Journal of Educational & Developmental Psychology, 10*, 94-107.

Osterman, C. F. (2000). Students need for belonging in the school community. *Review of Education Research*, *70*(3), 323-367.

Park, N., & Peterson, C. (2006). Character strengths and happiness among young children: Content analysis of parental descriptions. *Journal of Happiness Studies*, *7*, 323-341. http://dx.doi.org/10.1007/s10902-005-3648-6

Peterson, C., & Seligman, M. E. P. (2004). *Character Strengths and Virtues A Handbook and Classification.* Washington, DC: APA Press and Oxford University Press.

Piers, E. V., & Herzberg, D. S. (2002). *Manual for the Piers-Harris Children's Self-Concept Scale* (2nd Edition), Los Angeles: Western Psychological Services.

Pinto, T. (2006). The streaming of working class and minority students in Ontario. *Our Schools, Our Selves, 15*(2), 79-89.

Proctor, C. L., Linley, P. A., & Maltby, J. (2009). Youth life satisfaction: A review of the literature. *Journal of Happiness Studies*, *10*, 583-630. http://dx.doi.org/10.1007/s10902-008-9110-9

Raymond, E. (2008). *Learners with mild disabilities* (3rd ed.). Boston, USA: Pearson.

Ryan, M. R., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary Educational Psychology*, *25*, 54-67. http://dx.doi.org/10.1006/ceps.1999.1020

Sargeant, J. (2010). The altruism of pre-adolescent children's (tweens) perspectives on "worry" and "happiness" in Australia and England. *Childhood, 17*(3), 411-425. http://dx.doi.org/10.1177/0907568209341087

Sawyer, M. G., Arney, F. M., Baghurst, P. A., Clark, J. J., Graetz, B. W., & Kosky, R. J. et al (2000). *The Mental Health of Young People in the Australia*. Mental Health and Special Programs Branch. Commonwealth Department of Health and Aged and Care.

Schnall, S., Jaswal, V. K., & Rowe, C. (2008). A hidden cost of happiness in children. *Developmental Science, 11*(5), 25-30. http://dx.doi.org/10.1111/j.1467-7687.2008.00709.x

Schraw, G., & Aplin, B. (1998). Teacher preferences for mastery-oriented students. *The Journal of Educational Research*, *91*, 215-20. http://dx.doi.org/10.1080/00220679809597546

Seligman, M. (1975). *Helplessness: On depression, development, and death.* San Francisco, USA: Freeman.

Seligman, M. (2002). *Authentic happiness*. USA: Free press.

Seligman, M. (2008, August). Positive education and the new prosperity: Australia's edge. *Education Today.*

Seligman, M., Ernst, R. M., Gillham, J., Reivich, K., & Linkins, M. (2009). Positive education: positive psychology and classroom interventions. *Oxford Review of Education*, *35*(3), 293-311. http://dx.doi.org/10.1080/03054980902934563

Seligman, M., Steen, T., Park, N., & Peterson, C. (2005). Positive psychology progress: Empirical validation of interventions. *American Psychologist, 60*(5), 410-421. http://dx.doi.org/10.1037/0003-066X.60.5.410

Suldo, S. M., Riley, K. N., & Shaffer, E. J. (2006). Academic correlates of children and adolescents' life satisfaction. *School Psychology International, 27*(5), 567–582. http://dx.doi.org/10.1177/0143034306073411

Stanley, F., Richardson, S., & Prior, M. (2005). *Children of the lucky country.* Australia: MacMillan.

Stevens, C. (1977). (Remember the days of the old) School Yard. On *Izitso* [CD]. London, England: Island Records.

W. A. Curriculum Framework. (1998). *Curriculum Framework: For Kindergarten to Year 12 Education in Western Australia*. Perth, W.A: Curriculum Council.

Wallis, C. (2004, January). The new science of happiness. *Time Magazine.*

Weinstein, R. S., Marshall, H. H., Sharp, L., & Botkin, M. (1987). Pygmalion and the student: Age and classroom differences in children's awareness of teacher expectations. *Child Development, 58,* 1079-1093. http://dx.doi.org/10.2307/1130548

Van Petegem, K., Aelterman, A., Rosseel, Y., & Creemers, B. (2006). Student perception as moderator for student wellbeing. *Social indicators Research, 83*, 447-463. http://dx.doi.org/10.1007/s11205-006-9055-5

Woolfolk, A. (2011). *Educational psychology* (11th ed.). Boston, USA: Pearson.

International Journal of Psychological Studies; Vol. 4, No. 3; 2012
ISSN 1918-7211 E-ISSN 1918-722X
Published by Canadian Center of Science and Education

Does Emotional Resilience Enhance Foster Placement Stability? A Qualitative Investigation

Sally Preston[1], Kevin Yates[2]& Mark Moss[3]

[1] Academic Psychiatry, Newcastle University, UK

[2] Children and Young People's Service, Monkwearmouth Hospital, Sunderland, UK

[3] Department of Psychology, Northumbria University, UK

Correspondence: Sally Preston, Academic Psychiatry, Wolfson Research Centre, Campus for Ageing and Vitality, Newcastle Upon Tyne, NE4 5PL, UK. Tel: 44-191-208-1373. E-mail:sally.preston@ncl.ac.uk

Received: May 18, 2012 Accepted: August 3, 2012 Online Published: August 27, 2012

doi:10.5539/ijps.v4n3p153 URL: http://dx.doi.org/10.5539/ijps.v4n3p153

Abstract

Frequent changes of foster placement are known to have a detrimental effect on the long-term well-being of cared-for children. Foster carers who take on children with challenging behaviours have to draw on resources, both internal and external, to help them build and maintain a relationship with the child that will last. Not all foster carers are successful in this regard. The aim of this qualitative study was to explore the role that the emotional resilience of foster carers plays in promoting placement stability.

Seven foster carers, who had a track-record of stable placements (according to national criteria) with children exhibiting challenging behaviours, were recruited from a Local Authority in the North East of England. They attended a focus group and one-to-one interview. Verbatim transcripts were subjected to an inductive grounded theory analysis.

Three potential underlying constructs, namely emotional resilience, interpersonal characteristics and external factors, were found to emerge from the data and identified as likely to influence foster placement outcomes. These data provide a springboard for further quantitative investigation with the potential to screen prospective carers to identify those best suited to "difficult" placements in order to maximise success for the benefit of all concerned.

Keywords: emotional resilience, foster carers, placement stability

1. Introduction

Large numbers of children in England are looked after by foster carers, with the majority of children entering the care system as a result of abuse and neglect ("Children looked after in England (including adoption and care leavers) year ending 31 March 2010," 2010). Many children in care have emotional and behavioural difficulties and present with challenging behaviours; resulting in frequent moves between care placements. A number of factors contribute to placement stability, but of these, the role of the foster carer is of interest here. Why do some foster carers cope in the face of difficult, challenging behaviours whereas others do not?

One possibility is that foster carers draw on emotional resilience in order to maintain the fostering relationship in the face of challenging behaviours exhibited by the child. The research literature identifies two theoretical constructs in this domain. Ego-resiliency is conceptualised as a personality trait which is employed to regulate ego-control, the expression or inhibition of impulse. Resilient individuals are able to modulate their level of ego-control according to the situation, thus resulting in positive adaptation (Funder, Block, & Block, 1983; Letzring, Block, & Funder, 2005). An alternative construct is resilience; a concept attributed to individuals who, in the face of adverse, stressful situations, have positive psychological outcomes (Rutter, 2006). This model of resilience is rooted in adverse childhood experiences that lead to the development of dynamic psychological processes and positive adaptation (Werner, 1993). As such it is conceived as being different to ego-resiliency (Luthar, Cicchetti, & Becker, 2000). However, Block and Kremen (1996) assert that resilience can be entirely accommodated within ego-resiliency. In the study reported here, there was no pre-conception of "emotional resilience" being wholly attributable to either ego-resiliency or resilience.

