

ISSN 1918-7173 (Print)
ISSN 1918-7181 (Online)

Review of European Studies

CANADIAN CENTER OF SCIENCE AND EDUCATION®

Vol. 13, No. 2 June 2021



REVIEW OF EUROPEAN STUDIES

An International Peer-reviewed and Open Access Journal for European Studies

Review of European Studies (ISSN: 1918-7173; E-ISSN: 1918-7181) is an open-access, international, double-blind peer-reviewed journal published by the Canadian Center of Science and Education. This journal, published quarterly (March, June, September and December) in both print and online versions, keeps readers up-to-date with the latest developments in all aspects of European studies.

The scopes of the journal:

Culture, History
Art, Laws
Education
Psychology
Economics
Religion, Politics

The journal is included in:

EBSCOhost
Excellence in Research for Australia (ERA)
Google Scholar
Mir@bel
SHERPA/RoMEO
Zeitschriftendatenbank (ZDB)

Copyright Policy

Copyrights for articles are retained by the authors, with first publication rights granted to the journal/publisher. Authors have rights to reuse, republish, archive, and distribute their own articles after publication. The journal/publisher is not responsible for subsequent uses of the work. Authors shall permit the publisher to apply a DOI to their articles and to archive them in databases and indexes such as EBSCO, DOAJ, and ProQuest.

Open-access Policy

We follow the Gold Open Access way in journal publishing. This means that our journals provide immediate open access for readers to all articles on the publisher's website. The readers, therefore, are allowed to read, download, copy, distribute, print, search, link to the full texts or use them for any other lawful purpose. The operations of the journals are alternatively financed by publication fees paid by authors or by their institutions or funding agencies.

All articles published are open-access articles distributed under the terms and conditions of the Creative Commons Attribution license.

Submission Policy

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. However, we accept submissions that have previously appeared on preprint servers (for example: arXiv, bioRxiv, Nature Precedings, Philica, Social Science Research Network, and Vixra); have previously been presented at conferences; or have previously appeared in other "non-journal" venues (for example: blogs or posters). Authors are responsible for updating the archived preprint with the journal reference (including DOI) and a link to the published articles on the appropriate journal website upon publication.



The publisher and journals have a zero-tolerance plagiarism policy. We check the issue using two methods: a plagiarism prevention tool (iThenticate) and a reviewer check. All submissions will be checked by iThenticate before being sent to reviewers.



We insist a rigorous viewpoint on the self-plagiarism. The self-plagiarism is plagiarism, as it fails to contribute to the research and science.

Review of European Studies accepts both Online and Email submission. The online system makes readers to submit and track the status of their manuscripts conveniently. For any questions, please contact res@ccsnet.org.



Online Available: <http://res.ccsnet.org>

Editorial Team

Editor-in-Chief

Florin Ionita, The Bucharest Academy of Economic Studies, Romania

Associate Editors

Carmen Ramos, University of Oviedo, Spain

Ifigeneia Vamvakidou, University of Western Macedonia, Greece

Ludmila Ivancheva, Institute of Philosophy and Sociology at Bulgarian Academy of Sciences, Bulgaria

Rebecca A. Burwell, Westfield State University, United States

Editorial Assistant

Paige Dou, Canadian Center of Science and Education, Canada

Reviewers

Adrian James Barton, United Kingdom

Agnieszka Szpak, Poland

Ajeet Jaiswal, India

Alejandra Moreno Álvarez, Spain

Alex Almici, Italy

Ali S.M. Al-Issa, Oman

Alireza Salehi Nejad, Iran

Ana Souto, United Kingdom

Anfeng Sheng, China

Angelo Viglianisi Ferraro, Italy

Ani Derderian, United States

Anna Cebotari, Moldova

Anna Grana, Italy

Annalisa Pavan, Italy

Antonio Messeni Petruzzelli, Italy

Argyris Kyridis, Greece

Armelle Maze, France

Arthur Becker-Weidman, United States

Azizollah Arbabisarjou, Iran

Becky Starnes, United States

Beverly Edwards, United States

Bing Hiong Ngu, Australia

Carlos Teixeira, Canada

Daniela Federici, Italy

Davide Arcidiacono, Italy

Delfín Ortega-Sánchez, Spain

Demetrio Muñoz Gielen, Spain

Dibyendu Choudhury, India

Elena Andreevska, Macedonia

Eleni Zervogianni, Greece

Emilia Salvanou, Greece

Emilio Greco, Italy

Encarnación Abad Arenas, Spain

Erica Heinsen-Roach, United States

Eugenia Panitsides, Greece

Evangelos Bourellos, Sweden

Ezgi Pelin Yildiz, Turkey

Fabio Nogueira Pereira, Brazil

Florica Brasoveanu, Romania

Federico De Andreis, Italy

Friedhelm Pfeiffer, Germany

Gabriela Gruber, Romania

George Mathew Nalliveettil, Saudi Arabia

Gevisa La Rocca, Italy

Ghaiath M. A. Hussein, United Kingdom

Giulia Lasagni, Italy

Giulia Mura, Italy
Gülce Başer, Turkey
Hiranya Lahiri, India
Hyung Min Kim, Republic of Korea
Hyunsook Kang, United States
Indrajit Goswami, India
Ioanna Efstathiou, Greece
Ismail Afferro, Malaysia
Jason Roach, United Kingdom
Juanita Goicovici, Romania
Julia Styoancheva Stefanova, Bulgaria
Karen Aline Françoise Ferreira-Meyers, Swaziland
Katja Eman, Slovenia
Konstantinos Zougris, USA
Lanouar Charfeddine, Qatar
Lena Arampatzidou, Greece
Maheran Zakaria, Malaysia
Manu Braganca, Ireland
Manuel Reyes, United States
Maria Mirza, Pakistan
Maria Pescaru, Romania
Maximilla Wakoli, Kenya
Meenal Tula, India
Mehdi Ghasemi, Finland
Mercedes Ruiz Lozano, Spain
Miroslaw Kowalski, Poland
Montserrat Crespi Vallbona, Spain
Mubashir Hussain, Pakistan
Muhammad Saud, Indonesia
Myriam Cano Rubio, Spain
Natalija Vrečer, Slovenia
Nguyen Ai. Lien, Viet Nam
Nikos Christofis, Greece
Nunzia Bertali Di Cristo, United Kingdom
Òscar Prieto-Flores, Spain
Paolo Prospero, Italy
Patrick van Esch, United States
Pinar Burcu Güner, Germany
Pri Priyono, Indonesia
Raquel Casesnoves Ferrer, Spain
Rebecca Burwell, United States
Ronald James Scott, United States
Rosy Musumeci, Italy
Rotaru Ioan-Gheorghe, Romania
Said Suliman Aldhafri, Oman
Sara Núñez Izquierdo, Spain
Savanam Chandra Sekhar, India
Serdar Yilmaz, United States
Serena Kelly, New Zealand
Skaidre Žickiene, Lithuania
Smita M. Patil, India
Sorin Gabriel Anton, Romania
Stephen Andrew Lazer, United States
Suat Capuk, Turkey
Susan Wolfe, United States
Szabolcs Blazsek, Guatemala
Ugwueye Luke Emeka, Nigeria
Uschi Bay, Australia
Valeria Vannoni, Italy
Valerie Gonzalez, United Kingdom
Vicenta Gisbert, Spain
Zeina Hojeij, United Arab Emirates
Zerrin Torun, Turkey
Zining Yang, United States

Contents

Fertility Decrease and Son Preference Among the Educated Middle-Class in Kathmandu <i>Bishnu Prasad Dahal</i>	1
Digital Storytelling in Education: A Systematic Review of the Literature <i>Carmen Lucena Rodríguez, Marta García-Jiménez, Belén Massó-Guijarro, Cristina Cruz-González</i>	13
Good Governance and Economic Growth in South European Countries <i>Dimitra Mitsi</i>	26
European Entrepreneurship Reinforcement Policies in Macro, Meso, and Micro Terms for the Post-COVID-19 Era <i>Dimos Chatzinikolaou, Michail Demertzis, Charis Vlados</i>	39
Implications of the Digital Divide for the Learning Process During the COVID-19 Crisis <i>Gila Cohen Zilka, Idit Finkelstein, Revital Cohen, Ilan Daniels Rahimi</i>	57
Subjective Well-being, Mental Health and Concerns During the COVID-19 Pandemic: Evidence From the Global South <i>Lina Martínez, Valeria Trofimoff, Isabella Valencia</i>	72
Investigation of Causal Correlations Between Higher Education Development and Economic Growth in Vietnam <i>Nguyen Duc Hanh, Bui Manh Dung</i>	83
The Innovative Semi-Analytical Screen Survey Tool and Intermittent Screen Review Sampling Method Used Amid COVID-19 Pandemic <i>Sada Hussain Shah</i>	91
Some Considerations on the Issue of Economic and Social Sustainability <i>Giovanni Antonio COSSIGA</i>	97
Staroverstvo - the Old Religion - the Slovene Pre-Christian Religion <i>Anton Perdih</i>	114
Investigating the Effects of Sociodemographic Characteristics on Psychological Factors That Impact on Educational Process of Adult Learners in Second Chance Schools in Greece <i>Georgia Karakitsiou, Anna Tsiakiri, Katerina Kedraka</i>	122
Reviewer Acknowledgements for Review of European Studies, Vol. 13, No. 2 <i>Paige Dou</i>	134

Fertility Decrease and Son Preference Among the Educated Middle-Class in Kathmandu

Bishnu Prasad Dahal

Correspondence: Department of Anthropology, Patan Multiple Campus, Patan Dhoka, Tribhuvan University, Kathmandu, Nepal

Received: February 14, 2021 Accepted: March 15, 2021 Online Published: March 31, 2021

doi:10.5539/res.v13n2p1

URL: <https://doi.org/10.5539/res.v13n2p1>

Abstract

The aim of this research article is to explore the persistence of single child especially the son preference in a Hindu dominated patrilineal, patrilocal society found in Kathmandu is facing the midst of fertility decline. Using semi-structured interview schedule with the help of observation and ethnographic field work mostly in middle class families of Kathmandu, I have tried to analyze the role of socio-cultural factors in selecting the number of baby conceiving and give birth, gender of child etc. regarding reproductive health and concern were questioned to married women and which remained intact. Fertility decrease or increase is not due to the only the demographic factors, it is due to the multiple factors; social factors, cultural, ecological, economic, religious and psychological, political etc. that's why, due to various reasons fertility is decreasing day by day in one hand and in other hand son preference is increasing day by day. People usually working couple do not want more than single child and they want to give birth a single son. It impacts on population composition, sex ration, increase abortion, familial quarrel etc. Son preference is because of multiple reasons; economic, religious, cultural, social, political familial, lineage system, customs, norms values, attitudes etc.

Keywords: fertility decrease, son preference, sex selection, religion, society, ecology, economy, socialization, sociobiology, psychology, political, lineage

1. Introduction

Fertility decrease is associated with multiple factors. Though it is a demographic phenomenon but associated with many others factors like economy, social composition, ecology etc. Among demographic factors; fertility is directly related with the age at a marriage, mortality and migration. Here in this research paper I would like to find out the interrelationship between fertility decrease associated with child birth number especially son in Hindu society in Kathmandu valley.

The country has their own trend to develop the human resources in their own demand and society has developed their norms and values regarding sex ratio or gender ratio inside the country to maintain the equilibrium among and between them so as to maintain the harmony, solidarity and integration in the respective society in one hand and in other hand there are so many social context and social stigma to practice the discrimination and disparity among and between the genders in terms of sex or gender identity. So, sex selection has been perceived as one of the important stigma for the preference of son in orthodox society of Hindu like Kathmandu. It is found that the son preference is highly practiced in mostly patriarchal society where son born as a elite class perceptually. Not only in the society like patriarchal society and orthodox Hindu society, son preference has got high value in all over the world and it is a global phenomenon that the sex-selective abortion do not control to prevent sex selection globally and it never work to control the phenomenon of son preference. Among various methods there are effective medical methods to find out the sex of baby before born and it helps to find out the sex of a fetus before birth. Despite these other methods are also important but they are quite difficult to practice such as sperm sorting and pre implantation genetic diagnostics in all society where the developments of such facilities are less (Barot, 2012). Pre birth sex or gender identification or selection is a global problem which is growing day by day and there should be broad international consensus that may check up or control the sex selection during pre birth by implementing the gender equality or gender equity in society.

It is found that the state legislatures of the most of the countries have adopted various specific abortion policies and abortion restrictions that target specifically for women of pregnancy conditions by restricting abortion on the basis of pre-birth gender identification and sex selection including genetic anomaly. In recent years, the rights of women in their own body, abolishment of gender based discriminations and inequalities related laws including abortion laws have introduced federal legislation that would prohibit abortion based on the sex of the fetus in general conditions, but in case of specific conditions law provided the rights of abortion. Similarly, some countries have adopted laws regarding the sexual rights

and duties that require patients receiving a diagnosis of a fetal sex, health conditions, growth and genetic condition be given information for the health and medical reason, but in case of the identification of sex of fetus for the give birth of son is should be strictly prohibited. In such conditions, abortion is prohibited by the laws and the provision of pre-birth identification of fetus and fetal genetic anomaly restrict women's ability to make decisions that are best for their health themselves and their families socially.

Several countries have approved laws that prescribe abortion in cases of fetal genetic anomaly, gang rape, raped by own blood kin's including in circumstances where the fetus cannot survive outside the womb. The identification of the sex of fetus is strictly prohibited by the laws, except in the case of the sensitive medical conditions or disability, comprehensive pregnancy options, and resources for the child and family.

However, there are various methods and services are available in the sector of the sexual or reproductive health especially for women to prevent unwanted pregnancy, forced raped, etc. but in case of family reproductive health which mainly focus the identification of pre- birth of sex of fetus and if parents do not want to give birth the baby in general condition of the baby, then abortion opponents have used these bills to preventing patients from receiving information about abortion as an option to consider in response to a diagnosis (Barot, 2012).

A strong gender preference among parents particularly a single child they rigorously search that is mostly a "son". The selection of gender in pre-birth or son preference is somehow related to a particular socio-cultural stigma and discriminatory gender roles in a society which stem from economic, social, cultural, religious, and psychological contexts (Gupta et. al 2003).

In particular in society or in orthodox society like Hindu society, where rigid patriarchy acts as the socio-cultural value system and patrilineal and patrilocal kinship systems regulate inheritance property rights for son only, male usually gets higher wage than female, transfer of parental inherient property only through the son, allocation of productive assets (such as land) and old age support and where a strict labor division exists, sons are preferred than daughters (Gupta et. al 2003).

Globally, due to the development of various medical, health facilities and services, preventive methods about the reproductive health are getting priority than curative. Although, female feticide is illegal under the prevailing existing law of Nepal (Puri et.al, 2007), it is accepted legally, with some conditions like gang raped, forced raped and raped by own kin's by "The Right to Safe Motherhood and Reproductive Health Act 2018". With the development of various well facilities, services on modern reproductive health technologies, infanticide has been replaced by feticide all over the world. In Nepal, it is found that female infanticide was common for getting dowry (gifts from parents and relatives, neighbors etc..) bringing by bride from her natal home as gift was still practiced in one hand and in another hand male gets high wage than female in similar work mostly in the agriculture (Miller, 1997). That's why, it is assumed that without son the subsistence agriculture is mostly impossible to sustain and continued inherently in Hindu orthodox societies and the patriarchy functions to build the perceptions and value system for all members of the family, society and culture they have practiced. The gender based discriminations, inequalities, disparities in the societies are basically analyzed by the study of the sex or gender ratio, child mortality rate, fertility rate based on gender, rate migration based on gender and for other gender-related differences (e.g., accidental deaths are more common among boys than among girls) (Unnithan-Kumar, 2010).

Nepal is a diversified country in terms of caste, class, religions, ecology, and structure of society and features of culture. It is found that though country is diverge in many aspects, it is a common garden of all peoples- have or have not economically, in terms of educations, languages and cultures and their living styles and standards are mismatched. The geography of the country can be divided into three ecological regions: the terai (plains area), the hills and the mountains. Life of one region is quite different than other regions with wide disparities in the living standard and access to the opportunities and physical facilities. On the basis of population, the composition of nation's population in diverse and mostly heterogeneous in nature in terms of caste, class, religion, language, ecology etc. based distributions.

Now, the population of Nepal is about 27 million with a growth rate of 1.4 percent (CBS, 2011). It is noted that there are 103 listed diverse ethnic/caste groups, each with its own distinct languages and culture in the 2001 Population census. Nepal is primarily a Hindu dominated country with more than 81 percent of its population are Hindus. The recent Demographic and Health Survey of Nepal (2011) found that the total fertility rate is 2.6 per woman, reduced from 4.1 in 2001 (DHS, 2011).