Placement stability is used as a measure of successful foster placements; nationally it is defined by the number and duration of placements: fewer than three placements in a year (1 April to 31 March) and a placement duration of two years for foster children who were in care for at least 2 ½ years ("National Indicators for Local Authorities and Local Authority Partnerships: Updated National Indicator Definitions," 2009). In the year to March 2010, nationally 10.9% of foster children had been in three or more placements and 32% who had been in care for 2 ½ years had been in a placement lasting less than two years ("Children looked after in England (including adoption and care leavers) year ending 31 March 2010," 2010). However, research studies indicate that placement instability is a bigger problem than these national statistics suggest. Farmer, Lipscombe, and Moyers (2005) reported that 44% of placements failed within the first year and 53% of placements were under "severe difficulty" after one year. Similarly, Ward (2009) found that only 19% of children in her study stayed in the same placement for 3 ½ years compared to 22% who had had more than five placements. The length of placements tended to be short with only 29% lasting longer than a year and 21% of placement moves occurring as a result of a foster carer request.

Attachment of a child to their primary caregiver provides the child with a secure base from which to explore the world (Ainsworth, 1979). Foster children entering the care system may have been subjected to neglect, abuse and trauma. It is known that children who have been maltreated are more likely to exhibit insecure or disorganised attachment caused by the conflict (for the child) between the parent as the source of both security and fear (Cyr, Euser, Bakermans-Kranenburg, & Van Ijzendoorn, 2010). Insecurely attached children tend to exhibit both internalising and externalising behaviours such as being withdrawn (internalising) or aggression (externalising) making the formation of close, stable relationships difficult. Additionally, maltreated children have been shown to have low resilient functioning compared to non-maltreated children (Flores, Cicchetti, & Rogosch, 2005) and children who do poorly in their foster placements often exhibit maladaptive behaviours associated with poor resilient functioning (Schofield & Beek, 2005b). Flores et al. (2005) also reported that maltreated children find it difficult to form positive relationships with adults outside their immediate family. This may be an important factor in the establishment of close, stable relationships with foster carers, and being able to benefit from the support on offer from outside agencies (school, for example).

Placement instability has been implicated in poor psychological outcomes such as mental health problems (Minnis & Devine, 2001) and conduct disorders (Leathers, 2002). Furthermore, foster children are known to have low self-esteem which can be influenced by their foster carers for better or worse (Luke & Coyne, 2008). In a study of Looked After Children, approximately half of the children had emotional and behavioural difficulties with 65% of boys in foster care exhibiting problems compared to 36% of girls (Minnis & Del Priori, 2001). Many of these difficulties were attributable to attachment disorders. In England, 39.9% of children in Local Authority foster placements have been shown to have a mental disorder, with 33.3% having a conduct disorder, 8.7% an emotional disorder (anxiety, depression) and 8.0% a hyperkinetic disorder (Meltzer, Gatward, Corbin, Goodman, & Ford, 2003). The same report highlighted that other behaviours, known to have negative outcomes for health and well-being, such as smoking and drinking alcohol, decrease in prevalence as time in foster placement increases.

A number of factors have been identified to negatively impact on placement stability; increasing age of the child, gender (male), behaviour problems and previous placement history (Oosterman, Schuengel, Slot, Bullens, & Doreleijers, 2007; Webster, Barth, & Needell, 2000). The problem is circular however. Both externalising and internalising behaviours have been shown to be exacerbated by placement instability, with externalising behaviours strongly predictive of placement breakdown, and internalising behaviours increasing with the number of placements (Newton, Litrownik, & Landsverk, 2000). Such associations between placement instability and behavioural problems have been widely reported elsewhere, (for example, Palmer, 1996; Rubin, O'Reilly, Luan, & Localio, 2007).

Whilst the characteristics of the foster child are clearly important in placement stability, it is also influenced by the quality of relationships formed between the foster child and a number of significant others, primarily the foster carer. Sinclair and Wilson (2003) investigated the foster carer/child relationship, in particular the significance of the child characteristics, foster carer characteristics and interactions between the child and foster carer on placement success. In addition to the child's motivation for a particular placement, foster carers with appropriate parenting skills, who were "warm", encouraging and resilient, made a positive contribution to placement success. Interaction between the child and carer was also important, particularly how much the carer liked or rejected the child. Schofield and Beek (2005b) reported that children in foster care who made good progress had foster carers who were able to provide a secure base from which the child could be more adaptive and form relationships outside the family. These children and carers had close relationships; the foster carers

exhibited resilience and had good supportive networks. Foster carers who were highly sensitive were more likely to form these close, stable relationships (Schofield & Beek, 2005a). These researchers defined foster carer sensitivity across five dimensions related to their ability to promote in the child: trust in the foster carer's availability; an ability to reflect on thoughts and feelings; self-esteem; the ability to make their own decisions; and a feeling of belonging in the foster family.

A review of research on predictors of positive outcomes for foster care (Redding, Fried, & Britner, 2000) identified the importance of foster carer personality characteristics, such as a balance between extraversion and introversion and using the traits of thinking and feeling in decision making. In the face of challenging behaviour, the ability of the foster carer to cope with their feelings of distress (sadness, disappointment and frustration, for example) could be an important factor in placement stability. This distress tolerance has four aspects: the person's subjective appraisal of the degree of distress; their perception of their ability to tolerate emotional distress; the extent to which they become absorbed by the emotional distress; and their ability to regulate the distressing emotions such that they can function normally (Simons & Gaher, 2005). The ability to persevere in the face of challenging behaviour that causes emotional distress may be associated with motivation. A study carried out in the UK which examined the motivation of women to foster found that having a strong personal desire to foster, adverse childhood experiences or a sense of social responsibility were all related to being rated as an excellent foster carer and placements that lasted at least one year (Dando & Minty, 1987).

Interestingly, foster carers who were able to manage challenging behaviour were more likely to report feelings of well-being, to gain personal reward from fostering and to continue being a foster carer (Whenan, Oxlad, & Lushington, 2009). The management of challenging behaviour through specific strategies and parenting style has been the focus of training packages for foster carers. However, the efficacy of this training to ameliorate challenging behaviour and increase the capacity of foster carers to cope has been shown to have no significant effect in comparison to foster carers not in receipt of training (Macdonald & Turner, 2005; Pithouse, Hill-Tout, & Lowe, 2002).

The research literature demonstrates that the ability of a foster carer to maintain a secure, stable relationship with a foster child exhibiting challenging behaviour is likely to be dependent on a number of factors including the carer's emotional resilience, attachment style, personality and distress tolerance. Whilst there has been some empirical research looking at the resilience of children in foster care, little if any has addressed the emotional resilience of foster carers. The meta-analysis carried out by Oosterman et al. (2007) suggested that data regarding foster carer characteristics were inconclusive. Consequently a detailed qualitative study may act as a starting point for research into the role that the emotional resilience of foster carers plays in promoting placement stability.

2. Method

This study received full ethical approval from Northumbria University Department of Psychology Ethics Committee.

2.1 Participants

The study was carried out in the North East of England. Sixteen foster carers working for a Local Authority as contract carers were identified by the Fostering Service as having formed stable placements with children exhibiting challenging behaviours and were invited by letter to take part. Seven foster carers (one male; six female) replied and gave informed consent to attend a focus group and a one-to-one interview. All names are changed for inclusion in this report.

"Tom" (58 years) had been fostering for 13 years and had fostered "dozens" of children, many short-term, emergency placements; however a number were long-term placements of many years duration. Some of these children, now young adults, still maintained close contact and lived at home from time to time. Currently "Tom" was fostering two boys aged 11 and 16 years. He lived with his wife (second marriage) and had a son and three step-daughters. When he started fostering all the children were adults and only one lived at home. "Tom" came from a family with low socio-economic status; he had two brothers and two sisters and had left school at 15 years with no formal qualifications. He worked at evening and weekend jobs from 12 years and on leaving school had a variety of jobs before joining the Army. On leaving the Army he again had a variety of manual jobs before becoming a house builder.

"Anne" (58 years) had been fostering for six years and had had only one child (female) from the age of 10 years. She had never been married nor had children of her own; she did however have a partner who did not live with her. "Anne" had been brought up with a sister in the South of England. She described her childhood as "not very

happy" and during her teenage years had a difficult relationship with her father. She left school at 14 years with no formal qualifications. Whilst working in a shop and as a short-hand typist she attended night school to get O' Levels and A' Levels. Subsequently she went to University and was awarded a degree in Psychology; she then completed a PhD. "Anne" had worked in the Probation Service and with the Youth Offending Team before becoming a foster carer.

"Brenda" (52 years) had been fostering for seven years and had fostered about 15 children including some for respite care. She was married and had two children, one from her previous marriage, and whilst both children had lived at home when she started fostering, at the time of interview, only one was still at home. Currently she was fostering three boys, one aged 16 years was in a long-term placement and had been with her for seven years, the two other boys (aged 8 and 3 years) were in short-term placements and had been with her six and five months respectively. "Brenda" had left school at 16 years with some CSE qualifications and had worked in a shop and then for a printing firm for 22 years before being made redundant and having her second child at the age of 40 years. She was brought up with a brother, and a sister was born when she was 17 years old. She described her childhood as "happy" and her father as "very strict".

"Carol" (50 years) had been married for thirty years and had two grown-up children. She started fostering six years ago as part of a Treatment Foster Care programme which involved extensive training and support. She fostered two children through the programme leaving to become a contract carer when she took on the second child in a long-term placement. At the time of the study she was fostering two boys, one in a long-term placement (three and a half years) and the other with a view to becoming a long-term placement. "Carol" had "quite a happy childhood" and was the second oldest of two sisters, with a younger brother. She had a turbulent relationship with her mother as a teenager and adored her father. She left school at 16 years with a few CSE qualifications, working first in a shop and then for the school meals service where she worked her way from washing pots to being a cook and an area manager; this included studying at night school.

"Diane" (46 years) had been married for 19 years and had two children still living at home. She had left school at 17 years with O' Levels and having started A' Levels. She worked first as a business travel consultant and then for a financial and card services company becoming an operations director. She began fostering five years ago when she was made redundant. She had fostered a total of nine children (excluding respite care) for between five months and four years. At the time of the study she had four foster children, two siblings in a long-term placement (four years) and two in short-term placements. "Diane" was an only child of an older mother; her father died when she was eighteen months old. She was largely looked after by her grandmother with whom she had an "awful relationship"; despite this "Diane" described her childhood as happy.

"Elaine" (55 years) had been fostering for 20 months during which time she had had one foster child (male, aged 6 years). She had been widowed three years previously and had a grown-up, married son and grandchild. "Elaine" was the second oldest of three sisters and described her childhood as "happy". She had been particularly close to her father and was perceived to be his "favourite" by her sisters. Discipline was meted out by her mother. "Elaine" left school at 16 years with some CSE and O' Level qualifications. She did a year at college before starting work in a Chemist shop. She left work to have her son and took up part-time work in a bakery when he was twelve.

"Fiona" (37 years) had been fostering for nine years, during which time she had fostered approximately 30 children (including respite care). At the time of the study she had one child (male) in a long-term placement (six years) and another child (male) in a short-term placement. "Fiona" described her childhood as "the best"; she had an older sister and had been particularly close to her father who for much of her childhood had suffered ill-health following an industrial accident. She left school at 16 years with GCSE qualifications and had a job where she worked her way up from sales assistant to manager. "Fiona" had been married for 17 years and left work when she had her first child (of two).

2.2 Sources of Data

The focus group took place before the interviews. The seven participants were seated in a circle with the researcher and a Clinical Psychologist, who was known to all the participants, in a quiet, private room in the University. A schedule of questions was used to guide the discussion which lasted for 91 minutes and was digitally recorded (Olympus digital voice recorder VN-5500PC; Olympus Imaging & Audio Ltd. Essex, UK). Following the focus group, the interviews took place over five consecutive weeks, with a maximum of one interview per day. Interviews took place in a quiet, private room in the University and ranged from 67 to 130 minutes duration; and were digitally recorded. A schedule of questions was used to guide the conversation, with additional questions being added during the course of the interviews. Questions relating to six "events", known

to have a detrimental effect on foster carer well-being (Wilson, Sinclair, & Gibbs, 2000), were included in the interview schedule. All the interviews involved the foster carer and researcher, with the exception of the interview with "Diane" where a last minute cancellation of a contact visit meant that her 18 month old foster child was present.

Transcription of data: Within a few hours of the focus group or interview the audio file was downloaded onto a laptop computer (Vostro 1700 laptop, Dell Corporation Ltd, Berkshire, UK) and the audio file converted from WMA format to WAV format for use with open source audio software (Audacity, open source software; www.audacity.sourceforge.net). Verbatim transcripts were produced from the digital recordings and used to develop further questions for use in the one-to-one interviews and in the analysis. All recording and transcription was carried out by the same researcher.

Procedures for analysis: An inductive grounded theory approach was adopted (Glaser & Strauss, 1967) following the method of Charmaz (2006). Each transcript was read several times and coded line by line. Once all transcripts had been subjected to this initial coding, a focused coding review was carried out resulting in a set of preliminary codes and categories. A number of further reviews were carried out and where necessary codes and categories were amended and re-defined until a final set of codes and categories was found to fit the data. The final codes and categories were found to be encapsulated by three overarching categories.

3. Results and Discussion

The aim of this study was to explore the role that the emotional resilience of foster carers plays in promoting placement stability. Placement stability (a positive outcome) is achieved when a Looked After Child (a child in the care of a Local Authority whether in a residential or foster home) had fewer than three placements in a year and, where that child had been in care for at least 2 ½ years, they had been in the same placement for two years ("National Indicators for Local Authorities and Local Authority Partnerships: Updated National Indicator Definitions," 2009). Conversely placement instability (a negative outcome) occurred when a Looked After Child had three or more placements in a year and, where that child had been in care for at least 2 ½ years, had placements lasting less than two years. In this study, with the exception of one foster carer who had been fostering for 20 months, all the foster carers had at least one foster child who had been with them for more than 2 years, and therefore had experienced positive placement outcomes (placement stability). Many of the children fostered by these carers exhibited challenging behaviours, most of which were externalising, biting, kicking, hitting, spitting, for example. A few children were on the autistic spectrum and were sometimes withdrawn (internalising behaviours).

Figure 1 shows the category tree derived from the transcript data. The figures in parentheses indicate the prevalence with which each code appeared amongst the foster carers (maximum = 7); only those codes identified for a least four foster carers were included. The data codes shown on the left hand side of the figure feed into first and second higher-order latent constructs to the right. Three second higher-order latent constructs, *emotional resilience*, *interpersonal characteristics* and *external factors* appeared to act either to promote placement stability or to increase the likelihood of placement breakdown. The figure also includes "foster child characteristics", which whilst not investigated in this study, have been shown to be important in influencing parenting and determining placement outcomes (Clark, Kochanska, & Ready, 2000; Duelling & Johnson, 1990; Sinclair & Wilson, 2003).

The emotional resilience of these foster carers made a contribution to the placement outcomes. Emotional resilience was defined by three first higher-order latent constructs, *managing emotions*, *personal attributes* and *personality traits*. The ability of these foster carers to *manage their emotions* was a key facet of their emotional resilience and could be related to the construct of distress tolerance which is a measure of an individual's capacity to tolerate, appraise, absorb and regulate negative emotions (Simons & Gaher, 2005).