Majority of the population lives in village, rural and remote areas, where physical facilities and infrastructures with basic services are very poor. In studying the issue of fertility decline in case of Nepal, it is noted that the increasing facilities of reproductive health like; increasing facilities of reproductive health, and improving the family planning programs are not only the reason that helps to decrease the fertility. Despite these, increase of age at a marriage, decrease of mortality rate especially child mortality, life expectancy, change in over all reproductive behavior including migration of male etc are

now growing new trends in population dynamics.

The abortion law was legalized in Nepal in 2002, strictly prohibits sex determination and sex selective abortion. A woman can legally obtain an abortion up to 12 weeks' gestation, up to 18 weeks in case of rape or incest, and at anytime during pregnancy if she feels her life is at risk or the fetus has congenital anomalies. However, after the legislation of abortion, concern has been raised about sex selective abortion in Nepal (CREHPA/UNFPA, 2007a). Not in only reproductive health, in other sectors, Nepal has made progress in reducing gender-based discrimination and empowering women and they have significantly better access to education, economy, politics, profession, participation and decision making too. Through the legal reforms women are strengthening their access, opportunities and strengthened in order to ensure gender equality and gender based empowerment. In addition to the legalization of abortion, the Domestic Violence and Punishment Act were passed in May 2009 in Nepal.

In Hindu orthodox society, patriarchy, the Hindu ideology, beliefs, norms, attitudes and values have helped to enforce the various forms of discrimination, disparities, inequalities and injustice based on gender. Despite several socio-cultural and legal reforms, various types of gender discriminations, inequalities and gender based violence are still persistent mostly in rural and even in urban Nepal which is resulted by the socio-cultural context of the society (Dahal, 2020b). The cause and effect of gender discrimination on children is basically analyzed by the study of the broader socio-cultural spectrum of the particular society and culture especially with the study of sex-specific child mortality rate and higher mortality rate of girls than that of boys indicates that the discriminatory caring system, beliefs and values of children especially based on the gender and mainly girls children were got less priority than boys. In South Asian region, overall childhood mortality continues to decline, the relative plight of girls has worsened (Agnihotri, 1995).

Son preference in Hindu society promotes more extreme forms of socio-cultural discrimination, cultural values, norms, and attitudes including feticide or infanticide of females (Karki, 1992). As a son is very highly prioritized, valued and daughter is treated as supportive role for sons continue the family name, continue their lineage, transfer of parental properties inherently in lineage system, can perform funeral rituals are and expected to provide support in old age. This patrilineal social structure discourages women from practicing contraception until they have a son (Karki, 1992). If the women conceive the first child a son then she will never thought to conceive another child whether it is son or daughter. Ultimately it promotes the contraceptive use and fertility levels decreases, but also on the progress of fertility decline.

The relationships between fertility and the economy especially in case of rural Nepal – agriculture and remittances and urban is trading and job holding for subsistence were studied. It was found that fertility and economy; property (landholding), occupations, income are related through the holds that owned economic resources and economic opportunity, economic resources and opportunities holds that cultivated landholding (children can assist in tilling the land) in case of agriculture and in case of trading family assisted (the business to generate the economy) and fertility are complements since. Remittances are purported to affect fertility through increasing son preference. This is because remittances provide security and sons send remittances. This implies that the people of rural Nepal value children for the economic benefits while in urban it is generated through the trading and holding jobs in professional fields, they can bring. The economic value of sons vastly outweighs that of daughters and the findings of this research indicate that increasing remittances and high levels of functionally landless, property less, occupation less i.e. economy less households mean that son preference is unlikely to disappear soon.

In another hand, the economic theories of fertility transition have been neglected and are important for our understanding of fertility determinants – they are therefore extremely relevant for demographers, anthropologist and social scientists because without population especially fertility others factors are less important. In case of Nepal, it was also found that the quality of urban fertility is ignored by researcher and rural fertility is focused. Now the socio-economic factors of society and cultures are undergoing change and the contribution of urban fertility is also increasing in economy and it relates to economic variables in a substantively different way to urban fertility.

1.2 Focus of the Research

This research is framed as focusing on the searching the answers of these questions as; socio-cultural factors are the major determining factor for the single child especially son that found in the study of middle class families among Hindus of Kathmandu valley. What are the responsible factors for the fertility decline in Kathmandu?

The overall objectives of the paper are to study the dimensions, nature and determinants of Nepalese people's attitudes, social practices and cultural patterns towards single child and son preference and gender-based violence. The general objectives of the article are:

This research is conducted to identify the current behaviors of men and attitudes on a wide range of issues as they relate to gender equality. Another objective of the study is to examine the knowledge and attitudes of men and women toward single child especially son preference and fertility decrease. It is essential to explore responsible and determining factors

that can be attributed to attitudes and behaviors of men and women related to gender-based violence especially for son preference, while studying the interrelationship between fertility decrease and son preference in Hindu orthodox society.

The specific objectives of this paper is to identify the interrelationship between the single child conceiving attitude, son preferences and fertility decline in middle class family in Kathmandu. It is examined that; Why has fertility in educated people of middle class family in Kathmandu recently found declining? Why they have the small family size, single child, attitudes of son performance? Is it because of the lack of economic resources or lack of time to grow the child? What will happen in coming future if the situation is continued? This paper describes the overall scenario of fertility decline, small size of family, single child, son preference etc in a wider perspective.

2. Theoretical Review

Usually, fertility decrease and son preferences are quite different issues but here I am using these concepts as co-related and reciprocal with one another.

2.1 Theories about Fertility Decreases

Son preference in Hindu society of Kathmandu is visualized through the various theoretical perspectives. For this the environmental assessment and economic realities should be understood for the application of appropriate theories for the selection of gender and number of child they want to conceive. In case of working husband and wife it is very difficult to rare and cares more than a single child and that child should be the son. There is presumption about financial constraints and professional career that most of the couples cannot afford, cannot manage time and cannot maintain the health and mentality for another child. There is denial about the possibility of postnatal depression that makes some women anxious about giving birth for a second time. It is assumed the advantages of son preferences mostly single include undivided inherent parental property and full attention and investment of parents for single son, responsibility of the parents limited and concentrated to looking only one child, and less economic stress and strain. Now a day, in Kathmandu it is very hard to find out the joint family and it is increasing competitive environment without support from the joint family and extended families and most of the couples find it hard to accommodate the needs of even a single child, especially when both the partners are working. In such situations, parents might find it easier to groom a single child.

Sexual selection refers to the differential ability of individuals with different phenotypes to compete successfully for mates. Sexual selection increases the chances of an individual's reproductive success and mate selection is generally guided by fitted genes in terms of physically, mentally, socio-culturally advances and smarts for individual's reproductive success. Sex selection in favor of boys is a symptom of pervasive social, cultural, political and economic injustices against women, and a manifest violation of women's human rights. Similarly, the fertility decrease largely depends on the changing economic value of children and shiftment of productive system from agriculture to industrialization and modernization. This interpretation has been challenged by those who claim that the flow of wealth in preindustrial societies is always from parent to child rather than from child to parent. That's; why, in preindustrial society where the children usually work for subsistence of family and higher the children higher will be the subsistence and population for subsistence, while in case of industrial society, higher the children higher will be sharing, divide property and lesser will be the saving and economic value of the population is for generating economic subsistence by working overtime.

The economic models of fertility decline is largely determined by demand for children or the demand of ideal family size and supply of children which is able to control the fertility. In the course of development of society, mostly agrarian or subsistence agricultural modes of production shifted towards the industrial or commercial modes of production. At the moment use of technology is very high and it replaces the huge labor forces ultimately creates the pressure on fertility decline. While in the course of social change, transition from agriculture to industrial modes of production ultimately demands the situation from "quantity" to "quality", also helps to decline fertility. In other hand, in industrial or commercial or in capitalistic society, the cost of single child is very heavy as compared to the child grown up in agricultural society, that's why it is pressure to decline fertility and people follow with references of ideal family. Second theory is fertility decrease or increase is directly proportionate with their reproductive success, and infant and child mortality. Fertility decrease when the rate of infant and child survival will be high and fertility increase when survival rates are low. Fertility decreases if the norms, values, perceptions or say knowledge about ideal family size and birth control practices spread more quickly in culturally homogeneous populations. There was popular Nepalese proverb, "two children are the blessing of God". This theory proposes the reorientation of our old value system and attitudes. We should remodel the thinking pattern about fertility decline in a way as; why fertility declines? quite better than the question; how do people adjust to declining mortality?

Fertility decrease is largely determined by infant mortality and female empowerment. However, role of economic value of children's labor plays an important role in fertility decisions. Fertility decrease or increase has reciprocity with empowerment of women and if women gain more autonomy and control over their own lives they reduce their fertility levels because, among other possibilities, higher levels of fertility present them with serious burdens.

Sociobiology provides the understanding of human behavior and this world through the new dimensional perspective of extraordinarily complex blend of genetic and environmental factors to understand the human behavior. It focuses the role or the importance of cultural variability, or the increasing role of technology in widening the limits of our biological constraints (Dahal, 2020b).

2.2 Theories about Son Preferences

In many societies, son preference is so common and sex-selective practices during pre-birth gets high value and that only sons carry out certain functions like continue lineage system, maintaining the patriarchy and also performs the some religious and cultural traditions, such as death rituals for parents. "Society as living organism" and its parts can be examined with respect to how they operate (or function) to maintain the viability of the body social as it grows and develops, therefore, examine the social significance of phenomena, that is, the purpose they serve a particular society in maintaining the whole (Craib, 1997). Spencer's theory is filled with analogies between organisms and society as well as between ecological processes (variation, competition, and selection) and societal evolution (which he saw as driven by war). Durkheim argued that sociological explanations "must seek separately the efficient cause of a phenomenon and the function it fulfills" (Craib, 1997), but, in contrast to Spencer, he posited only one functional requisite: the need for social integration. In Durkheim's sociological analysis the assessment of the causes of phenomena and their consequences or functions for meeting the needs of social structures for integration should be involved. Malinowski visualizes the individual's function so as to satisfy their own need in "the theory of need" have suggested that individuals have physiological needs and to satisfy that individuals' need social institutions play key roles to satisfy these needs, but unlike Malinowski's emphasis on individuals, Radcliffe-Brown considered individuals irrelevant in comparison to institution as a society is a system of relationships maintaining it through institutions that are orderly sets of relationships whose function is to maintain the society as a system. (Craib, 1997). Social justice and social morality are the fundamental theme and has been concerned of Sociology since the period of Marx, but, abuse of concepts of biology especially evolutionary biology or biosociology in the context of explaining cultural, racial and gender based similarities and differences.

2.2.1 Social Darwinian Perspective on Son Preferences

Herbert Spencer propounded the theory of Social Darwinism on the basis of Darwin's concepts of Natural Selection through the survival of the fittest. Social Darwinism was used to justify differences in terms of cultural behaviors among them the role of such cultural factors like technology, inventions, cultures, society, traits, norms, values, attitudes are important to influence the biological factors like; gene, race, gender, geography, climate etc in reference to their adaptations.

The genes are unit of heredity through which the characters, features and behavior of parents are transferred from a parent to offspring and is culturally practiced through the lineage system inherited by son i.e. gene determines the features and characteristics of organism. Human behavior can be subjected to game theory for their gene selection through their successiveness and adaptation in environment (Daly & Wilson, 1988). In this sense, human society is either biosociological or sociobiological interaction of human species; intra- and inter- genetic species competitions for their selections and fitness to adopt in their environment. The former considers geographical and later historical factors, in contrast, includes the level of the individual organism and a society of species.

2.2.2 Sociobiological Perspective

The son preference practices are more common even in those countries that are well practicing gender harmony and gender solidarity either for dowries, bride price, gifts or to discriminatory inheritance laws help to drive such practices such as female infanticide. Son preference is a symptom of pervasive social, cultural, political and economic injustices against daughter or against the whole women, and a manifest violation of women's human rights. Son preference refers to the differential ability of individuals with different phenotypes to compete successfully for mates by producing traits that are attractive to prospective mates and sexual selection increases the chances of an individual's reproductive success. In case of human, mate selection especially son preference is generally guided by fitted genes in terms of physically, mentally, socio-culturally advances and smarts for individual's reproductive success.

That's why; Sociobiology studies a human behavior and cultural traits that son gets preference in Hindu society in a comparative perspective, and provides a general explanation about the evolution of such behavior and culture like in many other species or in some respects in uniquely human ways in which, the role of cultural variability, or the increasing role of technology in widening the limits of our biological constraints.

2.2.3 Ecological Perspective

Ecological perspective on son preference is also another alternative perspective to analyze the human behavior and cultural traits in a wider sense. Ecology acts as a major component of human behavioral and cultural variations; either

genetic variation through geographical isolation or by adaptation or cultural variations. The interplay between nature and nurture i.e. biology vs sociology are usually studied in terms of human behavior and cultural traits. Here, nature vs. nurture debate has had significant social implications, particularly concerning on to determine people's ability to learn. Due to ecological constraints the discriminatory behavior on own bundles of gene affect parental behavior and the differential treatment of sons and daughters. Female infants and fetuses are at risk only under certain particular and predictable cultural–ecological conditions such as plow agriculture, herding, patrilineal inheritance, dowry, and low resource contribution by women (Bugos & McCarthy, 1984).

Sociobiology rejects a dualistic view of heredity versus environment, nature versus nurture, and substitutes an integrated view of human behavior as the complex product of the interaction, but it also assumes human language and culture as extremely important as outcome of a process of biological evolution and evolution of culture, but continues to interact reciprocally with both our genotype and our physical and biotic environment (Van Den Berghe, 1978).

2.2.3 Economic and Demographic Perspective

Economy and demography are both important factors in society and culture and the family plays a fundamental role in reproducing the division, discrimination and hierarchy, among and between caste, class, genders etc. According to Malthusian principle, resources have reciprocal relation with population and an economic value child is important in industrial society and family also plays its part in “regulating” the labor market. The theory of sexual economics assume that economic marketplaces; usually the law of supply and demand becomes unrest, when demand is high there is pressure on supply side and prices became high, and if when supply exceeds demand, the price will be low, favoring buyers (men). The economic theory emphasized on the differentiation on sex role in economy (Baumeister & Vohs, 2004). The focus of sexual economics theory is that women are the sellers and men are the buyers. Economic capital signifies money, property, or other financial assets that indicate one's class and status.

2.2.4 Gender Perspective

The gender theory emphasized on the role of socio-structural and cultural-psychological factors for the discriminating gender status and role in family, society and culture. Lynn Bennett juxtaposed the Mary Douglas's notion "power and dangers credited to social structure are reproduced in small in the human body" in studying the Hindu society to control the fertility, sexuality of women through the cultural traits and practices in the name of pollution and danger (Bennett, 1983). Likewise, as parallel with Sandy's theory of "female power and male dominance", Bennett interestingly established the role of socio-cultural factors such as; myths, ethos, religions weenies, etc. to control over the female fertility, sexuality and mobility as dangerous forces in the name of cultural, religious, social and psychological in Hindu society.

Bennett established the issue of control on women's mobility, sexuality and fertility is not only because of the patriarchy and male domination. It is also because of the female too and she explored the interrelationship especially the tension between mother-in-laws and daughter-in-laws. After two or more than two children especially sons, her status has increased, considerably, and she may feel that, the authority of her mother-in-laws no longer has to be accepted without question. The conflicting relationship between affinal women, one is a mother –in law and other is daughter in –laws, because both want to enjoy power, authority and opportunity within family guided by patriarchy and male. This type gender socialization is institutionalized in family and kinship of Hindu and usually, parents are the first and most crucial agents of gender socialization that helps to socialize the women's social roles in Hindu kinship and family structure are related to their symbolic roles in cultural, economic and social sphere of life in Hindu society (Bennett,1983).

It is concluded that there are inter play between gene, ecology, socialization, evolutionary history, economy, demography, culture, etc and other human associated components, in which one inter play with one another reciprocally.

3. Methods and Methodology Employed

This research work was conducted in Kathmandu valley. By nature, this research is qualitative but to justify the some issues quantitative data were used to identify the facts about research topic and sub topics. During the course of research study qualitative research design with data collection methods like semi-structured interviews, observations were carried out among 100 married and educated middle-class mothers in Kathmandu are selected as respondent by using pseudonyms. I have changed the details of respondents, identity and their other information such as field of work and studies to preserve their anonymity. Interviews were conducted in Nepali language with respondents of educated middle-class married women with newly married and planning to conceive baby very soon.