They experienced episodes of *emotional distress* particularly related to difficult situations that occurred during both short- and long-term placements. In some cases the foster carer found it impossible to continue and had to ask to have the child removed, one such was "Carol" who had had a child attempt suicide:

"I was breaking my heart on the phone so they knew they had to do it that day d'yer know what? I just said, I don't want him back, just take him, but, so they did..." (Carol)

Despite having to end the placement, "Carol" demonstrated her emotional resilience by going on to foster other children with challenging behaviours.

The ability to manage distressing emotions was helped by the *hardiness* of these foster carers who in the main did not report becoming overwhelmed by emotional distress or who were able to bounce back following a

distressing episode. This hardiness was characterised by an ability to overlook challenging behaviour:

"...and no matter what she did we kept her right 'til the end'..." (Fiona)

And to manage the emotional distress associated with a foster child leaving, a regular occurrence in short-term placements,

"I have had other children of a similar age where I haven't felt as bad, I've still been upset, but I haven't felt as completely devastated erm, but with her that was probably, that's probably the worst, worst moment that we've had really" (Diane).

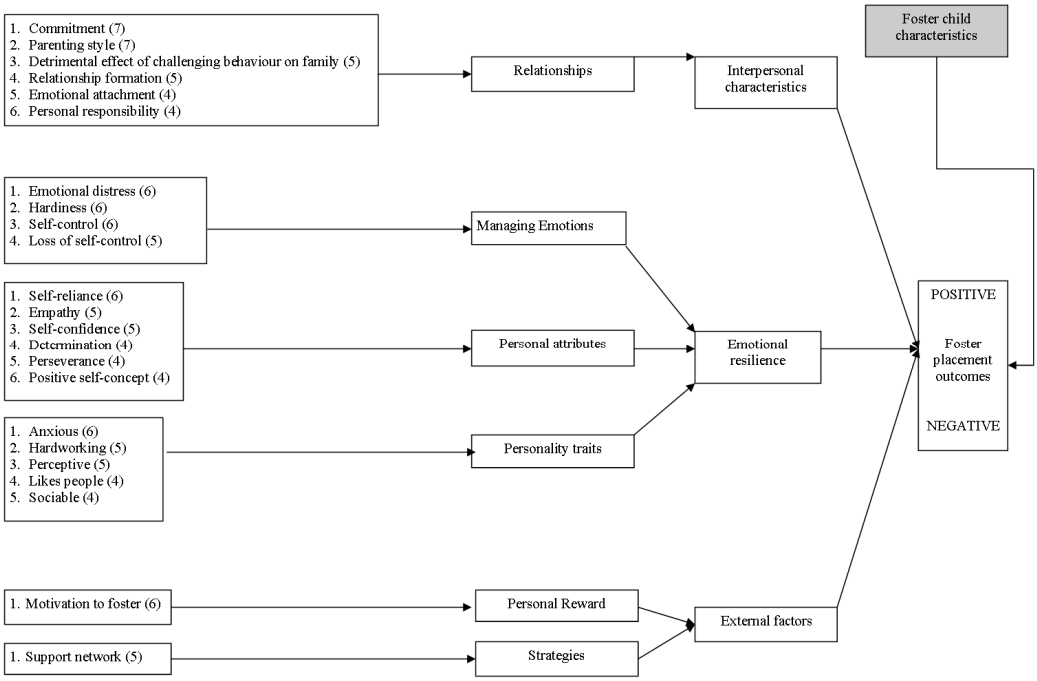

Figure 1. Category tree developed from the analysis of the data

The concept of hardiness has been characterised as an individual who has an internal locus of control, is immersed and committed to the activities in their life, and who has a positive view of change. These characteristics have been shown to have a protective function in high stress situations (Kobasa, 1979). It is possible therefore that their hardiness helped to protect these foster carers from the negative effects of their foster children's challenging behaviour. Furthermore, hardiness has been shown to be exhibited by resilient-functioning adults (Bonanno, 2004).

The capacity to overlook challenging behaviour may be related to the ability of these foster carers to alter their attentional focus and attribute positive meaning to challenging behaviour (Gross, 1998), as exemplified by "Carol":

"...he's a canny bairn really you know, it's not his fault is it?" (Carol)

The ability to manage emotions was also related to emotional *self-control*; a characteristic evident in most of these foster carers. A common occurrence was remaining calm in the face of challenging behaviour or in the case of "Brenda", not retaliating in the face of a malicious allegation made by a birth parent:

"I couldn't believe it, I honestly couldn't believe it, and then I was mad, you can imagine, I was mad, but as, I mean I still had to go and see mam and just act as if nothing had happ..., because I knew I hadn't done anything..."(Brenda)

However, there were times when these foster carers experienced a *loss of self-control* with consequent displays of anger, frustration and tears. "Tom" found that his temper got the better of him from time to time:

"I lost it this day mind I must admit, illegal what I done..." (Tom)

Despite the occasional lapse of self-control these foster carers were able to bounce back and continue with the foster placement, again demonstrating their emotional resilience in the face of adverse circumstances. A possible model to explain this finding is that of ego-resiliency and ego-control where self-control (and loss of self-control) are viewed as the control of impulses. According to the construct ego-control, these foster carers would be positioned along a continuum from ego-undercontrol to ego-overcontrol. Given their capacity to control their impulses in the face of challenging behaviour, it can be postulated that they are moderately ego-overcontrolled (Kremen & Block, 1998; Letzring et al., 2005).

Emotional resilience was also defined by these foster carers' *personal attributes.* Unless in the Treatment Foster Care programme, foster carers work largely on their own; they described fostering as "lonely" and "isolating", and felt supported or unsupported by their link (social) worker in equal number. A very common characteristic was that of *self-reliance*; they saw themselves as independent and unwilling to depend on anyone other than their spouse or partner:

"I don't know who I depend on apart from E... ... I hate asking people to do anything." (Carol)

This was an important characteristic as being the main carer meant that managing challenging behaviour largely fell to them.

In advance of any placement these foster carers were provided with information about the child and the circumstances of their being taken into care. This helped them to understand and *empathise* with the child, so that they could respond appropriately to challenging behaviour. "Tom" drew on previous life experience to help him understand the children in his care:

"I can, most of these kids I can relate te, because, most of the kids, I been there..." (Tom)

They demonstrated their *self-confidence* in the decisions that they made regarding their foster child, and although legally, permission from the Fostering Service had to be sought in regard to many of the decisions they made, these foster carers felt they were best placed to make those decisions. "Fiona" was confident that given her experience:

"...the fostering trust me judgement on things..." (Fiona)

Additionally, they were *determined*, prepared to fight for what they believed to be best for their foster child, even if that meant taking on institutions and professionals:

"I've fought tooth and nail to get every single thing for him, I've fought education, social workers, I've had him, all sorts, he is what he is today and I know that is because of my and my husband's really hard work getting the right therapy for him..." (Fiona)

The ability to be able to *persevere* in the face of on-going difficulties was typical of most of these foster carers and is characteristic of emotionally resilient people:

"...we made some noises to social services who took no notice at first and then we got the children's guardian involved again..." (Diane)

"Diane's" pragmatic response was an example of a cognitive coping strategy. These are known to be used by foster carers to appraise situations in a positive way, thus preventing undue negativity and promoting perseverance (Lazarus, 1991).

For a number of these foster carers, a *positive self-concept* was evident. They felt that they were able to get on with other people, were good at fostering and had attributes such as being caring and having a good sense of humour. Given that the foster carers work on their own it was important that they held a positive view of themselves and it contributed to their emotional resilience. "Brenda" recognised that she was good at connecting with a variety of people:

"I find it easy to talk to people, erm, so, I think that's, you know, it always breaks the ice doesn't it? And just find something in common type of thing and find something that they're interested in..." (Brenda)

It is possible that under stressful situations these foster carers were able to modify the structural component of their self-concept such that the stress had less of an adverse effect on them. This has been shown to be the case in depressed patients (Showers, Abramson, & Hogan, 1998) and may help to explain why these foster carers were better able to cope with challenging behaviours than other foster carers.

A third facet of emotional resilience was the *personality traits* exhibited by these foster carers which appeared to map onto the Five Factor model of personality (Costa & McCrae, 1992), namely, Openness, Conscientiousness, Extraversion, Agreeableness and Neuroticism. *Anxiety* is a trait associated with Neuroticism which has been

shown to be associated with inflexible coping strategies (Lee-Baggley, Preece, & DeLongis, 2005). Almost all of these foster carers expressed feelings of anxiety related to their foster child(ren) and at times wondered if they had the resources to cope. "Elaine" described her fear in response to a situation where her foster child, because he had no more Christmas presents to open, held his breath and turned blue:

"Frightened, very frightened because you, at first you think you know, how can I cope?" (Elaine)

It was striking, however, that these foster carers reported very few situations where placements were prematurely ended. It is therefore possible that these foster carers were able to find positive meaning within difficult situations and used these insights to cope more effectively next time; the "broaden and build" model (Tugade & Fredrickson, 2004). If this is the case then it might be expected that foster carers who had been fostering longer (for example "Tom") would cope better than foster carers who had only recently started (for example "Elaine").

These foster carers were *hard-working*; something that was apparent in their early lives, where through their own efforts they had achieved a great deal. "Anne", having left school at 14 years with no formal qualifications had worked her way through night school and full-time education to become a probation officer:

"And then I did O' Levels at evening class, and then I did six A' Levels at evening class, and then I did a degree at D..., and then I did a counselling course at D..., then I did social work, no, then I did a PhD, and then I did the social work to do er, probation..." (Anne)

It is possible that these foster carers employ relationship-focused coping strategies to enable them to achieve positive outcomes with their challenging foster children. In a study of parents and step-children it was found that parents high for Conscientiousness (of which hard-working is a trait) used relationship-focused coping strategies more than those low for the dimension (Lee-Baggley et al., 2005).

Another personality trait present in these foster carers that contributed to their emotional resilience was *perception*; they were able to understand and adapt to the needs of their foster child:

"I think that's what a lot of these children is don't expect too much from them too quickly and just little small things at a time, don't expect them to come in and be like your children cos they cannot, they can't function like that, so it's just little bits at a time..." (Fiona)

Perception is a trait of Openness and has also been shown to be related to ego-resiliency (Klohnen, 1996). Parents high for Openness have been shown less likely to distance themselves from distressing emotions than those parents low for this dimension (Lee-Baggley et al., 2005). Similarly, the foster carers taking part in this study did not appear to distance themselves from their foster children, often staying with them despite distressing or challenging behaviour:

"I would sit and talk to him and he would be going crazy on us you know and you just have to keep calm, try and tell them that you understand..." (Fiona)

Perhaps not unsurprisingly these foster carers *liked people,* and children in particular:

"I quite like having children around and I think I'm quite good at it, erm quite good at looking after children I think because I had such a busy, busy job and a, a really stressful career erm, I had quite a lot of capacity to do lots of things erm, I was used to being busy all of the time you know..." (Diane)

They were also *sociable*:

"I loved the working with people...and the trying to keep, get the people involved..." (Anne)

Both these traits, "liked people" and "sociable" are indicative of Extraversion, a domain that has been shown to enable parents of step-children to build positive relationships and to cope flexibly with difficult behaviour (Lee-Baggley et al., 2005).

Interestingly, resilience has been shown to have a strong inverse relationship with Neuroticism and strong positive relationship with Extraversion and Conscientiousness (Campbell-Sills, Cohan, & Stein, 2006). However when task-orientated and emotion-orientated coping styles were included in the regression model, Conscientiousness was no longer a significant predictor because a task-orientated coping style mediated the relationship between resilience and Conscientiousness.

A number of interpersonal characteristics of these foster carers helped to determine foster placement outcomes. These interpersonal characteristics were defined as those that these foster carers employed in the formation and maintenance of *relationships* with foster children, birth parents and professionals involved in the care of the foster child. The formation of a relationship with a child who exhibited challenging behaviours was not easy and did not work in every instance, but the foster carers agreed that an important aspect of *relationship formation*

was treating the foster child and their own children in the same way:

"You've got to treat them the same as your own..." (Tom)

It is possible that this inclusivity aids the formation of a positive carer-child relationship through the raising of the child's self-esteem (Luke & Coyne, 2008). A positive relationship increases the likelihood of a more stable placement. It is interesting to note that these foster carers observed that many other foster carers did not have such an inclusive approach, particularly where holidays were concerned, with foster children being put into respite care rather than being taken on family holidays.

Most of the foster carers recognised that their *parenting style* with their foster child(ren) was different to that they had used with their own children. Parenting style was influenced by their training as foster carers; this was particularly the case for "Carol" who had been part of the Treatment Foster Care programme which used a strict "sanctions and rewards" approach. Given the chaotic life that many of the foster children had experienced before coming into care, the foster carers recognised the importance of boundaries and routines in helping the foster child settle into their new family life:

"...if you can get at the routines and boundaries established, it's not going to work straight away, but they do respond well to them and their behaviour, I think, for the most part can improve quite quickly..." (Diane)

A particular issue for foster carers was control; in situations where the foster child had gained the upper hand, the sanctions/rewards approach offered a way of the foster carer regaining control which may be why it is an effective coping strategy (Folkman & Moskowitz, 2004).

Not all of the parenting styles were the same; "Tom" had an approach that worked with his older, "street-wise" foster children:

"...they weren't bad-uns they just wanted a good seeing to, good talking to..." (Tom)

The authenticity of the parenting style used by the foster carer appeared to be important. "Elaine" had recently been on a "Team Teach" course which encouraged the foster carer to ignore challenging behaviour and walk away. She had found that it worked in calming down her foster child's angry outbursts, but was "completely different" to how she would have handled this behaviour before.

Most of the foster carers had had multiple short-term placements, some of which they had converted to long-term placements. These appeared to be with foster children that they formed a strong *emotional attachment* to:

"I could never give R… up to do that now, I mean I've done what they say you shouldn't do and I've getting too attached to him." (Elaine)

The adult attachment style of a parent has been shown to be strongly predictive of the attachment of a child, with children of autonomous parents being very likely to be securely attached to that parent (Van Ijzendoorn, 1995). However, it is not possible to know from the data collected in this study what the attachment styles of these foster carers are. Additionally, given that attachment relationships between parent and child are normally formed during the first year of life (Bowlby, 1984), and subsequent attachment to foster carers is known to be difficult (Hughes, 2006), nothing can be said about the attachment of the foster children to their foster carer and how that might affect placement outcomes.

Whilst these foster carers formed enduring relationships with some foster children, this did not happen in every case. A number of the foster carers commented on the significance of the age of the child when they came into care, with the younger they are, particularly under three years of age, the more likely they are to form a stable relationship. Dozier (2005) found that babies under one year of age settled more quickly in a placement than babies over one year. This probably reflects the length of time a child has been subject to abuse, neglect or trauma prior to coming into care and acknowledges the fact that relationship formation is a two-way process:

"...they're building the stable relationship with you as well as that the other way round..." (Diane)

It was clear that each of the foster carers was hugely *committed* to the foster child(ren) in long-term placement. The passion with which the foster carers expressed their commitment to these children was palpable:

"I would never, ever, ever, ever let go to A..., I would walk over hot coals to keep him, I really would..." (Fiona)

The foster children cared for by these foster carers presented with challenging behaviours: harming themselves, harming others (particularly the main foster carer) and damaging property (their own and the foster family's). The foster carers described the behaviour as "horrific", "horrendous" and "not normal" and sometimes found the behaviours outside of their experience; particularly true for those foster carers who had only been fostering for a

short time. Almost the only reason that the foster carers gave for ending a placement was the *effect of the challenging behaviour on the family*. Perhaps because of the commitment that these foster carers felt towards these foster children, ending a placement was associated with feelings of guilt:

"...you can't go on with that placement when these other two children are so upset and so, then you have to move them on, but you do feel awful, but you've got to think of the children that you've already got. You've got to." (Brenda)

Despite the challenging behaviour the foster carers felt *personally responsible* for the success or failure of the placement and saw having to "give up" as a personal failure:

"I think the commitment's a big thing ... it would be the easiest thing in the world to just say agh, I just can't do this anymore, but, trying to think of the impact of giving up on her and her sibling now and the damage that would do, you, you just can't, it's, it's just incomprehensible." (Diane)

The attachment and commitment to these children and the sense of personal responsibility experienced by these carers appeared to enable them to endure the challenging behaviours beyond that which other foster carers were willing or able to go.