The sample respondents are from the orthodox Hindu Society where son gets high value and daughter will not. Such discriminative socio-cultural patterns are the fundamental criteria and they have access to and knowledge of ultrasound and sex-selective abortions, which means that various social factors including, marital status, size of family, composition of family sex, their numbers and sex ratio (Saggurti et al., 2011). The Kathmandu valley was chosen as a study area that represents the other areas in urban Nepal where the respondents of the research topic could be found easily and fertility

decrease, son preference could be found in working couple very easily. Here, I selected 9 case-study on Hindu households that represented middle class families which is rigid in single child especially son. I interviewed the married women in whom my research topic is concentrated using a semi-structured, open-ended format for an average of five times during my research. In rarely found the joint-family household, the case studies was first focus with both the mother-in-law and the daughter-in-law. These mothers-in-law, together with women in nuclear family households who were of an age at which they were socially recognized as no longer reproducing (that is, they had at least one grandchild), make up the group I refer to as "mothers-in-law." Daughters-in-law and the women of socially recognized reproductive age in the nuclear family households make up the category I refer to as "young mothers."

4. Findings and Presentation

4.1 Reciprocity between Family Size and Fertility and Single Child

Kathmandu valley is practicing nuclear family system without separation. Mostly, family members are belongs to the joint family system with nuclear setting and residence, i.e. overall members and property are commonly or jointly owned and share but they live separate for their own purpose for performing business, job and for education etc. that's why Nepalese families are commonly said "emotionally joint but practicing nuclear". It is found from this study that the households in Kathmandu valley are set up, the size of family and the socio-economic status of family are determined by the attitudes on conceiving child mostly son.

Another common reason for family fragmentation situations that found study area also verified through the documentations, films and television shows related with family quarrel and family fragmentation along with their property share that the relationship between the mother-in-law and her daughter-in-law and migration stands as another reasons revealed by respondents for forming a nuclear household to find work, education, opportunities, family fragmentation due to family quarrel and elopement to form a love marriage. But now a day due to modernization and due to the freedom inside family, people want nuclear family rather than joint and people want mostly few child(mostly single) rather than more. With various reasons, transformation of production system from agro-based to non agro-based economic and production system, lacks of family members to care child, because of low income and opportunities about birth control services, and due to the rise of education etc. promote the decline of fertility and give birth few child. Fertility is decreasing not only because of demographic reason but also because of economic, socio-cultural, ecological, religious, emigration, occupations, individualism, etc. and fertility behavior is also transmitted from one generation to the next mostly related to genes.

In addition, the debate on nature vs nurture is also the important which shows the impacts of natural factor with socialization play important role in fertility behavior. It is found from the field studied in Kathmandu that, the great desire for sons ultimately creates the imbalance of sex ratio through which various socio-cultural behavior of people will be changed and decrease in fertility without changes in attitudes regarding son preference could be at the cost of increased use of sex-selective abortions or female infanticide (Leone et al., 2003).

4.2 Socialization about Fertility and Son Preference

Socialization play important role in the fertility patterns and selection of number and gender of child. The attitudes and perception of individual is highly influenced by his own genetic behavior and his/ her family and the society where he or she socializes. So, the socialization process based on social learning and social influence through family, society, culture and peers is also a major mechanism explaining family size correlation (Bernardi 2016).

Family is the first and primary school of an individual and family size preferences seem to be exerted through social pressure and subjective obligation (Bernardi 2003), which are shaped during childhood. By a mimetic effect or through moral obligations, growing up within a large or small family may thus increase preferences for the same type of family size through a desire to perpetuate the family image instilled during childhood (Lois & Arránz Becker 2013). The socialization process and its outcomes vary within the family composition, economic status, social structure and cultural and religious composition of the family and society. The transformation of family based modes of production in to industry based production helps to promote migration and family form and similarly, religious dimension of the society and the attitudes developed by it in society and individual also impacts on the increase or decrease of fertility levels and ideals. It is found that, the large changes in the structure of society over the century (in terms of social classes and religion) were certainly crucial in explaining the change in the intergenerational family size correlation. In France, the social groups that shrunk over the century more often had very small families (e.g., employers, including shopkeepers) or very large families (e.g., farmers or manual workers).

We thus expect the drop in the share of families with a small or large-family culture to reduce fertility transmission, particularly the transmission of extreme family sizes. In addition, opportunities for social mobility (Glass et al. 1986), mass education (Breen 2010), and the decline in religious adherence within families (Lehrer & Chiswick 1993) may have

weakened the link between parents' and their children's family sizes.

Among study samples, it is found the same impacts which were observed and studied by many scholars in many empirical reviews that in the course of social development, family size is decreasing with decreasing the fertility rate, because of migration, seeking opportunities etc. and many more.

4.3 Economy, Fertility and Son Preference

From the perspective of parental investment son preference has got priority and sex differences are usually shaped by the processes of mate selection, intra group heterosexual selection; inter group sexual selection and their competition. The general principle of the sex selection for parental investment is usually males make a smaller parental investment than females and females tend to be more discriminating in mate choice because of their greater costs of reproduction, because of males benefit more so from numerous mating opportunities than females, they were selected to invest more effort in mating than females, while females allocate proportionally more effort to improve the quality of their offspring.

Kathmandu is the urban city where the domination of working class people found. Economy determines the all sphere of human's social life and social strata are mainly determined through the economic condition, property, income and occupations. The occupational structure is often construed to represent the pattern of socioeconomic opportunity in modern societies especially in industrial and urban (Rose, et. al., 2009). In another way, through the occupational structure the level of socio-cultural disparities are also identified and the level of discrimination and segregation of various social groups (by gender and race) since occupational attainment is rarely determined solely by an individual's choice alone (Gill, 1989).

Majority of the respondents prefer son as her child In middle class families in Kathmandu, people want mostly single child and from the economic point of views, male has unlimited capacity to produce, reproduce and the wages for male sex is higher than female. The data found from the field work that, occupation is another component on determining the sex of child which they want to born. Usually, the reply of the questions about their opinion on gender selection and preborn child, they replied that they wanted a son that's why they are now in the process of getting him very soon. Similarly, in response to why you want to get a son rather than daughter, most of the respondent replied that, " son is a son who will handle all works very comfortable, successfully, because they are brave and they can handle everything very easily now and they will take care of all in old age while we will not able to do any task and care ourselves". Likewise, their voice was found "Son is essentially significant in our culture, they can continue our lineage, take care our parental properties, and status of parents what they earned during their life. Son only can worship and remember our soul after death".

It is found from the study of samples that the economy is the main decisive factor for the determination of family size, fertility rate. It is also found that not only income, parental property, occupations, economic value of children, mode of productions etc are key factors that determine the fertility rate and family size including gender of the children especially son performance. Usually in case of Kathmandu, due to the occupation, working culture husband and wife, difficult to share parental property single child is mostly liked and that child must be male i.e. son.

4.4 Religions and Son Preference

There is a close relationship between religious identity, beliefs and practices with the selection of sex of their child. In demographic studies, there is a cultural explanation for the son preference in the influence of religion on fertility (Goldscheider & Uhlenberg, 1969), who indicated that there may be multiple sources for fertility differences between different religious groups. There is a culture of son preferences that found in most of the religious and cultural group flourish their own religious perception, values, attitudes, norms and traits. It was found that, middle class family of Hindu religious background in Kathmandu mostly follow the Hindu values and norms in which son is the means to go the path towards heaven is easy and sure.

It is found from the literature review that, most of the regions have their own perspective in case of gender discriminations and son preferences in which the son gets high value and daughter gets low. Male stands for ruling class and female for ruled class.

4.5 Single Child and Eagerness of Son

It was found from the study that the sampled women of Kathmandu valley openly expressed their opinion in the conceiving the single child and desire of son in their household during the fieldwork. If they do not able to produce son there will be the situation of co wives in their households to produce sons although they are educated and they know the rules about and against it. In patriarchal society like in Nepal, son preference is institutionally through culture and religion by developing the patriarchal ideology which favors sons over daughters. Sex-detection of a fetus is mainly conducted for an abortion if the fetus is found to be female, it resulted the imbalance of sex ration in long run (Unnithan-Kumar, 2005).

5. Discussion and Analysis

There are various factors that are influencing the fertility decrease and son preferences. Among them, ecological factor is the one that influence the differential treatment of sons of daughters and extreme forms of gender discrimination leading to male-biased sex ratios. Male-biased sex ratios could contribute to a culture that valorizes masculine and feminine beliefs. Fraternal polyandry may be another option (Goldstein, 1971, Goldstein, 1976). In case of mate selection, men have to be successful and competitive in order to find a mate, while, the socioeconomic mobility of women seems to have a paradoxical effect on the treatment of daughters in new socio-natural environment. Since others in educated middle-class of Kathmandu are under tremendous pressure to ensure the financial and academic success of their sons, highly educated women in male-biased sex ratio in educated middle-class of Kathmandu tend to invest more in their sons than in their daughters. It seems that a combination of economic success and internalization of idealized notions of masculinity may improve the reproductive success of men among educated middle-class of Kathmandu. However, such idealized notions of masculinity could also be a source of stress affecting the psychological well being of men ((Das Gupta & Visaria, 1996, Mahalingam, 2007).

Fertility in Nepal is determined by migration which is the one of the key factor and migration determines whether fertility increase or decrease. Children get high value because they help in household task and very simple tasks that are in farm also frees to mother and other family members from their overloaded works in household or in farm. Although fertility has been decreasing in Nepal since 1981, it is still high compared to many other developing countries because Nepal still follows the at least two children in a family while in some other countries single child is mandatory. Generally, increasing migration trends must decrease the use of contraceptives but in case of Nepal both are increasing now a day. From the study it is concluded that, in a modern, heterogeneous, complex, advance society and culture that are practiced in traditional patterns of thinking are still prevalent and continue to define gender roles and practices especially among the middle-classes that found in Kathmandu.

Similarly, it is found that women and patriarchy are playing key role to establish the son performance in educated middle-class of Kathmandu. Institutions of society, such as family and marriage perpetuate the norms of gender inequality and reproduce them in daily interactions between men and women. The absence of a son leads family members and social networks to put pressure on women to have a son, affecting their reproductive choices. It also mentioned that during the field work respondent considered socially constructed gender inequality as normal and natural and legitimized it through their son preference practice. Even respondents did not challenge their subordination and dependence upon men and instead considered them socially and biologically weaker and inferior to men.

Likewise, economic factors; access on parental property, occupations, wages, etc play a vital role in the determination of sex and fertility associated with son preference. Except these demographic factors like migration, mortality rate and population compositions etc are also important factors for the sex selections and fertility decrease. The economic value of male, cultural attitudes, perception towards male not the matter of demographic composition to maintain the equilibrium in sex ration, but it is a matter of security for female in groom's home after give birth the son directly impacts on the fertility decrease.

Social structure of the society itself is a causal factor for the fertility decrease and son preferences. Development of education, modern nuclear family structure, newly amendment social rules and regulation, new dimension on social behaviors etc are also helps to promote decrease fertility and son preference in Kathmandu valley. Patriarchy and patriarchal social system always play key role in fertility decrease and son preferences. Social discrimination on mobility of son and daughter shows the role of social factors in the discriminations between son and daughter. That's why people always want son rather than daughter.

Cultural values and norms are also factors for the determination of fertility rate and son preferences in Kathmandu. Kinship system, lineage system, marriage systems, types of marriage, fear about polygyny, religious values, etc are more common factors that always insist the decrease or increase of fertility proportionally with son preferences.

Political factors are also other important factors for the determination of fertility rate. Population policies of the country, property rights, economic policies, etc are also directly or indirectly influencing the fertility decrease.

6. Conclusion

Fertility is not only determined by the demographic factors rather than it is highly determined by many other factors like economic, ecological, social, political, cultural religious and psychological etc. Ecological factors like climate, topography, availability of natural resources, technology adopted, or say socio-natural system are the main determining factor for it. So, it is a complex one which should be studied by using multidisciplinary approach. Similarly, economic factors; access on parental property, occupations, wages, etc play a vital role in the determination of sex and fertility associated with son preference. In this study, fertility was also determined by ecological factor rather than contraceptive

use. Fertility is directly related with migration. Despite all factors like increasing age at a marriage, increasing knowledge about contraceptives uses, increasing socio-economic level of people, increasing access towards contraceptives etc., and migration is the one of the main factors to determine the fertility in Nepal. Except these, cultural factors are also playing determining role on what should be the population dynamics especially fertility.

Cultural values and norms are also factors for the determination of fertility rate and son preferences in Kathmandu. Kinship system, lineage system, marriage systems, types of marriage, fear about polygyny, religious values, etc are more common factors that always insist the decrease or increase of fertility proportionally with son preferences. Social structure of the society itself is a causal factor for the fertility decrease and son preferences. Development of education, modern nuclear family structure, newly amendment social rules and regulation, new dimension on social behaviors etc are also helps to promote decrease fertility and son preference in Kathmandu valley. Likewise, political factors are also other important factors for the determination of fertility rate. Population policies of the country, property rights, economic policies, etc are also directly or indirectly influencing the fertility decrease.

Therefore, son preference, for the middle-class women in Kathmandu should not be understood superficially, it is a complex whole and it should be studied comprehensively and critically through the integrated approaches.

References

- Agnihotri, S. B. (1995). Missing females: a disaggregated analysis. *Economic and Political Weekly*, 30(33), 2074-2084.
- Arnold, F., Kishor, S., & Roy, T. K. (2002). Sex-selective abortions in India. *Population and Development Review*, 28(4), 759-785. <https://doi.org/10.1111/j.1728-4457.2002.00759.x>
- Banaji, M., & Greenwald, A. (2013). *Blind spot: Hidden Biases of Good People*. New York: Delacorte Press.
- Barot, S. A. (2012). *Problem-and-solution mismatch: son preference and sex-selective abortion bans*, *Guttmacher Policy Review*, 15(2), 18-22.
- Baumeister, R. F., & Vohs, K. D. (2004). Sexual economics: Sex as female resource for social exchange in heterosexual interactions. *Personality and Social Psychology Review*, 8, 339-363. https://doi.org/10.1207/s15327957pspr0804_2
- Bennett, L. (1983). *Dangerous Wives and Sacred Sisters: social and symbolic roles of High Caste women in Nepa*. New York, Columbia University press.
- Bernardi, L. (2003). Channels of social influence on reproduction. *Population Research and Policy Review*, 22, 527-555. <https://doi.org/10.1023/B:POPU.0000020892.15221.44>
- Bernardi, L. (2016). *The intergenerational transmission of fertility*. In M. C. Buchmann (Ed.), *Emerging trends in the social and behavioral sciences*, Wiley Online Library. <https://doi.org/10.1002/9781118900772.etrds0413>
- Blau, P., Duscan, M., & Dudley, O. (1967). *The American occupational structure*. New York: John Wiley & Sons.
- Breen, R. (2010). Educational expansion and social mobility in the 20th century. *Social Forces*, 89, 365-388. <https://doi.org/10.1353/sof.2010.0076>
- Bugos P. E., & McCarthy, L. M. (1984). *Ayoreo infanticide: A case study*, In: Hausfater G, Hrdy SB (Ed.). *Infanticide: Comparative and evolutionary perspectives*, New York: Aldine, 503-520.
- CBS. (2011). *Preliminary Results of Nepal population Census 2011*. Kathmandu, Nepal
- Clark, S. (2000). *Son preference and sex composition of children: evidence from India*. *Demography*, 37(1), 95-108. <https://doi.org/10.2307/2648099>
- Craib, I. (1997). *Classical Social Theory*, London; Oxford University Press.
- CREHPA/UNFPA (2007a). *A Rapid Assessment on Sex Ratio at Birth in Nepal with Social Reference to Sex Selective Abortion and Infanticides*, UNFPA, Kathmandu
- Dahal, B. P. (2020 b). Society and Sex Selection; Son Preference among the Educated Middle-Class in Kathmandu. *Advances in Anthropology*, 10, 147-168. <https://doi.org/10.4236/aa.2020.102009>
- Dalla Z. G., & Leone, T. (2001). A gender preference measure: the sex ratio at last birth. *Genus*, LVII(1), 33-57.
- Daly, M., & Wilson, M. (1988). *Evolutionary social psychology and family homicide*, *Science*, 242(4878), 519-524. <https://doi.org/10.1126/science.3175672>
- Darwin, C. (1871). *The descent of man and selection in relation to sex*, London: John Murray. <https://doi.org/10.5962/bhl.title.24784>
- Das Gupta, M. (1987). Selective discrimination against female children in rural Punjab, India. *Population and Development Review*, 13(1), 77-100. <https://doi.org/10.2307/1972121>

- Das Gupta, M., & Visaria, L. (1996). *Son preference and excess female mortality in India's demographic transition*. In: Sex preferences for children and gender discrimination in Asia. Seoul, Korea: Korea Institute for Health and Social Affairs, UNFPA, 6–102.
- DHS. (2011). *Nepal Demographic and Health Survey 2011*, Kathmandu, Nepal: MOHP/Nepal, New ERA/Nepal, and ICF International.
- George, S. (1997). Female infanticide in Tamil Nadu, India: From recognition back to denial? *Reproductive Health Matters*, 5(10), 124–132. [https://doi.org/10.1016/S0968-8080\(97\)90093-8](https://doi.org/10.1016/S0968-8080(97)90093-8)
- Gill, A. M. (1989). The role of discrimination in determining occupational structure. *Industrial and Labor Relations Review*, 42(4), 610–623. <https://doi.org/10.1177/001979398904200410>
- Glass, J., Bengtson, V. L., & Dunham, C. C. (1986). Attitude similarity in three-generation families: Socialization, status inheritance, or reciprocal influence? *American Sociological Review*, 51, 685–698. <https://doi.org/10.2307/2095493>
- Goldscheider, C., & Uhlenberg, P. R. (1969). Minority Group Status and Fertility. *American Journal of Sociology*, 74(4), 361–372. <https://doi.org/10.1086/224662>
- Goldstein, M. C. (1971). Stratification, polyandry, and family structure in central Tibet. *Southwestern Journal of Anthropology*, 27(1), 64–74. <https://doi.org/10.1086/soutjanth.27.1.3629185>
- Goldstein, M. C. (1976). Fraternal polyandry and fertility. *Human Ecology*, 4(3), 223–233. <https://doi.org/10.1007/BF01534287>
- Gupta, M. D., Jiang, Z., Li, B., Xie, Z., Woojin, C., & Bae, H. O. (2003). Why is son preference so persistent in East and South Asia? A cross-country study of China, India and the Republic of Korea. *Journal of Development Studies*, 40(2), 153–187. <https://doi.org/10.1080/00220380412331293807>
- Gursky, D., Hauser, B., & Robert M. (1984). Comparative social mobility revisited: models of convergence and divergence in 16 countries. *American Sociological Review*, 49(1), 19–38. <https://doi.org/10.2307/2095555>
- Karki, Y. B. (1992). Sex ratio in Nepal. *Economic Journal of Nepal*, 15(1), 30–37. <https://doi.org/10.3126/jcmsn.v15i1.20753>
- Lehrer, E. L., & Chiswick, C. U. (1993). Religion as a determinant of marital instability. *Demography*, 30, 385–404. <https://doi.org/10.2307/2061647>
- Leone T., Matthews Z., & Zuanna G. D. (2003). Impact and determinants of sex preference in Nepal. *International Family Planning Perspectives*, 29(2), 69–75. <https://doi.org/10.2307/3181060>
- Lois, D., & Arránz Becker, O. (2013). Is fertility contagious? Using panel data to disentangle mechanisms of social network influences on fertility decisions. *Advances in Life Course Research*, 21, 123–134. <https://doi.org/10.1016/j.alcr.2013.10.001>
- Mahalingam, R. (2007). *Beliefs about chastity, machismo and caste identity: A cultural psychology perspective*. *Sex Role*, 56(3-4), 239–249. <https://doi.org/10.1007/s11199-006-9168-y>
- Miller, B. (1997). *The Endangered Sex: Neglect of Female Children in Rural North India*, Delhi. Oxford University Press.
- Ministry of Health (Nepal). *New Era and ORC Macro (2006)*, Nepal Demographic and Health Survey, Family Health Division, Ministry of Health, New Era and ORC Macro, Calverton, Maryland US.
- Puri, M., Ingham, R., & Matthews, Z. (2007). Factors affecting abortion decisions among young couples in Nepal. *Journal of Adolescent Health*, 40(6), 535–542. <https://doi.org/10.1016/j.jadohealth.2007.01.010>
- Rose, D., & Harrison, E. (Ed.). (2009). *Social class in Europe: an introduction to the European socio-economic classification*, London: Routledge.
- Saggurti, N., Mahapatra, B., Swain, S. N., & Jain, A. K. (2011). Male migration and risky sexual behavior in rural India: is the place of origin critical for HIV prevention programs?. *BMC Public Health*, 11(6), 1–13. <https://doi.org/10.1186/1471-2458-11-S6-S6>
- Symons, D. (1979). *The evolution of human sexuality*. Oxford University Press, New York.
- Robert, T. (1972). Parental investment and sexual selection. *Sexual Selection & the Descent of Man*, Aldine de Gruyter, New York, 136–179.
- UNFPA (2007). *Gender equality and empowerment of women*, UNFPA, Kathmandu, Nepal

- Unnithan-Kumar, M. (2010). Female selective abortion—beyond ‘culture’: family making and gender inequality in a globalising India. *Culture, health & sexuality*, 12(2), 153-166. <https://doi.org/10.1080/13691050902825290>
- Unnithan-Kumar, M. (2005). *Introduction*, in M Unnithan-Kumar (ed.). *Reproductive Agency, Medicine and the State*, 1-24, New York, Oxford: Berghahn Books.
- Van Den Berghe, P. L. (1978). Sociobiology: A New Paradigm for the Behavioral Sciences?. *Social Science Quarterly*, 59(2), 326-332.
- Williams, G. (1979). The changing US labor force and occupational differentiation by sex. *Demography*, 16(1), 73-87. <https://doi.org/10.2307/2061080>
- Witherspoon, D. J., Wooding, S., Rogers, A. R., Marchani, E. E., Watkins, W. S., Batzer, M. A., & Jorde, L. B. (2007). Genetic similarities within and between human populations. *Genetics*, 176(1), 351-359. <https://doi.org/10.1534/genetics.106.067355>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Digital Storytelling in Education: A Systematic Review of the Literature

Carmen Lucena Rodríguez¹, Marta García-Jiménez¹, Belén Massó-Guijarro¹, Cristina Cruz-González¹

¹ Didactics and School Organization, University of Granada, Andalucía, Spain

Correspondence: Faculty of Education in Granada, Didactics and School Organization, University of Granada, Granada, 18071, Spain.

Received: February 1, 2021 Accepted: March 11, 2021 Online Published: March 31, 2021

doi:10.5539/res.v13n2p13

URL: <https://doi.org/10.5539/res.v13n2p13>

Abstract

Digital Storytelling is one of the most recurrent art media used today to give a voice to invisible, silenced or marginalised groups. In this way, this methodology is framed within the cultural and educational sphere, and through a narrative approach it is capable of integrating multi-format resources that project information and stories of great richness from a hypermedia language. In fact, digital storytelling is occupying a priority role in identity studies in education. In this paper, we present a systematic review of the literature on digital storytelling in education. The methodological process was based on the PRISMA protocol. The results offer a qualitative and bibliographical synthesis of educational studies focused on digital storytelling. Firstly, there is a growing interest in the development of lines of research that focus on digital storytelling as a privileged vehicle for exploring digital stories. This is based on the premise of giving voice to the voiceless, a priority aspect in cultural, educational and social research. For this reason, throughout the systematic review we explored different research that decided to study these discourses from a democratic and participatory approach. Finally, we encourage future research to explore this new resource further.

Keywords: systematic review, digital storytelling, education, communication

1. Introduction

Digital storytelling has emerged as a powerful tool in recent years for research in social and educational settings (Jager et al. 2017; Robin 2008). As some authors (Cunsolo, Harper and Edge 2012) argue, digital storytelling is a processual method of illustrating personal narratives and stories using different digital media. As the same authors state, they are like "a mini-film told in the first person" (p. 132). In this sense, Digital Storytelling (DST, hereinafter) allows us, through the use of technology, to enter into the depths of the person, in the social and qualitative sense so necessary and sometimes forgotten. The DSTs are inserted in the biographical-narrative framework (Bolívar and Domingo 2019), but with a technological sense typical of the 21st century. Despite the current emphasis on the use of this type of multimedia research, digital stories have been used for decades. There are records of their use in the United States as early as the 1970s and 1980s, betting on the power of the personal voice to bring about social change (Center for Digital Storytelling 2005).

Storycenter, which began in 1994 under the leadership of Dana Atchley and Joe Lambert, focused on enhancing personal narrative for social and artistic purposes. DSTs help people find their own life stories and tell them in a personal and digital way expressing their feelings through images, music, stories, drawings, words or silences. It allows to give voice to the most vulnerable, those who have historically been silenced because of gender, ethnicity, race and culture, and thus achieve change towards social justice at individual, community and political levels (Cunsolowillox 2012).

Digital storytelling is a multipurpose methodology, its use in the field of qualitative research makes it an accurate methodology, combining digital and traditional media (Saritepeci 2020). At the same time, they become an effective tool to promote creativity and narrative skills of the person who makes them, while at the same time they become artistic representations with personal and group identity (Lambert and Hessler 2018). As stated by Niemi et al (2013), DST can create virtual learning environments by encouraging the use of web applications, mobile technology, social networks when used for learning in both formal and informal educational contexts.

The stories analyzed through DHT have been collected, as research shows, in multiple ways. On the one hand, through

¹ Corresponding Author: Marta García-Jiménez, Facultad de Ciencias de la Educación de Granada, Didáctica y Organización Escolar, University of Granada, Granada, 18071, Spain. Email: martagj@ugr.es

personal stories created by the participants themselves (Iseke 2011) in workshops, meetings, internet platforms, projects, focus groups or calls for proposals. On the other hand, through stories gathered from social networks (De Fina and Gore 2017). In the same way, the DSTs have been used to achieve different educational or social purposes, all of them biographical and focusing on the identity aspect of the person.

Digital storytelling is an emerging field that must be exploited in the social and educational field (Du Preez, Barnes and Thurner 2018). This fact encouraged us to carry out a systematic review of the international literature on digital storytelling in the educational field. Our research purpose was based on the identification of the most relevant findings that respond to the following research questions:

First research question: What are the bibliometric characteristics of digital storytelling studies in education?

Second research question: What are the main topics of interest, the purposes of the research and the results of the studies analysed?

Third research question: What implications can the results have for professional practice?

Therefore, this article offers an international parenthesis of 26 articles indexed in the WOS, ERIC and Scopus databases in the last decade, which deal with digital storytelling in education. Below we describe the method used in detail. Afterwards, the research findings are presented, highlighting their bibliometric characteristics, the purposes of the articles analyzed and the main results. Finally, we discuss the results with research in the area and show the implications of the findings for professional practice.

2. Method

The present study is a systematic review of the literature (Gough 2013), whose purpose is to build a qualitative synthesis of the main points about the use of the Digital Storytelling method in the educational field. To achieve the proposed objective and answer the research questions, a thematic exploration of the literature (Hallinger and Bryant 2013) was carried out on the one hand, identifying objectives, contexts and research designs. And on the other hand, emerging issues within the field of study were explored.

2.1 Inclusion and Exclusion Criteria

For the appropriate selection of the literature, including a given time period, type of source and thematic appropriateness, a series of criteria were established for inclusion in our research, which are shown below. All documents that did not meet these inclusive requirements were discarded for analysis.

- All literature was selected from the result of the search equation (see table 1) preset in the Web of Science, ERIC and Scopus databases
- Only documents published in article format were selected, thus excluding all other documents (books, book chapters, conference proceedings, contributions...)
- All the articles belonging to the temporary period 2011-2020
- Studies belonging to the research areas of social sciences and educational research were included.
- Studies on digital stories in relation to the educational field.

Definitively, we included those articles whose topics responded to our objective and research questions.

2.2 Search Strategy and Data Analysis

In order to establish a comprehensive search of the literature for SLR in the selected databases, keywords were selected from the ERIC thesaurus. After this selection, a comprehensive search of documents was carried out through a search equation in each of the databases.

Table 1. Keywords and search equation

Databases	WOS	ERIC	Scopus
Search equation	TS=((Storytelling”) (education)	Digital (‘Digital AND Storytelling”) (education)	TITLE-ABS-KEY(‘Di gital AND Storytelling’) AND TITLE-ABSKEY(edu cation)

Source: Own elaboration

Once the search equation was established, the results were examined through the database filters. After this first filter, duplicate articles in the three databases were eliminated and a thematic evaluation was carried out through a peer review among the researchers (Sarhou 2016). This thematic analysis process was supported by qualitative analysis software (Nvivo). For this process of data selection and analysis, we followed a consensus protocol to improve the quality of systematic review research as outlined in the PRISMA Statement (Moher, Liberati, Tetzlaff and Altman 2009). The following is a flow chart showing the different phases of thematic research based on the PRISMA Protocol.

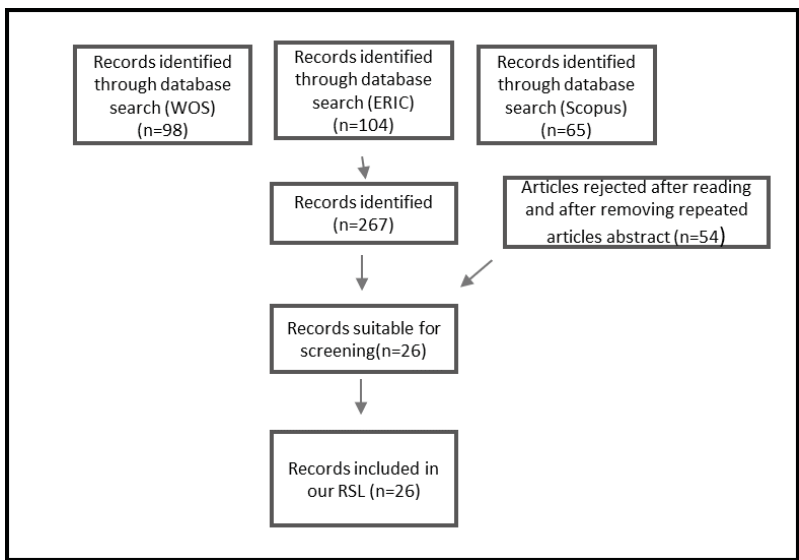


Figure 1. Flowchart based on PRISMA protocol

Source: Own elaboration

3. Results

The main findings in this systematic review are presented below. The following table summarizes the territorial distribution, methodological design, sample/participants in the research and main findings of the studies selected in our SRL.

Table 2. Main characteristics and findings in our studies included

Author and Territory year	Study Purpose	Methods	Participants	Main findings
Aguilera and López (2020) UUEE	To research the educational effects of digital storytelling on a group of first generation university students	Practice as research. The authors draw on their experiences as instructors in a reader development course.	Educationally and economically disadvantaged young people whose parents do not have a university degree.	The experience led to the production of collaborative video based on digital storytelling where young people could critically question and value their own experiences. The digital storytelling methodology allowed the evaluation to be approached from a position that was more investigative than evaluative and to recontextualize a course that had historically emphasized a corrective approach to reading.
Alrutz (2013) UUEE	To study the ways in which	Practice as research.	Young people from a neighbourhood	Digital storytelling as an applied theatrical practice

		the hybrid forms between applied theatre and digital storytelling help to revise the ways in which we represent and involve young people in society.	author is based on his own experience as a mediator and researcher of an applied theatre project.	with a majority African-American population, high rates of child poverty, school drop-out and crime.	stands as a "space of possibility" to: offer young people opportunities to reflect on and reconstruct complex notions of identity, culture and community; challenge the dichotomy between youth as consumers and youth as producers; build their own stories about themselves and their communities, to critique the systems of power that affect them (institutionalized racism, generational poverty and abusive policing)
<i>Arraiz et al (2020)</i>	Canada	To discuss the use of digital story methodology as an inquiry into the queering of teacher education.	Filmmaking, group discussion and analysis	Four queer women (two professors and two teacher candidates)	Through the experience of DST the participants articulated a swimming pool that brought together the individual and collective voice. Through it, they explored their queer identities within the educational context and in the specific environment of their classes. A key finding was to verify "outness" as a common theme of the group, expressed through the sub-themes of vulnerability, compartmentalization, visibility and representation.
<i>De Fina and Toscano (2017)</i>	UUEE	To analyze the viral spread of a story published by an individual user on Twitter narrating the breakup of a couple on an airplane	Thematic analysis of the information tracked on the web	Author users of the Twitter story and users who commented on it	The study concluded that the original story was embedded or "nested" in a meta-history in which the original narrator became an object of evaluation and analysis. The act of telling is evaluated in light of how accountable, credible and legitimate it was. The original story undergoes a series of transformations in which various linguistic and semiotic resources are brought into play.
<i>Fokides (2016)</i>	Greece	To examine the potential of the	Case study developed in	Foreign student with adaptation	Through the DST, the student was able to