There were two external factors that appeared to affect placement outcomes for these foster carers. The foster carers gained *personal reward* through fostering and were *motivated* by their desire to give disadvantaged children an opportunity for a better life and for some by their strong maternal instincts that meant that they simply adored children and wanted to have them in their house:

"I thought give a kid a life sort of thing, give him a chance..." (Tom)

This finding is supported by a previous study (Dando & Minty, 1987) that demonstrated a relationship between motivation to foster and being rated as an excellent foster carer, with placement stability.

The single most important *strategy* that was employed by these foster carers was a *support network* which covered family, friends and professionals and which was used as a safety valve for their emotions. The confidentiality that surrounds a foster child makes it difficult for the foster carers to be able to talk about what has happened and the effect that the behaviour of the foster child has on them, although they recognise the need to off-load for their own well-being:

"Me son ... Yeah, he phones, he phones me every night at nine o'clock to see if I need bit moan." (Elaine)

This strategy is an example of both social coping and emotion-focused coping (Folkman & Moskowitz, 2004). Foster carers have previously highlighted support networks as a key requirement for successful placements (Brown, 2008). Support networks have also been shown to alleviate foster carer stress, a predictor for placement breakdown (Farmer et al., 2005).

Multiple codings of the transcripts highlighted the central role that emotional resilience played in determining placement outcomes. It also showed that the higher-order latent constructs did not act independently to affect placement outcomes, but instead were highly interrelated. Additionally, placement outcomes acted in a way to feedback on the latent constructs and affect how these were expressed. The strongest interrelationships were between *emotional resilience* and *interpersonal characteristics*, which was the result of strong interrelationships between *managing emotions, personal attributes* and *personality traits* with *relationships*.

A consistent characteristic of the children cared for by these foster carers was their challenging behaviours which could lead to negative placement outcomes such as detrimental effects on other family members and ultimately the ending of the placement. The *detrimental effect of challenging behaviour on the family* clearly impacted on the *emotional distress* experienced by these foster carers:

"...it very much affected my family, we had to go on holiday, the kids were completely damaged by it and I'm now as a mother feel horrendous but I could never known it was going to happen..." (Fiona)

The negative impact of a foster child on the family was the only consistent reason these foster carers gave for ending a placement; something mirrored in other studies (Brown & Bednar, 2006; Jones & Morrissette, 1999; Wilson et al., 2000). It is possible that the increased likelihood of placement breakdown is caused by impairment of parenting skills which are adversely affected by foster carer stress (Farmer et al., 2005). The emotional distress experienced when a placement ended, even if this was a planned event, was too much for some of these foster carers. They gave this as a reason for only taking on foster children with a view to them being long-term:

"I couldn't do that, in me life I couldn't every four or five weeks say, cheerio, move on." (Carol)

These foster carers described the unremitting challenging behaviour of their foster child as exhausting and "not pleasant" to watch and at times it made them feel as though they could not take any more. It influenced their *parenting style*, through which they sought to limit their own *emotional distress*:

"And, but they keep, and then of course one says the other one, then that one, then that one, and ah, it goes on and on and on and on and I just think, ee, I'm sick of this, I'm really sick of this, and I go in and say, right, that's it, I've had enough, I'm up to here, I'm fed up with all o'yers, you in your room, you in your room and you be quiet. And it just gets, get us so, you know, because they just go on, and it's constant, unbelievable, and it, it wears you down." (Brenda)

This ability to manage challenging behaviour has been shown to increase foster carers' sense of well-being and satisfaction with fostering, and thereby make placement stability more likely (Whenan et al., 2009). Whilst these foster carers did report occasional instances of having to end a placement because they could no longer cope, it was a rare occurrence, mostly they remained committed to the child and the placement. For "Anne" who was very self-reliant, the commitment to her foster child was a surprise to her:

"*I'm commitment phobic really, I've never, ever made a commitment to anybody, so the fact that taking a child was actually sort of the first time that I'd ever said to anybody that I would, erm, you know, keep them forever really." (Anne)*

Parenting style varied between these foster carers and appeared to be influenced by their emotional resilience. "Fiona" was *perceptive*, and used this to help vary her *parenting style* to match the needs of the foster child:

"...in that first six month they can be pretty challenging and you've just got to try and find out who they are as a person really erm, see what works and what doesn't, it's trial and error..." (Fiona)

"Elaine" appeared to draw on *hardiness* to ensure that she was consistent in her approach:

"...as I say he knows I mean it, I do, that's one thing, you know I never go back on what I say." (Elaine)

It was clear that the children in long-term placements were children with whom the foster carers had formed a strong *emotional attachment*. Associated with this, for some of these foster carers, was *anxiety* that the Fostering Service might decide to end the placement and that they would "lose" the child:

"I would be really hurt if they decided that for whatever reason that he shouldn't live with me anymore..." (Elaine)

These foster carers took *personal responsibility* for the placement outcomes. "Fiona" seemed to like to take responsibility for everyone:

"I just like to make things happy for people, I've always been like that, I just like to make sure everybody's alright." (Fiona)

Again, "Elaine's" *hardiness* was evident in her feelings of *responsibility* for her foster child even if the placement were to end:

"...but at the end of the day I don't think I can give up on him, honestly, I, I would feel too guilty, to think you know, what erm, if anything went wrong after I gave him up I'd blame meself..." (Elaine)

These foster carers understood that relationship formation took time and employed their emotional resilience to cope with whatever the foster child threw at them. They appeared to keep the end goal in mind, a comfortable relationship with the foster child and a positive placement outcome:

"...it's just about the fact that you're prepared to put up with all that bad behaviour, and all that stuff, and think, for long enough that the relation.., that's why I think I asked about the how or the why because if somebody is prepared to stick with it then I think the relationship will happen." (Anne)

4. Conclusions

This study has identified an extensive range of characteristics and factors that were employed by these foster carers to promote placement stability. The construct of ego-resiliency appears to be the most useful in explaining the findings. These foster carers were subject to a daily diet of challenging behaviours and yet, for the most part remained buoyant and optimistic about continuing with the placement. Through modulation of ego-control, ego-resiliency (emotional resilience) enables the foster carer to be flexible in their response to a range of stressful situations. Their adaptability clearly involved the management of their emotions which is suggestive of their being moderately ego-overcontrolled.

It is not possible to know from the data whether the foster carers in the current study had experienced significant

childhood adversity that would have led to the development of resilience (Luthar et al., 2000; Rutter, 1985). Whilst the foster carers variously reported coming from a low socio-economic background, difficult relationships with a parent or grandparent, and illness or death of a parent, similar episodes occur in the lives of many people. However, Masten (2001) proposes that given that the majority of people exhibit resilience it must be part of normal human development rather than being dependent on the presence or absence of childhood adversity as much of the literature suggests.

It was always the intention that this qualitative study would form the starting point for further investigation. In the proposed model, the relationships between emotional resilience, interpersonal characteristics and external factors appear important. Which contribute most in determining placement outcomes is difficult to identify. To answer this, a number of questionnaires exist that could form the basis of such a quantitative study to develop a quantitative model in a wider population of foster carers. In summary, the emotional resilience of foster carers has been found to play a role in promoting placement stability, and this is worthy of wider investigation.