		DST to help immigrant students overcome their adjustment difficulties	Rhodes (Greece), educational ethnography	difficulties and classmates	and	externalize her thoughts and feelings, which improved her integration into the school environment. Attitudes and perceptions about other students also improved. The research concludes that more research is needed to develop these methodologies and to encourage their use in educational contexts.
<i>Gachago et al (2016)</i>	South Africa	To study how through DST applied by a group of teachers can maintain, produce or interrupt the differences that still persist since apartheid in South Africa	Ethnography, in-depth interviews	Students of the Faculty of Education	of the	DST offers numerous possibilities for repositioning and transforming social issues, but it also risks perpetuating dominant narratives that maintain and reproduce historical inequalities. In the example studied, the DST facilitated an experience where the cognitive and the affective were brought together, and thus the participants were able to share their stories, which in most cases spoke of family problems of abuse or absent parents.
<i>Gaeta et al (2015)</i>	Italy	To present a new methodology to enrich the creation of stories related to museum objects.	Experimental study, case study.	Not specified		The work proposes and validates a methodological approach to enrich the design of digital storytelling in museums. It proposes to implement a storytelling authoring system that recommends content for a specific visitor profile and generates experiences from digital artifacts.
<i>Gearty (2015)</i>	United Kingdom	To explore the combination of storytelling and reflective action research as a means of achieving change and learning within and between communities and	Participatory action research in a two-year pilot project run by the UK government with five community groups in rural England	A group of teenagers, a group of young mothers and a group over 65.		The document describes the research project and shares ideas on the possibilities for community transformation that action-based learning promotes. It discusses the methodological and practical challenges and problems that emerged in

		organizations.			the pilot project, including authenticity, ownership and ethical issues of voice and ownership. It also provides recommendations for future lines of research and action and the overall potential of "narrative action learning" to address the perverse systemic issues facing real people in communities and societies.
<i>Hafidi and Mahmane (2018)</i>	Algeria	To study the impact of DST to extend the use of the inverted classroom	Exploratory case studies developed at the University of Algeria	Student teachers of English	The article recommends some instructional design frameworks for planning a general inverted classroom approach in the university environment. It does this by conducting exploratory studies at the University of Algeria, and explores the English education students' experiences of digital storytelling through a reverse classroom approach.
<i>Matias and Grosland (2016)</i>	UUEE	Examining the potential of the DST to critically interrogate and make visible the hegemonic whiteness in teacher education	Study developed in an urban teacher education program	Student teachers	The DST promotes anti-racist approaches in education by generating experiences of critical self-revelation that confront student teachers with their racist prejudices.
<i>Herreros (2012)</i>	Spain	To present and study the personal digital story as a tool for students' reflection on their personal identity (Self).	Documentary analysis, bibliographic review	Not specified	The reflective process on personal identity through the DST method is articulated in two moments. The first is the construction of the story by the student and the second is the reception of the story by the class. The process of creating the story involves the structuring of personal identity from a narrative and non-essentialist perspective, which allows the student to restructure his or her mental schemes and to live emotions in a

					vicarious way.
<i>Iseke (2011)</i>	Canada	To study the DST as a tool to make the stories of indigenous communities and elders visible	Ethnography, DST and indigenous epistemologies	Indigenous Elderly Woman	DST is about understanding memories, making connections with families and indigenous communities that can lead to important lessons about respect and responsibility. Stories are also powerful acts in maintaining the memory of a people, helping to reconfigure and redefine the past, present and future.
<i>Johnson and Kendrick (2017)</i>	Canada	To study the benefits and possibilities of DST for the literacy of refugee students	Ethnographic and qualitative case study	Refugee and Immigrant Teenage English Students	DST allows for the development of multiple modes of communication, which is very important for immigrant and refugee students, who often have minimal reading and writing skills. The article concludes with recommendations for practical instruction of DST in educational contexts.
<i>González Mesa (2020)</i>	Mosquera (Colombia)	To promote the learning of English as a foreign language through the use of digital tools	Creation of digital stories as a pedagogical tool to develop their literary competence in writing, through group work and interviews.	Eleventh grade students.	The creation of digital stories improved the students' multi-modal reading and writing skills, and the recording of their voices fostered oral production and confidence. A key element highlighted was group decision-making.
<i>Niemi and Multisilta (2016)</i>	Finland, Greece and California.	To create knowledge through the use of digital storytelling using the platform (MoVIE)	The Global Sharing Pedagogy (GSP) model was developed within the framework of socio-cultural theories	Students	The conceptual mediators of the GSP model revealed an increase in student motivation, enthusiasm and learning outcomes.
<i>Otto (2018)</i>	Virtual	To analyze students' experiences after the implementation of a joint learning course in virtual mode.	Constructive alignment was used to implement both the virtual mode and the digital narrative.	Distance learning students	The evaluation of the course showed that students value virtual mobility and face-to-face contact positively, as well as emphasizing that teaching methods and designs should be adapted to stimulate student collaboration and achieve

					the expected results.
<i>Pavlou (2020)</i>	Nicosla (Chipre)	To integrate the technology of art in Primary Education	An animation project (stop motion) was carried out for the communication of relevant messages from the students	Students and teachers of the sixth grade of an elementary school	The findings presented show that students developed certain skills (critical thinking, communication, collaboration and creativity). It also shows that teachers should see art as a transformative pedagogy in the proposed curriculum
<i>Rambe and Mlambo (2014)</i>	Sudáfrica.	To use digital storytelling to generate and store knowledge through the audio knowledge repository (KAR)	The potential of summer time to encourage participation in higher education and to externalize student knowledge was explored.	Postgraduate students	The results indicate that daylight saving time is the ideal time to generate information, commitment to collaboration and to encourage follow-up of graduate students participating in cognitively demanding research activities
<i>Robin (2016)</i>	Virtual	To use digital storytelling to support teaching and learning activities	Review of the literature on digital storytelling highlighting the creation of the Educational Uses of Digital Storytelling website	-	It presents recommendations for educators who intend to teach through digital storytelling as an educational reinforcement.
<i>Rose (2019)</i>	Canada	To explore the nature of participation as an individual experience based on integrated community media projects	A narrative analysis was conducted that led to a digital story	Case study. Mirabel (Female Newcomer)	The Mirabel Resistance provides a reflection on the method of group participation based on social justice.
<i>Sevilla-Pavón and Nicolaou (2017)</i>	Chipre and Valencia.	To create a digital storytelling project for the development of language and certain skills (digital, creativity, critical thinking...)	The Project Based Learning (PBL) methodology was used, incorporating active learning as well as multi-modal resources and capabilities.	University students	It highlights the need for transformation in language teaching to promote learners' ability to generate content and innovation, as well as to foster motivation and commitment to their own learning process
<i>Stewart and Ivala (2017)</i>	South Africa	To investigate what composition practices are used by digital	Case study methodology and ethnographic research were	University students	The findings connected digital storytelling with the creation of a classroom space for students to redefine

		storytellers in a given context	combined. Participatory observation and interviews were used		themselves, fostering students' reflective and critical engagement with their writing practices
<i>Svoen, Dobson and Bjørge (2019)</i>	Four EU countries	Developing digital learning resources in an Erasmus + project (Reducing the educational gap for migrants and refugees, ReGap)	With a qualitative and literary approach, the study was carried out in three phases (planning, production and evaluation). In addition to eighteen focus groups.	Migrants and refugees; educators, social and trainers	The conclusion derived from the study is that a detailed index is required for the development of future projects detailing social, cultural and social inclusion and welfare measures.
<i>Villalustre and Del Moral (2014)</i>	Spain	To create digital storytelling for the acquisition of skills.	A didactic story was designed using the stop-motion animation technique for a primary school classroom.	University students of Primary Education	The skills obtained were classified into four dimensions, in which creative, digital and narrative skills were highly significant
<i>Vu, Warschauer and Yim (2019)</i>	California	To develop a longitudinal research plan to link Digital Storytelling (DST) with its implementation in a non-profit association through annual film festivals.	Qualitative content analysis was used for interviews and observations; and descriptive analysis for surveys and self-assessment data.	Students from low-income families	The data obtained from this study show the importance of DST, providing guidelines on how to support a DST program. And adapt a schedule that allows teachers to implement DST while preparing for professional development workshops
<i>Wales (2012)</i>	Singapur	To examine the performances of three young people in a longitudinal digital storytelling project.	Several digital storytelling workshops were developed involving creativity and expression through the creation of digital characters.	Three "at risk" youths.	The findings showed the interrelationship between a set of skills and the ability of young people to communicate a story

4. Discussion

The aim of this study was to conduct a systematic review of the literature on Digital Storytelling-based research in the field of education. Digital storytelling has become a privileged vehicle for the study of the voices and narratives of participants under study (Lambert and Hessler 2018). The research that encompasses its objective with this type of resource is often aimed at investigating life experiences, critical incidents, or significant participant narratives (Hendry 2007). On other occasions, digital storytelling is used to improve educational skills such as language (Assaf and

O'Donnell 2019) or digital literacy (Aguilera and López 2020).

In relation to the first research question proposed, which refers to the bibliometric characteristics of the studies included, our findings show that this type of research is developed in different territories of the world, since as shown in the table of results, there is a wide variety of countries that make up this systematic review. At the same time, there is also a plurality of research methodologies in these studies. However, it is interesting to highlight the predominance of studies of a qualitative nature. This is in line with other research such as Denzin and Lincoln (2005) who indicate that in Digital Storytelling, the methodological nature of the studies is of a social and human nature, more qualitative. Another of the aspects to highlight would be that of the participants of this type of studies. Our review of the literature also analyzed this variable. On most occasions, the participants of the studies were groups that were not socially visualised, or were particularly vulnerable. In this sense, these findings are consistent with other studies such as Hendry (2007) or Ladson-Billings and Tate (2006) that indicate that Digital StoryTelling is an ideal resource for giving voice to the voiceless.

In order to answer the second research question, it should be noted that, as can be seen in the findings section, the purposes and main themes are varied, although with a common objective. This objective is based on the analysis of digital storytelling through the methodology of digital storytelling. The population groups are more varied, with university students, teenagers, queer collective, foreign students and even teachers. This coincides with research of this type, which always has as a priority objective the analysis of the discourse of groups or collectives of special interest.

The predominant presence of research that focuses on our object of study makes us reflect on the importance of this type of resource in an era with growing access to technology, as Robin (2008) points out. This is why experts in narrative research justify this incessant increase in studies with the emergence of a new future in qualitative research (Denzin and Lincoln 2008). Digital StoryTelling is therefore an opportunity to enhance narrative skills from a more up-to-date and digitized approach (Svoen, Dobson and Bjorge 2019).

However, as it is a new and short method, there are some limitations such as the difficulty of access to technological resources or the inadequate competition for the creation and/or edition of digital material. In addition, this type of methodology sometimes implies excessive public and intimate exposure, since these digital storytelling can be reproduced in scenarios within the reach of a large audience (Fine et al., 2003).

As we commented before, digital storytelling can be used to give voice to silenced groups, however, can it be that by making their situations/circumstances visible, social/cultural stereotypes about them are further perpetuated?

Another aspect to highlight is the great importance of ethical issues in the articles included. Vulnerable young people, indigenous populations, immigrants or refugees are some of the main groups involved. As highlighted by authors such as Sitter, Beausoleil and McGowan (2020), the information dealt with in this type of research is of a delicate nature. For this reason, its treatment and analysis must be based on ethical and moral principles and values. Wexler, Eglinton and Gubrium (2014) emphasize that it is important to be extremely careful in the process of preparing digital storytelling and propose a procedure for verifying informants. Also, that this may be impossible without real involvement and commitment on the part of both the researcher and the researchee. Some of the suggestions that we propose to take care of ethics in this type of research are to guarantee the respect of the participants through a report with all the detailed methodological process and requesting their consent to participate in our study. At the same time, provide participants with the possibility of their anonymity, using an external narrator and/or metaphorical images that hide their visual appearance.

In line with objective three, future research and educational implications could address their studies through Digital Storytelling. We consider that despite the great body of studies consolidated at present, there are still various horizons that could be investigated by encouraging the active and visual participation of those groups of social and scientific interest. This type of methodology has become one of the most adapted ways to contextualize social research (de Jager et al., 2017). The truth is that, as Martin et al. (2019) argue, despite its growth, there is still a need for studies that serve to empower traditionally discriminated groups, such as women. We also consider very pertinent studies that reflect in a didactic way the process of construction of this type of research, and didactic materials that help researchers and scholars to make use of digital resources for the creation of this type of narratives.

5. Concluding Remarks

Using Digital Storytelling is a novel and creative experience to capture stories of interest to the scientific community. Through digital storytelling it is possible to make visible the invisible, real the traditionally hidden, and necessary the unfortunately undervalued. In a digitized era, new technologies are gaining strength. Researching the human side has lost value in a society based on parameters and standards. We believe that Digital Storytelling demonstrates how research can be done on social and cultural aspects from a more digital approach, but without losing the true essence,

personal and group identity.

Educational systems increasingly have digital and technological resources in their school curricula. In addition to being a research method, Digital Storytelling has another main purpose, and that is the promotion of language skills and abilities. Therefore, this type of resource can be a facilitator to connect students with the value of narrative and audiovisual media.

Digital storytelling can also be conceived as artistic elements and samples of collective identity. These could be considered as very powerful visual and corporal expressions although it is important to emphasize that sometimes they can take other forms of participation like comments and post in social networks. We encourage future researchers to embark on this type of narrative and innovate in other forms of expression to relate life experiences within this framework.

-Implications for professional practice and future lines of research

This study can be useful for developing a series of didactic and pedagogical guidelines for students and professionals in the field of education. In this way, gathering a synthesis of the studies that have used digital storytelling in their research can be very useful for extracting comprehensive keys and future guidelines in the elaboration of similar scientific production.

On the other hand, digital storytelling aims to analyse digital narrative from different approaches but always from a virtualised scenario. Encouraging future researchers to reconvert their field of study towards new digital horizons could be an interesting option. At the same time, in an increasingly digitalised world, this methodology could be considered as a potential in moments of confinement such as the last one that occurred during the COVID-19 crisis.

As implications for future professional educational practice, we believe that teachers should consider this type of resource in their classrooms and conceive of it as a way to empower the voice of their students, making them protagonists of their learning history. One of the principles to make learning meaningful is to capture the attention and motivation of the students. Digital Storytelling could be a way to engage students in their own learning process. Undoubtedly, placing them in the "camera lens" could be a good option to involve them in educational activities that take place in the classroom. Finally, we conclude by highlighting the essence of critical feeling that this type of methodology develops, in a world that increasingly requires reflective and empathetic individuals.

Acknowledgments

This work has been supported by the University Teacher Training Programme, promoted by the Spanish Ministry of Education, Culture and Sport [funding code; FPU18/02842; FPU17/01873; FPU16/04621; FPU16/05706].

References

- Aguilera, E., & Lopez, G. (2020). Centering First-Generation College Students' Lived Experiences Through Critical Digital Storytelling. *Journal of Adolescent & Adult Literacy*, 63(5), 583-587. <https://doi.org/10.1002/jaal.1037>
- Alrutz, M. (2013). Sites of Possibility: Applied Theatre and Digital Storytelling with Youth, *Research in Drama Education. The Journal of Applied Theatre and Performance*, 18(1), 44-57. <https://doi.org/10.1080/13569783.2012.756169>
- Arraiz, A., Da Silva, L., Pendleton, K., & Smith, A. (2020). The sex of it all: outness and queer women's digital storytelling in teacher education. *Teaching Education*, 31(1), 98-111. <https://doi.org/10.1080/10476210.2019.1708314>
- Assaf, L., & O'Donnell, K. (2019). Dream Camp: drawing on community cultural wealth capital to make sense of career dreams. *Language, Culture and Curriculum*, 33(1), 84-99. <https://doi.org/10.1080/07908318.2019.1569020>
- Bolívar, A., & Domingo, J. (2019). *La investigación (auto) biográfica en educación* [Biographical research in education]. Editorial Octaedro [Editorial Octaedro]: S.L.
- Cunsolo W., Ashlee, S., Harper, L., & Edge, V. (2012). Storytelling in a Digital age: digital storytelling as an emerging narrative method for preserving and promoting indigenous oral wisdom. *Qualitative Research*, 13(2), 127-147. <https://doi.org/10.1177/1468794112446105>
- De Fina, A., & Toscano, G. (2017). Online retellings and the viral transformation of a twitter breakup story. *Narrative Inquiry*, 27(2), 235-260. <https://doi.org/10.1075/ni.27.2.03def>
- Denzin, N., & Lincoln, S. (2011). The discipline a practice of qualitative research. In Norman Denzin & Yvonna Sessions Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 1-19). Thousand Oaks: SAGE.