References

Ainsworth, M. S. (1979). Infant–mother attachment. *American psychologist, 34*(10), 932. http://dx.doi.org/10.1037/0003-066X.34.10.932

Block, J., & Kremen, A. M. (1996). IQ and ego-resiliency: Conceptual and empirical connections and separateness. *Journal of personality and social psychology, 70*(2), 349. http://dx.doi.org/10.1037/0022-3514.70.2.349

Bonanno, G. A. (2004). Loss, trauma, and human resilience: Have we underestimated the human capacity to thrive after extremely aversive events? *American psychologist, 59*(1), 20. http://dx.doi.org/10.1037/0003-066X.59.1.20

Bowlby, J. (1984). *Attachment and loss: Volume 1. Attachment* (Revised ed.). London: Pimlico.

Brown, J. D. (2008). Foster parents' perceptions of factors needed for successful foster placements. *Journal of child and family studies, 17*(4), 538-554. http://dx.doi.org/10.1007/s10826-007-9172-z

Brown, J. D., & Bednar, L. M. (2006). Foster parent perceptions of placement breakdown. *Children and Youth Services Review, 28*(12), 1497-1511. http://dx.doi.org/10.1016/j.childyouth.2006.03.004

Campbell-Sills, L., Cohan, S. L., & Stein, M. B. (2006). Relationship of resilience to personality, coping, and psychiatric symptoms in young adults. *Behaviour Research and Therapy, 44*(4), 585-599. http://dx.doi.org/10.1016/j.brat.2005.05.001

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis*. London: Sage.

Children looked after in England (including adoption and care leavers) year ending 31 March 2010. (2010) Retrieved from http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000960/index.shtml

Clark, L. A., Kochanska, G., & Ready, R. (2000). Mothers' personality and its interaction with child temperament as predictors of parenting behavior. *Journal of personality and social psychology, 79*(2), 274. http://dx.doi.org/10.1037/0022-3514.79.2.274

Costa, P. T., & McCrae, R. R. (1992). Normal personality assessment in clinical practice: The NEO Personality Inventory. *Psychological assessment, 4*(1), 5. http://dx.doi.org/10.1037/1040-3590.4.1.5

Cyr, C., Euser, E. M., Bakermans-Kranenburg, M. J., & Van Ijzendoorn, M. H. (2010). Attachment security and disorganization in maltreating and high-risk families: A series of meta-analyses. *Development and Psychopathology, 22*(1), 87. http://dx.doi.org/10.1017/S0954579409990289

Dando, I., & Minty, B. (1987). What makes good foster parents? *British Journal of Social Work, 17*(4), 383-399.

Dozier, M. (2005). Challenges of foster care. *Attachment & human development, 7*(1), 27-30. http://dx.doi.org/10.1080/14616730500039747

Duelling, J. L., & Johnson, J. H. (1990). Predicting success in foster placement: The Contribution of Parent-Child Temperament Characteristics. *American Journal of Orthopsychiatry, 60*(4), 585-593. http://dx.doi.org/10.1037/h0079210

Farmer, E., Lipscombe, J., & Moyers, S. (2005). Foster carer strain and its impact on parenting and placement outcomes for adolescents. *British Journal of Social Work, 35*(2), 237-253. http://dx.doi.org/10.1093/bjsw/bch181

Flores, E., Cicchetti, D., & Rogosch, F. A. (2005). Predictors of resilience in maltreated and nonmaltreated Latino children. *Developmental Psychology, 41*(2), 338. http://dx.doi.org/10.1037/0012-1649.41.2.338

Folkman, S., & Moskowitz, J. T. (2004). Coping: Pitfalls and promise. *Annu. Rev. Psychol, 55*, 745-774. http://dx.doi.org/10.1146/annurev.psych.55.090902.141456

Funder, D. C., Block, J. H., & Block, J. (1983). Delay of gratification: Some longitudinal personality correlates. *Journal of personality and social psychology, 44*(6), 1198. http://dx.doi.org/10.1037/0022-3514.44.6.1198

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory*. New York: Aldine.

Gross, J. J. (1998). The emerging field of emotion regulation: An integrative review. *Review of General Psychology, 2*(3), 271. http://dx.doi.org/10.1037/1089-2680.2.3.271

Hughes, D. A. (2006). *Building the bonds of attachment: Awakening love in deeply troubled children* (2nd ed.). Maryland, USA: Jason Aronson.

Jones, G., & Morrissette, P. J. (1999). Foster Parent Stress. *Canadian Journal of Counselling, 33*(1), 13-27.

Klohnen, E. C. (1996). Conceptual analysis and measurement of the construct of ego-resiliency. *Journal of personality and social psychology, 70*(5), 1067. http://dx.doi.org/10.1037/0022-3514.70.5.1067

Kobasa, S. C. (1979). Stressful life events, personality, and health: An inquiry into hardiness. *Journal of Personality and Social Psychology, 37*(1), 1. http://dx.doi.org/10.1037/0022-3514.37.1.1

Kremen, A. M., & Block, J. (1998). The roots of ego-control in young adulthood: Links with parenting in early childhood. *Journal of personality and social psychology, 75*(4), 1062. http://dx.doi.org/10.1037/0022-3514.75.4.1062

Lazarus, R. S. (1991). Cognition and motivation in emotion. *American psychologist, 46*(4), 352. http://dx.doi.org/10.1037/0003-066X.46.4.352

Leathers, S. J. (2002). Foster children's behavioral disturbance and detachment from caregivers and community institutions. *Children and Youth Services Review, 24*(4), 239-268. http://dx.doi.org/10.1016/S0190-7409(02)00175-5

Lee-Baggley, D., Preece, M., & DeLongis, A. (2005). Coping with interpersonal stress: Role of Big Five traits. *Journal of Personality, 73*(5), 1141-1180. http://dx.doi.org/10.1111/j.1467-6494.2005.00345.x

Letzring, T. D., Block, J., & Funder, D. C. (2005). Ego-control and ego-resiliency: Generalization of self-report scales based on personality descriptions from acquaintances, clinicians, and the self. *Journal of Research in Personality, 39*(4), 395-422. http://dx.doi.org/10.1016/j.jrp.2004.06.003

Luke, N., & Coyne, S. M. (2008). Fostering self-esteem: exploring adult recollections on the influence of foster parents. *Child & Family Social Work, 13*(4), 402-410. http://dx.doi.org/10.1111/j.1365-2206.2008.00565.x

Luthar, S. S., Cicchetti, D., & Becker, B. (2000). The construct of resilience: A critical evaluation and guidelines for future work. *Child development, 71*(3), 543-562. http://dx.doi.org/10.1111/1467-8624.00164

Macdonald, G., & Turner, W. (2005). An experiment in helping foster-carers manage challenging behaviour. *British Journal of Social Work, 35*(8), 1265-1282. http://dx.doi.org/10.1093/bjsw/bch204

Masten, A. S. (2001). Ordinary magic: Resilience processes in development. *American psychologist, 56*(3), 227. http://dx.doi.org/10.1037/0003-066X.56.3.227

Meltzer, H., Gatward, R., Corbin, T., Goodman, R., & Ford, T. (2003). *The mental health of young people looked after by local authorities in England*. London: TSO.

Minnis, H., & Del Priori, C. (2001). Mental health services for looked after children Implications from two studies. *Adoption & Fostering Journal, 25*(4), 27-38.

Minnis, H., & Devine, C. (2001). The effect of foster carer training on the emotional and behavioural functioning of looked after children. *Adoption & Fostering Journal, 25*(1), 44-54.