- Du Preez, V., Barnes, V., & Thurner, T. W. (2019). Bringing marginalized communities into the innovation journey: Digital storytelling as a means to express the better future for San people. *African Journal of Science, Technology, Innovation and Development*, 11(1), 29-36. <https://doi.org/10.1080/20421338.2018.1533678>
- Fine, M., Weis, L., Weseen, S., & Wong, L. (2003). For whom? Qualitative research, representations, and social responsibilities. In Norma K. Denzin e Yvonna S. Lincoln *The Landscape of Qualitative Research*. London: Thousand Oaks: 167–207
- Fokides, E. (2016). Using autobiographical digital storytelling for the integration of a Foreign student in the school environment. A case study. *Journal of information technology education- innovations in practice*, 15, 99-115. <https://doi.org/10.28945/3526>
- Gachago, D., Cronje, F. Ivala, E., Condy, J., & Chigona. A. (2014). Using Digital Counterstories as Multimodal Pedagogy among South African Pre-Service Student Educators to Produce Stories of Resistance. *The Electronic Journal of E-Learning*, 12(1), 29-42.
- Gaeta, A., Gaeta, M., Guarino, G., & Miranda, S. (2015). A smart methodology to improve the story- building process. *Journal of e-learning and Knowledge society*, 11(1), 97-124.
- Gearty, M. (2015). Beyond you and me: stories for collective action and learning? Perspectives from an action research project. *Action Learning: Research and Practice*, 12(2), 146-165. <https://doi.org/10.1080/14767333.2015.1005572>
- González Mesa, P. A. (2020). Digital Storytelling: Boosting Literacy Practices in Students at A1- Level. *How Journal*, 27(1), 83-104. <https://doi.org/10.19183/how.27.1.505>
- Gough, D. (2013). Researching differently: Generating a gender agenda for research in environmental education. In Robert Stevenson, Michael Brody, Justin Dillon & Arjen Wals (Eds.). *International handbook of research on environmental education* (pp. 375-383). New York: Routledge
- Hafidi, M., & Mahnane, L. (2018). Using digital storytelling to extend the flipped classroom approach. *International Journal of Continuing Engineering Education and Life Long Learning*, 28(2), 218-234. <https://doi.org/10.1504/IJCEELL.2018.096022>
- Hallinger, P., & Bryant, D. (2013). Mapping the terrain of educational leadership and management in East Asia. *Journal of educational administration*, 51(5), 618-636. <https://doi.org/10.1108/JEA-05-2012-0066>
- Hendry, P. M. (2007). The future of narrative. *Qualitative inquiry*, 13(4), 487-498. <https://doi.org/10.1177/1077800406297673>
- Herreros, M. (2012). The educative use of personal digital storytelling as tool for thinking on my-self. *Digital education review*, 22, 68-79.
- Iseke, J. M. (2011). Indigenous Digital Storytelling in video: Witnessing with alma Desjarlais. *Equity & Excellence in education*, 44(3), 311-329. <https://doi.org/10.1080/10665684.2011.591685>
- Johnson, L., & Kendrick, M. (2017). “Impossible is nothing”: Expressing difficult knowledge through digital storytelling. *Journal of adolescent & adult literacy*, 60(6), 667-675. <https://doi.org/10.1002/jaal.624>
- Ladson-Billings, G., & Tate, W. (2006). *Education research in the public interest: Social justice, action, and policy*. Teachers College Press.
- Lambert, J., & Hessler, H. B. (2018). *Digital storytelling: Capturing lives, creating community* (Fifth, revis and updated.). New York: Routledge, Taylor & Francis Group. <https://doi.org/10.4324/9781351266369>
- Martin, S. L., McLean, J., Brooks, C., & Wood, K. (2019). “I’ve been silenced for so long”: Relational engagement and Empowerment in a Digital Storytelling project with young women exposed to dating violence”. *International journal of qualitative methods*, 18, 1-12. <https://doi.org/10.1177/1609406919825932>
- Matias, C. E., & Grosland, T. J. (2016). Digital storytelling as racial justice: digital hopes for deconstructing whiteness in teacher education. *Journal of teacher education*, 67(2), 152-164. <https://doi.org/10.1177/0022487115624493>
- Moher, D., Liberati, A., Tetzlaff, J., & Altman, D. G. (2009). *Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement*. *PLoS Medicine*, 6(7).
- Niemi, H., & Multisilta, J. (2016). Digital storytelling promoting twenty-first century skills and student engagement. *Technology pedagogy and education*, 25(4), 451-468. <https://doi.org/10.1080/1475939X.2015.1074610>
- Niemi, H., Denicol, G. S., Holopainen, H., & Huovinen, P. (2013). *Event-by-event distributions of azimuthal asymmetries in ultrarelativistic heavy-ion collisions*. *Physical Review C*, 87(5).

- Otto, D. (2018). Using virtual mobility and digital storytelling in blended learning: analysing students' experiences. *Turkish online journal of distance education*, 19(4), 90-103. <https://doi.org/10.17718/tojde.471657>
- Pavlou, V. (2020). Art technology integration: Digital storytelling as a transformative pedagogy in Primary Education. *The international journal of art & design education*, 39(1), 195-210. <https://doi.org/10.1111/jade.12254>
- Rambe, P., & Mlambo, S. (2014). Using digital storytelling to externalise personal knowledge of research processes: The case of a knowledge audio repository. *Internet and higher education*, 22, 11-23. <https://doi.org/10.1016/j.iheduc.2014.04.002>
- Robin, B. (2008). Digital storytelling: a powerful technology tool for the 21 st century classroom. *Theory into practice*, 47(3), 220-228. <https://doi.org/10.1080/00405840802153916>
- Robin, B. R. (2016). The power of digital storytelling to support teaching and learning. *Digital education review*, 30, 17-29.
- Rose, C. B. (2019). Resistance as method: unhappiness, group feeling, and the limits of participation in a digital storytelling workshop. *International journal of qualitative studies in education*, 32(7), 857-871.
- Saritepeci, M. (2020). Students' and Parents' Opinions on the Use of Digital Storytelling in Science Education. *Technology, Knowledge and Learning*. <https://doi.org/10.1007/s10758-020-09440-y>
- Sarthou, N. F. (2016). Key points of discussion in scientific research evaluation: Peer review, bibliometrics and relevance. *Revista de Estudios Sociales*, 58, 76-86.
- Sevilla-Pavón, A., & Nicolaou, A. (2017). Online intercultural exchanges through digital storytelling. *International journal of computer-assisted language learning and teaching*, 7(4), 15. <https://doi.org/10.4018/IJCALLT.2017100104>
- Sitter, K. C., Beausoleil, N., & McGowan, E. (2020). Digital Storytelling and Validity Criteria. *International Journal of Qualitative Methods*, 19, 1-9. <https://doi.org/10.1177/1609406920910656>
- Stewart, K. D., & Ivala, E. (2017). Silence, voice, and "other languages": Digital storytelling as a site for resistance and restoration in a South African higher education classroom. *British journal of educational technology*, 48(5), 1164-1175. <https://doi.org/10.1111/bjet.12540>
- Svoen, B., Dobson, S., & Bjørge, L. T. (2019). Let's talk and share! Refugees and migrants building social inclusion and wellbeing through digital stories and online learning resources. *International Journal of Inclusive Education*, 1-14. <https://doi.org/10.1080/13603116.2019.1678802>
- Villalustre, L., & Pérez, M. E. (2013). " Digital storytelling": una nueva estrategia para narrar historias y adquirir competencias por parte de los futuros maestros. *Revista Complutense de Educación*, 25(1), 115-132. https://doi.org/10.5209/rev_RCED.2014.v25.n1.41237
- Vu, V., Warschauer, M., & Yim, S. (2019). Digital storytelling: a district initiative for academic literacy improvement. *Journal of Adolescent & Adult Literacy*, 63(3), 257-267. <https://doi.org/10.1002/jaal.962>
- Wales, P. (2012). Telling tales in and out of school: youth performativities with digital storytelling. *Research in Drama Education: The Journal of Applied Theatre and Performance*, 17(4), 535-552. <https://doi.org/10.1080/13569783.2012.727625>
- Wexler, L., Eglinton, K., & Gubrium, A. (2012). Using Digital Stories to Understand the Lives of Alaska Native Young People. *Youth & Society*, 46(4), 478-504. <https://doi.org/10.1177/0044118X12441613>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Good Governance and Economic Growth in South European Countries

Dimitra Mitsi

Correspondence: Department of Economics, University of Piraeus, 80, M. Karaoli & A. Dimitriou St., 18534 Piraeus, Greece.

Received: February 3, 2021 Accepted: March 18, 2021 Online Published: April 6, 2021

doi:10.5539/res.v13n2p26

URL: <https://doi.org/10.5539/res.v13n2p26>

Abstract

Economic growth is a prerequisite for economic development. However, there is no “recipe” for countries to create an environment of prosperity and to achieve high rates of economic growth. Many researchers have examined the drivers of economic growth and find that economic growth depends on many economic and institutional variables. In this context, the main objective of this paper is to examine the role of good governance on economic growth in piicgs countries (Portugal, Ireland, Italy, Cyprus, Greece, and Spain). The database was collected from many sources and the empirical analysis is based on a 2SLS (two-stage least squares) technique. In our empirical results, we find that trade openness, gross capital formation, inflation, political stability, rule of law, debt rule, budget balanced rule, and the combination between debt rule/budget balanced rule with political stability and combination between debt rule/budget balanced rule with rule of law are significant drivers of economic growth in piicgs countries while foreign direct investments, government effectiveness, voice and accountability, regulatory quality, fiscal rule index and expenditure rule are insignificant. However, the results may be different if we use other sample groups and/or different periods.

Keywords: economic growth, fiscal rules, governance indicators

1. Introduction

Economic growth is a broad notion and there is no economic development without economic growth. In general, it's beneficial for countries to achieve high rates of economic growth. it offers new jobs; it brings money and it creates an environment of macroeconomic stability and sustainable development. However, there is no “silver bullet” to do. Many researchers have tried to examine the determinants of economic growth (Cheng and Feng, 2000; Barro, 1999; Bayraktar, 2006; Asheghian, 2009; Checherita-Westphal et al., 2012; Chan and Mendy; 2012) and how they affect it (positively or negatively). Traditionally, researchers focus on macroeconomics determinants like trade openness, foreign direct investments, government expenditures, inflation, direct saving, direct investment, real exchange rate, human capital, etc (Fischer, 1992; Anyanwu, 2014; Dollar, 1992; Radelet et al.,2001; Fetchi-Vehapi et al.,2015).

Reviewing the existence literature, we find that they are many economic factors that affect economic growth. Trade Openness as measured by the sum of exports plus imports as a percentage of GDP is identified as economic growth determinant. However, the results are mixed. Studies by Dollar and Kray (2004), Das and Paul (2011) and Nowbutsing (2014) confirm the positive effect of trade openness on economic growth while Fenira (2015) investigates a not so strong relationship. Similarly, empirical evidence reveals that foreign direct investment has a positive impact on economic growth (Koojaroenprasit, 2012; Shahbaz and Rahman, 2010). However, researches also reveal that foreign direct investment has a negative impact on economic growth (Konings, 2001). Besides, several studies have examined the relationship between gross capital formation and the results are mixed. There are studies that reveal a positive relationship between these variables (Noor Siddiqi, 2010; Bal, Dash and Subhasish, 2016; Khan et al., 2019; Awodumi and Adewuyi, 2020) while Muhammad and Khan (2019) find that gross capital formation has a negative and statistically significant impact on economic growth. Moreover, the size of the government expenditure is also a positive key factor for economic growth (Baldacci et al., 2009; Yasin, 2011; Nwaka and Onifade, 2015). On the other hand, high inflation considered as a factor that destabilizes the economy and as a result it has a generally negative effect on economic growth (Nell, 2000; Mubarik, 2005; Sergi, 2009).

Besides, except economic variables, institutions also play an important role in economic growth (Calderoan and Chong, 2000; Cebula and Fuley, 2011; Ahmad et al., 2012; Drury et al.,2006; Acemoglu et al., 2005; Morita and Zaelke,2007; Alesina et al.,1996). A country with strong institutions can create high rates of economic growth while a country with weak institutions can hamper economic growth. Governance indicators like political stability, rule of law, voice and accountability, government effectiveness, control of corruption, and rule of law -developed by Kaufman et al. (1999)- are the key factors for economic growth (Huynch et al, 2009; Rodrik, 2008; Han et al., 2014; Campos and Nugent, 2000;

Aisen and Veiga, 2013). The first institution to be examined at this point is the effect of political stability on economic growth (Abosedra, 2014; Younis et al., 2008). For instance, Huynh et al. (2009) find that political stability has a positive and significant effect on economic growth. The same results are reported from Han et al. (2014). On the other hand, Alesina (1992) finds that political instability affects negatively economic growth while Pere (2005) cannot support any of the above results. A strong system of legacy is also an important driver for economic growth (Cebula and Foley, 2011; Morita and Zaelke; 2007). In particular, Cebula and Foley (2011) reveal that economic growth is positively connected with regulatory quality while Morita and Zaelke (2007) report that economic growth is not associated with the existence of rules but with the enforcement of them. In addition, Huynh et al. (2009) and Han et al. (2014) find a positive correlation between voice accountability and government effectiveness.

As concerns, the rest of the institutional variables, Acemoglu and Robinson (2010), Emara and Jhonsa (2014), and Kaufman and Kray (2002) give attention to the role of government effectiveness on economic growth. They find that government effectiveness has a positive and statistical significance link with economic growth. However, this link is not universal and researchers of Kurtz et al. (2007) and Quibria (2006) cannot establish a significant impact between government effectiveness and economic growth. Examining the control of corruption with economic growth we find mixed results. More precisely, Mo (2001) reveals that an increase in corruption reduces economic growth while Pere (2015) finds no linkage between these two variables.

Moreover, fiscal rules as a measure of fiscal policy have a prominent role in economic growth. Especially in Europe and after the hit of the crisis of 2008, the European Union strengthened its fiscal policy by adopting 4 national fiscal rules (debt rules, expenditure rules, budget balanced rules, and revenue rules). These rules set quantitative limits on fiscal variables like debt and deficit and European Commission poses penalties to European countries in case of not obey with the rules. Empirical researches have examined fiscal rules (e.g primary balance) and how they impact fiscal outcomes (Alesina and Bayoumi, 1996; Alesina et al., 1999; Debrun et al., 2008; Perotti and Kontopoulos, 2002; Badinger & Reuter, 2017; Caselli & Reynard, 2020; Mitsi, 2021). However, the literature lacks on how fiscal rules affect economic growth in piicgs countries and how a combination of fiscal rules and governance indicators impact economic growth.

2. Method

2.1 Data

In our study, we investigate the impact of institutions on economic growth in piicgs countries. We use this country group as these countries were worst hit by the European debt crisis and had many economic problems and especially high rates of economic recession. As a result, the implementation of fiscal rules in these country group was necessary to improve their fiscal aggregates. Our sample has yearly data and all the data was collected from 2002 to 2018. Data are derived from the sources below: 1) World Bank's Worldwide Governance Indicators, 2) World Bank's Worldwide Development Indicators, 3) United Nations Conference on Trade and Development, 3) European Commission Database, and 4) International Monetary Fund (Appendix A).

2.2 Model Specification

According to the above the linear equation of the economic growth is given as follows:

$$rgdpca=f(to, fdi, gcf, govcon, inf, inst, fri)$$

The equation of the model can be written as follows:

$$\logrgdpca=\alpha_{it} + \beta_1to_{it} + \beta_2fdi_{it} + \beta_3gcf_{it} + \beta_4govcon_{it} + \beta_5inf_{it} + \gamma in_{it} + u_{it} + e_{it}, t=1, 2\dots t, i=1, 2\dots n \quad (1)$$

where

α , β_1 , β_2 , β_3 , β_4 , β_5 , and γ are the unknown coefficient of the explanatory variables. u_{it} is the effect of each country and e_{it} is the unobserved zero mean white noise-type. Logarithm of gdp per capita (\logrgdpca) expresses the dependent variable and trade openness (to), foreign direct investments (fdi), gross capital formation (gcf), general government final consumption expenditure ($govcon$), inflation (inf) as independent variables. Moreover variable in expresses a set of institutional variables like rule of law (rl), government effectiveness (ge), political stability (ps), regulatory quality (rq), voice and accountability (va), control of corruption (cc), fiscal rule (fri), debt rule (dr), budget balanced rule (bbr), expenditure rule (er). Finally, i expresses each country and t expresses the period.

Moreover, Globerman et al. (2002) and Buchanan et al. (2012) have reported in their researches that Kaufman et al. (1998) indicators (political stability, rule of law, regulatory quality, government effectiveness, voice and accountability, and control of corruption) have a strong correlation with each other and it's suggested not to include all of the variables in a single regression. In this context, we use the method of Principal Component Analysis (PCA) to construct an overall index ($inst$) which is comprised of these 6 sub-indices.

A significant concern in our empirical analysis is that some regressors might be endogenous in determining gdp per

capita. For instance, gdp per capita may be increased due to a higher rate of trade openness and vice versa (a higher trade openness may be increased by higher gdp per capita. At this point, if we run a regression such as: OLS (Ordinary Least Squares), Fixed Effects or Random Effects (we select the appropriate model according to the Hausman test), the estimations would give biased or inappropriate results as there is correlation among error term and explanatory variables. To deal with the problem of endogeneity we apply the technique of 2SLS by using the statistical program -Stata- to make our estimations and we apply the command xtivreg2. In our model, the endogenous variable is trade openness and use as instrumental variable the first lag of trade openness. (Note 1)

2.3 Descriptive Statistics

In Figure 1 we present the average real gdp per capita of Portugal, Ireland, Italy, Cyprus, Greece, and Spain from 2002 to 2018.

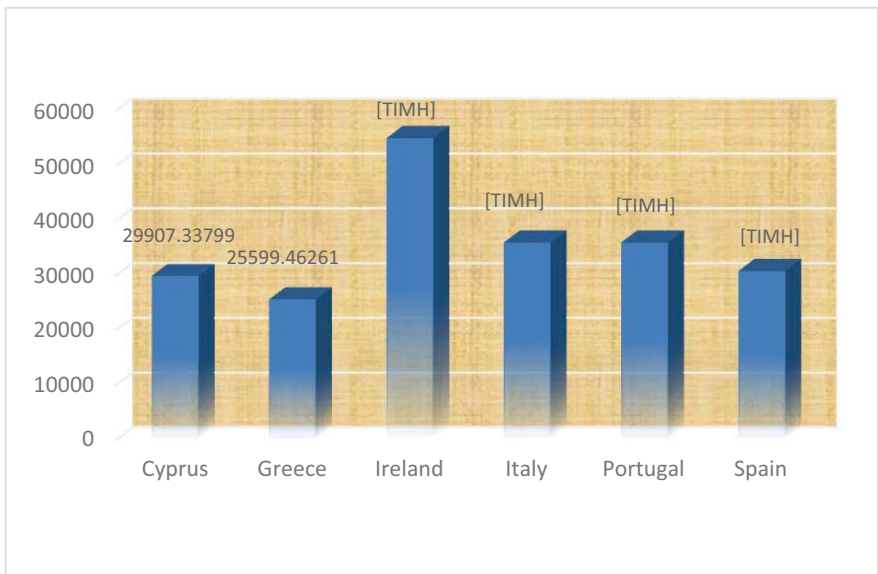


Figure 1. Average real gdp per capita for piicgs countries (2002-2018)

In Figure 2 we present the institutions (political stability, rule of law, government effectiveness, regulatory quality, voice and accountability, and control of corruption) of piicgs countries in 2002 and 2018 respectively. It's noted that these indicators range from -2.5 (weak institutional environment) to +2.5 (strong institutional environment). Among piicgs countries, Ireland has a strong institutional context. In the second position is Spain with very strong government effectiveness and in the third-place are Cyprus and Portugal. Instead, Greece shows a weak institutional environment both in 2002 and 2018.

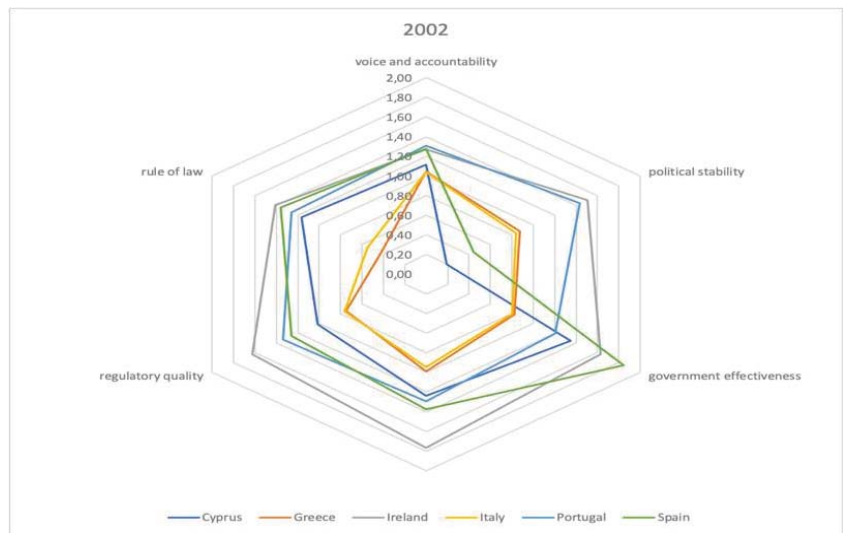


Figure 2. Radar graph of piicgs countries' institutions from 2002 to 2018

Besides, Figure 3 it's illustrated the fiscal rule index (from 2002 to 2018) for each of the six countries. As we can see, after 2008 all the countries have a high fiscal rule index. This can be explained as a consequence of the financial crisis of 2007-2008. More precisely, the burst of the crisis shows the weaknesses of European countries and the huge deficits that have been created all these years. As a result, European Union tried to strengthen its fiscal policy and to make countries more fiscal disciplined in many ways and especially by adopting fiscal institutions like fiscal rules and fiscal councils.

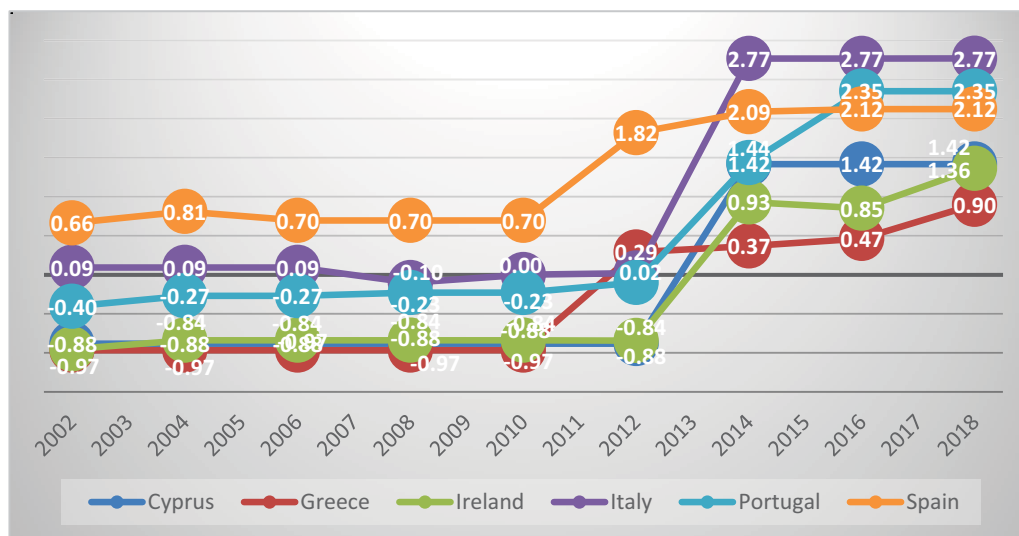


Figure 3. Fri index for piicgs countries from 2002 to 2018

In Table 1, we present the descriptive statistics of Portugal such as mean, standard deviation, min, and max of the variables (logrgdpca, to, fdi, gcf, govcon, inf, inst, and fri) for 18 years (from 2002 to 2018).

Table 1. Descriptive statistics for Portugal

	N	Mean	Std. Dev.	Min	Max
logrgdpca	17	10.0091	0.032965	9.96443	10.08936
to	17	72.2464	8.451302	61.13895	86.99656
fdi	17	8.41344	0.648796	7.384872	9.284315
gcf	17	19.9433	3.711595	14.63212	25.90433
govcon	17	19.2676	1.343125	16.97713	21.30587
inf	17	1.76819	1.384184	-0.83553	3.653011
inst	17	0.38891	0.299542	0	1
fri	17	0.05551	1.156421	-0.40465	2.351689

In Table 1, we present the descriptive statistics for Portugal. Variable logrgdpca has a mean value equal to 10.0091 while the maximum value is 10.08936 and the minimum value is 9.96443. The standard deviation is equal to 0.032965. Variable to has a mean value equal to 72.2464 while the maximum value is 86.99656 and the minimum value is 61.13895. The standard deviation is equal to 9.451302. Variable fdi has a mean value equal to 8.41344 while the maximum value is 9.284315 and the minimum value is 7.384872. The standard deviation is equal to 0.648796. Variable gcf has a mean value equal to 19.9433 while the maximum value is 25.90433 and the minimum value is 14.63212. The standard deviation is equal to 3.711595. Variable govcon has a mean value equal to 19.2676 while the maximum value is 21.30587 and the minimum value is 16.97713. The standard deviation is equal to 1.343125. Variable inf has a mean value equal to 1.76819 while the maximum value is 3.653011 and the minimum value is -0.83553. The standard deviation is equal to 1.384184. Variable inst has a mean value equal to 0.38891 while the maximum value is 1 and the minimum value is 0. The standard deviation is equal to 0.299542. Variable fri has a mean value equal to 10.0091 while the maximum value is 2.351689 and

the minimum value is -0.40465. The standard deviation is equal to 1.156421. The descriptive statistics for other countries are reported in Appendix B.

3. Presentation of Results

In Tables 2, 3, and 4, we present the estimation results by using the 2SLS technique while in Table 8, we present the correlation matrix of governance indicators.

In Table 2, we show the effects of governance indicators (ps, ge, va, rl, rq, cc) on economic growth.

Table 2. Panel Data Analysis-2SLS Technique- Effects of governance indicators on economic growth (2002-2018)

Variables	(A)	(B)	(C)	(D)	(E)	(F)	(G)
to	0.00428*** (0.00105)	0.00458*** (0.00126)	0.00395*** (0.00104)	0.00436*** (0.00115)	0.00418*** (0.00111)	0.00336*** (0.00097)	0.00413*** (0.00106)
fdi	0.00294 (0.00394)	0.00160 (0.00374)	0.00342 (0.00385)	0.00063 (0.00368)	0.00264 (0.00366)	0.00551 (0.00366)	0.00241 (0.00368)
gcf	0.01435*** (0.00178)	0.01451*** (0.00181)	0.01444*** (0.00199)	0.01334*** (0.00193)	0.01291*** (0.00217)	0.01536*** (0.00172)	0.01421*** (0.00187)
govcon	0.01202 (0.00825)	0.01268 (0.00852)	0.00968 (0.00798)	0.00845 (0.00823)	0.00901 (0.00785)	0.00820 (0.00755)	0.00955 (0.00812)
inf	0.00452 (0.00295)	0.00419 (0.00294)	0.00498* (0.00291)	0.00436 (0.00304)	0.00515* (0.00294)	0.00467* (0.00265)	0.00487 (0.00296)
ps	0.05365** (0.02555)						
ge		0.06529 (0.03996)					
va			-0.00475 (0.05732)				
rl				0.07946** (0.03483)			
rq					0.05200 (0.04496)		
cc						-0.06200** (0.02631)	
inst							0.01281 (0.02132)
Cragg-Donald							
Wald FStatistic	25.783	22.957	24.931	24.430	23.808	21.832	21.874
Sargan F							
Statistic	5.314	2.208	4.006	4.324	4.767	1.879	3.411
Observations	90	90	90	90	90	90	90
R-squared	0.70772	0.70283	0.69770	0.70555	0.69893	0.71988	0.69591
Number of id	6	6	6	6	6	6	6

*Denotes 1% level of significance, ** Denotes 5% level of significance and *** Denotes 10% level of significance. In parentheses are the standard errors.

In Table 3, we present the high correlation between governance indicators and the importance to use each variable separately in our estimation and not altogether because of the problem of multicollinearity.

Table 3. Correlation matrix of governance indicators

Variables	ps	ge	va	rl	rq	cc
ps	1.0000					
ge	0.4925	1.0000				
va	0.6694	0.6874	1.0000			
rl	0.5667	0.8863	0.7955	1.0000		
rq	0.5494	0.7881	0.8004	0.8720	1.0000	
cc	0.5403	0.8892	0.7982	0.9315	0.8610	1.0000

In Table 4, we show the effects of fiscal rules (fri, er, dr, bbr) on economic growth.

Table 4. Panel Data Analysis-2SLS Technique- Effects of fiscal rules on economic growth (2002-2018)

Variables	(A)	(B)	(C)	(D)
to	0.00390*** (0.00105)	0.00397*** (0.00119)	0.00409*** (0.00106)	0.00409*** (0.00106)
fdi	0.00311 (0.00403)	0.00336 (0.00374)	0.00233 (0.00391)	0.00233 (0.00391)
gcf	0.01464*** (0.00186)	0.01437*** (0.00195)	0.01435*** (0.00179)	0.01435*** (0.00179)
govcon	0.01058 (0.00847)	0.00967 (0.00767)	0.01033 (0.00809)	0.01033 (0.00809)
inf	0.00535* (0.00312)	0.00500* (0.00291)	0.00570* (0.00298)	0.00570* (0.00298)
fri	0.00290 (0.00769)			
er		-0.00025 (0.01820)		
dr			0.03833** (0.01593)	
bbr				0.03833** (0.01593)
Cragg-Donald Wald				
FStatistic	24.428	21.458	25.389	25.389
Sargan F Statistic	2.859	3.495	3.504	3.504
Observations	90	90	90	90
R-squared	0.69888	0.69737	0.69741	0.69741
Number of id	6	6	6	6

*Denotes 1% level of significance, ** Denotes 5% level of significance and *** Denotes 10% level of significance. In parentheses are the standard errors.

Finally, in Table 5, we present the interaction effects of governance indicators and fiscal rules and their impact on

economic growth.

Table 5. Panel Data Analysis-2SLS Technique- Interactions effects of governance indicators and fiscal rules on economic growth (2002-2018)

Variables	(A)	(B)	(C)	(D)	(E)	(F)
to	0.00439*** (0.00105)	0.00439*** (0.00105)	0.00448*** (0.00114)	0.00448*** (0.00114)	0.00350*** (0.00100)	0.00350*** (0.00100)
fdi	0.00214 (0.00393)	0.00214 (0.00393)	-0.00047 (0.00392)	-0.00047 (0.00392)	0.00564 (0.00422)	0.00564 (0.00422)
gcf	0.01432*** (0.00180)	0.01432*** (0.00180)	0.01349*** (0.00191)	0.01349*** (0.00191)	0.01495*** (0.00175)	0.01495*** (0.00175)
govcon	0.01256 (0.00829)	0.01256 (0.00829)	0.00973 (0.00816)	0.00973 (0.00816)	0.00820 (0.00770)	0.00820 (0.00770)
inf	0.00504* (0.00292)	0.00504* (0.00292)	0.00561* (0.00298)	0.00561* (0.00298)	0.00406 (0.00284)	0.00406 (0.00284)
psbbr	0.05499** (0.02391)					
psdr		0.05499** (0.02391)				
rlbbr			0.06329*** (0.02374)			
rlldr				0.06329*** (0.02374)		
ccbbr					-0.03347 (0.02816)	
ccdr						-0.03347 (0.02816)
Cragg-Donald Wald						
FStatistic	25.783	25.783	24.430	24.430	21.832	21.832
Sargan F Statistic	5.314	5.314	4.324	4.324	1.879	1.879
Observations	90	90	90	90	90	90
R-squared	0.70757	0.70757	0.70300	0.70300	0.70923	0.70923
Number of id	6	6	6	6	6	6

*Denotes 1% level of significance, ** Denotes 5% level of significance and *** Denotes 10% level of significance. In parentheses are the standard errors.

4. Discussion

In Table 2, the results in 7 columns (Model (A), Model (B), Model (C), Model (D), Model (E), Model (F), Model(G) show that the coefficient of Trade Openness is positive (0.00428 in Model (A), 0.00458 in Model (B), 0.00395 in Model (C), 0.00436 in Model (D), 0.00418 in Model (E), 0.00336 in Model (F), 0.00413 in Model (G)). This positive impact in each model is statistically significant at a 1% level and it means that an increase in trade openness will lead to an increase in real gdp per capita. More precisely, a 1% increase of trade openness will lead to 0.00428 % increase in real gdp per capita in Model (A), 0.00458% in Model (B), 0.00395% in Model (C), 0.00436% in Model (D), 0.00418% in Model (E), 0.00336% in Model (F) and 0.00413% in Model (G).

The coefficient of gross capital formation is also positive for the 7 models. This means that a 1% increase in gross capital formation will cause an increase in real gdp per capita equal to 0.01435% in Model (A), 0.01451% in Model (B), 0.01444% in Model (C), 0.01334% in Model (D), 0.01291% in Model (E), 0.01536% in Model (F) and 0.01421% in Model (G). It's noted that the impact of gross capital formation on real gdp per capita (in 7 models) is statistically significant at a 1% level. The coefficient of inflation is positive and statistically significant only in Model (C), Model (D) and Model (E) at a 10% level of significance. In particular, a 1% increase in inflation will cause an increase of 0.0048% in real gdp per capita in Model (C), 0.00515% in Model (E), and 0.00467% in Model (F).