National Indicators for Local Authorities and Local Authority Partnerships: Updated National Indicator Definitions. (2009) Retrieved from http://www.communities.gov.uk/publications/localgovernment/updatednidefinitions (Feb 23, 2011)

Newton, R. R., Litrownik, A. J., & Landsverk, J. A. (2000). Children and youth in foster care: Disentangling the relationship between problem behaviors and number of placements. *Child abuse & neglect, 24*(10), 1363-1374. http://dx.doi.org/10.1016/S0145-2134(00)00189-7

Oosterman, M., Schuengel, C., Slot, N. W., Bullens, R. A. R., & Doreleijers, T. A. H. (2007). Disruptions in foster care: A review and meta-analysis. *Children and Youth Services Review, 29*, 53-76. http://dx.doi.org/10.1016/j.childyouth.2006.07.003

Palmer, S. E. (1996). Placement stability and inclusive practice in foster care: An empirical study. *Children and Youth Services Review, 18*(7), 589-601. http://dx.doi.org/10.1016/0190-7409(96)00025-4

Pithouse, A., Hill-Tout, J., & Lowe, K. (2002). Training foster carers in challenging behaviour: a case study in disappointment? *Child & Family Social Work, 7*(3), 203-214. http://dx.doi.org/10.1046/j.1365-2206.2002.00249.x

Redding, R. E., Fried, C., & Britner, P. A. (2000). Predictors of placement outcomes in treatment foster care: Implications for foster parent selection and service delivery. *Journal of child and family studies, 9*(4), 425-447. http://dx.doi.org/10.1023/A:1009418809133

Rubin, D. M., O'Reilly, A. L. R., Luan, X., & Localio, A. R. (2007). The impact of placement stability on behavioral well-being for children in foster care. *Pediatrics, 119*(2), 336-344. http://dx.doi.org/10.1542/peds.2006-1995

Rutter, M. (1985). Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder. *British journal of psychiatry, 147*, 598-611. http://dx.doi.org/10.1192/bjp.147.6.598

Rutter, M. (2006). Implications of resilience concepts for scientific understanding. *Annals of the New York Academy of Sciences, 1094*(1), 1-12. http://dx.doi.org/10.1196/annals.1376.002

Schofield, G., & Beek, M. (2005a). Providing a secure base: Parenting children in long-term foster family care. *Attachment & human development, 7*(1), 3-26. http:dx.doi.org/1080/14616730500049019

Schofield, G., & Beek, M. (2005b). Risk and resilience in long-term foster-care. *British Journal of Social Work, 35*(8), 1283-1301. http://dx.doi.org/10.1093/bjsw/bch213

Showers, C. J., Abramson, L. Y., & Hogan, M. E. (1998). The dynamic self: How the content and structure of the self-concept change with mood. *Journal of Personality and Social Psychology, 75*(2), 478. http://dx.doi.org/10.1037/0022-3514.75.2.478

Simons, J. S., & Gaher, R. M. (2005). The Distress Tolerance Scale: Development and validation of a self-report measure. *Motivation and Emotion, 29*(2), 83-102. http://dx.doi.org/10.1007/s11031-005-7955-3

Sinclair, I., & Wilson, K. (2003). Matches and mismatches: The contribution of carers and children to the success of foster placements. *British Journal of Social Work, 33*(7), 871-884. http://dx.doi.org/10.1093/bjsw/33.7.871

Tugade, M. M., & Fredrickson, B. L. (2004). Resilient individuals use positive emotions to bounce back from negative emotional experiences. *Journal of personality and social psychology, 86*(2), 320. http://dx.doi.org/10.1037/0022-3514.86.2.320

Van Ijzendoorn, M. (1995). Adult attachment representations, parental responsiveness, and infant attachment: a meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological bulletin, 117*(3), 387. http://dx.doi.org/10.1037/0033-2909.117.3.387

Ward, H. (2009). Patterns of instability: Moves within the care system, their reasons, contexts and consequences. *Children and Youth Services Review, 31*(10), 1113-1118. http://dx.doi.org/10.1016/j.childyouth.2009.07.009

Webster, D., Barth, R. P., & Needell, B. (2000). Placement stability for children in out-of-home care: a longitudinal analysis. *Child Welfare, 79*(5), 614-632.

Werner, E. E. (1993). Risk, resilience, and recovery: Perspectives from the Kauai Longitudinal Study. *Development and Psychopathology, 5*, 503-503. http://dx.doi.org/10.1017/S095457940000612X

Whenan, R., Oxlad, M., & Lushington, K. (2009). Factors associated with foster carer well-being, satisfaction and intention to continue providing out-of-home care. *Children and Youth Services Review, 31*(7), 752-760. http://dx.doi.org/10.1016/j.childyouth.2009.02.001

Wilson, K., Sinclair, I., & Gibbs, I. (2000). The trouble with foster care: the impact of stressful"events" on foster carers. *British Journal of Social Work, 30*(2), 193-209. http://dx.doi.org/10.1093/bjsw/30.2.193

Call for Manuscripts

Published by the Canadian Center of Science and Education, *International Journal of Psychological Studies (IJPS)* is an international, double-blind peer-reviewed, open-access journal with both print and online versions. *IJPS* encourages high-quality submissions. In order to carry out our non-discrimination principles, we use a double-blind system of peer review. *IJPS* covers the entire spectrum of research including the following topics: general psychology, cognitive psychology, neuropsychology, developmental psychology, educational psychology, as well as social psychology. The journal is published in both printed and online versions.

We are seeking submissions for forthcoming issues. All manuscripts should be written in English. Manuscripts from 3000–8000 words in length are preferred. All manuscripts should be prepared in MS-Word format, and submitted online, or sent to: ijps@ccsenet.org

Paper Selection and Publishing Process

a) Upon receipt of a submission, the editor sends an e-mail of confirmation to the submission's author within one to three working days. If you fail to receive this confirmation, your submission e-mail may have been missed.

b) Peer review. We use a double-blind system for peer review; both reviewers' and authors' identities remain anonymous. The paper will be reviewed by at least two experts: one editorial staff member and at least one external reviewer. The review process may take two to three weeks.

c) Notification of the result of review by e-mail.

d) If the submission is accepted, the authors revise paper and pay the publication fee.

e) After publication, the corresponding author will receive two hard copies of the journal, free of charge. If you want to keep more copies, please contact the editor before making an order.

f) A PDF version of the journal is available for download on the journal's website, free of charge.

Requirements and Copyrights

Submission of an article implies that the work described has not been published previously (except in the form of an abstract or as part of a published lecture or academic thesis), that it is not under consideration for publication elsewhere, that its publication is approved by all authors and tacitly or explicitly by the authorities responsible where the work was carried out, and that, if accepted, the article will not be published elsewhere in the same form, in English or in any other language, without the written consent of the publisher. The editors reserve the right to edit or otherwise alter all contributions, but authors will receive proofs for approval before publication.

Copyrights for articles are retained by the authors, with first publication rights granted to the journal. The journal/publisher is not responsible for subsequent uses of the work. It is the author's responsibility to bring an infringement action if so desired by the author.

More Information

E-mail: ijps@ccsenet.org

Website: www.ccsenet.org/ijps

Paper Submission Guide: www.ccsenet.org/submission

Recruitment for Reviewers: www.ccsenet.org/reviewer

The journal is peer-reviewed
The journal is open-access to the full text
The journal is included in:

Cabell's
DOAJ
EBSCOhost
Gale's Academic Databases
Google Scholar
LOCKSS
Open J-Gate
PKP Open Archives Harvester
ProQuest
Standard Periodical Directory
Ulrich
Universal Digital Library

International Journal of Psychological Studies
Quarterly

Publisher Canadian Center of Science and Education
Address 1120 Finch Avenue West, Suite 701-309, Toronto, ON., M3J 3H7, Canada
Telephone 1-416-642-2606
Fax 1-416-642-2608
E-mail ijps@ccsenet.org
Website www.ccsenet.org/ijps

ISSN 1918-7211