Among institutions of political stability, government effectiveness voice and accountability, rule of law, regulatory quality, and control of corruption, only three have a statistically significant impact on real gdp per capita. These are political stability, rule of law, and control of corruption. Coefficients of political stability and rule of law are positive while the coefficient of control of corruption is negative. This means that a 1% increase in political stability will cause an increase equal to 0.05365% in real gdp per capita. A 1% increase in rule of law index will cause an increase of 0.07946% in real gdp per capita while a 1% increase in control of corruption index will cause a decrease of 0.062% in real gdp per capita.

In Table 3, governance indicators show a high and positive correlation among them. For instance, control of corruption and rule of law have a positive correlation equal to 93.15%. Rule of law and government effectiveness have a positive correlation equal to 88.63% while regulatory quality and voice and accountability have a positive correlation equal to 80.04%. The same results are reported with other governance indicators (see Table 3).

In Table 4, the results in 4 columns present the effects of fiscal rules on economic growth. Models (A), (B), (C) and (D) show positive coefficients for trade openness, gross capital formation, inflation, debt rules, and budget balanced rules. This means that an increase in trade openness, gross capital formation, inflation, debt rules, and budget balanced rules will lead to an increase in real gdp per capita. For instance, a 1% increase in debt rule will increase real gdp per capita by 0.03833%. The same results are reported for budget balanced rules (this happens as countries in our sample have adopted the same number of debt rules and budget and balanced rules at the same year period).

Finally, in Table 5, the results in 6 columns present the interaction effects of governance indicators and fiscal rules on economic growth. Models (A) to (F) show positive coefficients for trade openness, gross capital formation, and inflation. Also, we find a positive effect of political stability and budget balanced rule/debt rule on economic growth equal to 0.05499 and a positive effect of rule law and budget balanced rule/debt rule on economic growth equal to 0.06329.

5. Conclusion

In this study, we investigate the role of good governance on economic growth in piicgs countries. We use a sample of 6 countries from 2002 to 2018 and we apply the 2SLS technique in our econometric analysis.

From the findings above, we can observe that foreign direct investments, government effectiveness, voice and accountability, regulatory quality, fiscal rule index, and expenditure rule are insignificant explanatory variables by using the technique of 2SLS. However, the findings also show that trade openness, gross capital formation, inflation, political stability, rule of law, debt rule, budget balanced rule, and the combination between debt rule/budget balanced rule with political stability and combination between debt rule/budget balanced rule with rule of law have significant and positive effects on real gdp per capita and should be considered as significant factors of real gdp per capita in piicgs countries. On the other hand, control of corruption shows a negative impact on economic growth.

Also, it's evident that among institutions the most effective governance indicator on economic growth is rule of law with an effect equal to 0.07946. The second position places the combination between rule of law and debt rule/budget balanced rule (0.06329) and the third position is the combination between political stability and debt rule/budget balanced rule (0.05499). In the last position, is political stability (0.05365).

The results, of the empirical analysis, have policy recommendations and suggest that piicgs countries can achieve higher rates of economic growth by adopting fiscal rules and by having an environment of good governance. In particular, policymakers should give more attention to debt rules and budget balanced rules as well to political stability, rule of law, and their combinations (political stability with debt rules/ budget balanced rules and rule of law with debt rules/ budget balanced rules).

References

- Acemoglu, D., Johnson, S., & Robinson, J. (2004). Institutions as the fundamental cause of long-run growth. Working Paper 10481. *National Bureau of Economic Research*. Cambridge. <https://doi.org/10.3386/w10481>
- Ahmad, E., Ullah, M. A., & Arfeen, M. I. (2012). Does corruption affect economic growth? *Latin American journal of economics*, 49(2), 277-305. <https://doi.org/10.7764/LAJE.49.2.277>
- Alesina, A., & Bayoumi, T. (1996). The costs and benefits of fiscal rules: Evidence from U.S. states. NBER Working

- Paper 5614. *National Bureau of Economic Research*. Cambridge. <https://doi.org/10.3386/w5614>
- Alesina, A., & Tabellini, G. (1990). A positive theory of fiscal deficits & government debt. *Review of Economic Studies*, 57(3), 407-414. <https://doi.org/10.2307/2298021>
- Alesina, A., Ozler, S., Roubini, N., & Swagel, P. (1992). Political instability and economic growth. NBER Working Paper Series: no.4173. *National Bureau of Economic Research*. Cambridge. <https://doi.org/10.3386/w4173>
- Anyanwu, J. C. (2014). Factors Affecting Economic Growth in Africa: Are there any lessons from China? *African Development Review*, 26(3), 468-493. <https://doi.org/10.1111/1467-8268.12105>
- Asheghian, P. (2009). Determinants of Economic Growth in Japan: The role of foreign direct investment. *Global Economy Journal*, 9(3), 1-9. <https://doi.org/10.2202/1524-5861.1509>
- Awodumi, O. B., & Adewuyi, A. O. (2020). The role of non-renewable energy consumption in economic growth and carbon emission: evidence from oil producing economies in Africa. *Energy Strategy Rev.*, 27, 100434. <https://doi.org/10.1016/j.esr.2019.100434>
- Badinger, H., & Reuter, W. H. (2017). The case of fiscal rules. *Economic Modelling*, 60, 334-343. <https://doi.org/10.1016/j.econmod.2016.09.028>
- Bal, D. P., Dash, D. V., & Subhasish, B. (2016). The effects of capital formation on economic growth in India: evidence from ARDL-bound testing approach. *Global Bus. Rev.*, 17(6), 1388-1400. <https://doi.org/10.1177/0972150916660403>
- Baldacci, E., Clements, B., Gupta, S., & Cui, Q. (2008). Social spending, human capital, and growth in developing countries. *World Dev.*, 36(8), 1317-1341. <https://doi.org/10.1016/j.worlddev.2007.08.003>
- Barro, R. J. (1999). Determinants of Economic Growth: Implications of the Global Evidence for Chile. *Cuadernos de Economía*, 36(107), 443-478.
- Bayraktar, B. (2006). Investigation on Sources of Growth for Turkey. *Canadian Journal of Development*, 27(1), 25-38. <https://doi.org/10.1080/02255189.2006.9669118>
- Caselli, F., & Reynard, J. (2020). Do fiscal rules cause better fiscal balances? A new instrumental variable strategy. *European Journal of Political Economy*, 63(C). <https://doi.org/10.1016/j.ejpoleco.2020.101873>
- Cebula, R., & Foley, M. (2011). A Panel Data Study of the Effects of Economic Freedom, Regulatory Quality, and Taxation on the Growth Rate of Per Capita Real GDP. *Journal of Public Finance and Public Choice*, 30(1-3), 103-122 <https://doi.org/10.1332/251569212X15664519360506>
- Chang, C., & Mendy, M. (2012). Economic Growth and Openness in Africa: What is the empirical relationship? *Applied Economics Letters*, 19(18), 1903-1907. <https://doi.org/10.1080/13504851.2012.676728>
- Checherita-Westphal, C., & Rother, P. (2012). The Impact of High Government Debt on Economic Growth and its Channels: An empirical investigation for the Euro area. *European Economic Review*, 56, 1392-1405. <https://doi.org/10.1016/j.eurocorev.2012.06.007>
- Chen, B., & Feng, Y. (2000). Determinants of Economic Growth in China: Private enterprise, education, and openness. *China Economic Review*, 11, 1-15. [https://doi.org/10.1016/S1043-951X\(99\)00014-0](https://doi.org/10.1016/S1043-951X(99)00014-0)
- Das, A., & Paul, B. P. (2011). Openness and growth in emerging Asian economies: Evidence from GMM estimations of a dynamic panel. *Economics Bulletin*, 31, 2219-2228. Retrieved from <https://d1wqtxts1xzle7.x>
- Debrun, X., Moulin, L., Turrini, A., Ayuso-i-Casalas, J., & Kumar, M. S. (2008). Tied to the mast? National fiscal rules in the European Union. *Economic Policy*, 23(54), 297-362. <http://dx.doi.org/10.1111/j.1468-0327.2008.00199.x>
- Dollar, D. (1992). Outward-Oriented Developing Economies Really Do Grow more rapidly: Evidence form 95 LDCs, 1976-1985. *Economic Development and Cultural Change*, 40(3), 523-544. <http://dx.doi.org/10.1086/451959>
- Dollar, D., & Kraay, A. (2004). *Trade, Growth and Poverty*. *Economic Journal*, 114, 22-49 <https://doi.org/10.1111/j.0013-0133.2004.00186.x>
- Drury, A. C., Krieckhaus, J., & Lusztig, M. (2006). Corruption, democracy, and economic growth. *International Political Science Review*, 27(2), 121-136. <https://doi.org/10.1177/0192512106061423>
- Emara, N., & Jhonsa, E. (2014). Governance and economic growth: interpretation for MENA countries. *Topics in Middle Eastern and African Economies*, 16(2), 164-183. Retrieved from <https://meea.sites.luc.edu/volume16/pdfs/Emara-Jhonsa.pdf>
- Fenira, M. (2015). Trade openness and growth in developing countries: An analysis of the relationship after comparing

- trade indicators. *Asian Economic and Financial Review*, 5, 468–482. <https://doi.org/10.18488/journal.aefr/2015.5.3/102.3.468.482>
- Fetahi-Vehapi, M., Sadiku, L., & Petkovski, M. (2015). Empirical Analysis of the effects of Trade Openness on Economic Growth: An evidence of South East European countries. *Procedia Economics and Finance*, 19, 17-26. [https://doi.org/10.1016/S2212-5671\(15\)00004-0](https://doi.org/10.1016/S2212-5671(15)00004-0)
- Fischer, S. (1992). Macroeconomic Stability and Growth. *Cuadernos de Economía*, 29(87), 171-186. <https://doi.org/10.1016/j.egy.2019.08.004>
- Huynh, K. P., & Jacho-Chavez, D. T. (2009). Growth and governance: A nonparametric analysis. *Journal of Comparative Economics*, 37(1), 121-143. <https://doi.org/10.1016/j.jce.2008.08.003>
- Kaufmann, D., & Kraay, A. (2002). Growth without governance. Policy research working paper no. 2928: *The World Bank*. Retrieved from <http://hdl.handle.net/10986/19206>
- Kaufmann, D., Kraay, A., & Zoido-Lobato, P. (1999). Governance matters. *Finance Dev*, 37(2), 10. Retrieved from <https://www.imf.org/external/pubs/ft/fandd/2000/06/pdf/kauf.pdf>
- Khan, S., Peng, Z., & Li, Y. (2019). Energy consumption, environmental degradation, economic growth and financial development in globe: Dynamic simultaneous equations panel analysis. *Energy Reports*, 5, 1089-1102.
- Konings, J. (2001). The effects of foreign direct investment on domestic firms: Evidence from firm-level panel data in emerging economies. *Economics of transition*, 9(3), 619-633. <https://doi.org/10.1111/1468-0351.00091>
- Koojaroenprasit, S. (2012). The impact of foreign direct investment on economic growth: A case study of South Korea. *International Journal of Business and Social Science*, 3(21). Retrieved from <https://core.ac.uk/download/pdf/51179393.pdf>
- Kurtz, M., & Schrank, A. (2007). Growth and governance: Models, measures and mechanisms. *Journal of Politics*, 69(2), 538–554. <https://doi.org/10.1111/j.1468-2508.2007.00549.x>
- lesina, A., Ozler, S., Roubini, N., & Swagel, P. (1996). Political instability and economic growth. *Journal of Economic growth*, 1(2), 189-211. <https://doi.org/10.1007/BF00138862>
- Mitsi, D. (2021). Does the quality of Fiscal Institutions matter for fiscal Performance? A panel data analysis of European Countries. *International Journal of Economics and Finance*, 13(1), 33-44. <https://doi.org/10.5539/ijef.v13n1p33>
- Mo, P. H. (2001). Corruption and economic growth. *Journal of Comparative Economics*, 29, 66-70. Viewed. 03 October 2016. <https://doi.org/10.1006/jce.2000.1703>
- Morita, S., & Zaelke, (2005, April). Rule of law, good governance, and sustainable development. *Paper presented at the Seventh International Conference on Environmental Compliance and Enforcement, Marrakech, Morocco*. Abstract retrieved from <https://nepis.epa.gov>
- Mubarik, Y. A. (2005). Inflation and growth: An estimate of the threshold level of inflation in Pakistan. *SBP-Research Bulletin*, Volume 1, No. 1, pp. 35-43. Retrieved from https://www.researchgate.net/publication/311413446_Inflation_and_Growth_An_Estimate_of_the_Threshold_Level_of_Inflation_in_the_US
- Muhammad, B. (2019). Energy consumption, CO2 emissions and economic growth in developed, emerging and Middle East and North Africa countries. *Energy*, 179, 232–245. <https://doi.org/10.1016/j.energy.2019.03.126>
- Nell, K. (2000). Is Low Inflation a Precondition for Faster Growth, The Case of South Africa. Department of Economics, University of Kent, United Kingdom. Retrieved from <https://www.kent.ac.uk/economics/repec/0011.pdf>
- Noor, S., & Siddiqi, M. W. (2010). Energy consumption and economic growth in South Asian countries: a co-integrated panel analysis. *International Journal of Energy and Power Engineering*, 4(7), 1731-1736.
- Nowbutsing, B. M. (2014). The impact of openness on economic growth: Case of Indian Ocean rim countries. *Journal of Economics and Development Studies*, 2, 407–427. Retrieved from http://jedsnet.com/journals/jeds/Vol_2_No_2_June_2014/23.pdf
- Nwaka, I. D., & Onifade, S. T. (2015) Government size, openness and income risk Nexus: new evidence from Some African countries (No. WP/15/056). In: *AGDI working paper*. Retrieved from https://www.researchgate.net/publication/296677127_Government_Size_Openness_and_Income_Risk_Nexus_New_Evidence_from_Some_African_Countries

- Pere, E. (2015). The impact of good governance in the economic development of Western Balkan Countries. *European Journal of Government and Economics*, 14(1), 25-45. <https://doi.org/10.17979/ejge.2015.4.1.4305>
- Perotti, R., & Yianos, K. (2002). Fragmented Fiscal Policy. *Journal of Public Economics*, 86(2), 191-222. [https://doi.org/10.1016/S0047-2727\(01\)00146-3](https://doi.org/10.1016/S0047-2727(01)00146-3)
- Quibria, M. G. (2006). Does Governance Matter? Yes, No or Maybe: Some Evidence from Developing Asia. *Kyklos*, 59(1), 99–114. <https://doi.org/10.1111/j.1467-6435.2006.00322.x>
- Radelet, S., Sachs, J., & Whang-Lee, J. (2001). The Determinants and Prospects of Economic Growth in Asia. *International Economic Journal*, 15(3), 1-29. <https://doi.org/10.1080/10168730100000041>.
- Sergii, P. (2009). *Inflation and Economic Growth: The Non-Linear relationship. Evidence from CIS Countries*. Kyiv School of Economics. Retrieved from <http://www.kse.org.ua/uploads/file/Pypko.pdf>
- Shahbaz, M., & Mohammad, M. R. (2010). Foreign capital inflows-growth nexus and role of domestic financial sector: An ARDL co-integration approach for Pakistan. *J. Econ. Res.*, 15, 207–31.
- Tang, C. F., & Abosedra, S. (2014). The impacts of tourism, energy consumption and political instability on economic growth in the MENA countries. *Energy Policy*, 68, 458–464. <https://doi.org/10.1016/j.enpol.2014.01.004>
- Yasin, M. (2011). Public spending and economic growth: empirical investigation of Sub-Saharan Africa. *South western Econ. Rev.*, 30(5), 9–68. Retrieved from <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.531.9796&rep=rep1&type=pdf>
- Younis, M., Lin, X. X., Sharahili, Y., & Selvarathinam, S. (2008). Political Stability and Economic Growth in Asia. *American Journal of Applied Sciences*, 5(3), 203-208. <https://doi.org/10.3844/ajassp.2008.203.208>

Notes

Note 1. We cannot use the GMM approach to deal with the problems of heterogeneity, autocorrelation and endogeneity as the number of countries are less than the number of periods.

Appendix A

Table A1. Variables, Definitions and Sources

Variables	Definition	Sources
Trade Openness (to)	Sum of exports plus imports as a percentage of GDP	Worldwide Development Indicators
Foreign direct investments (fdi)	Net inflows of investment as a percentage of GDP	United Nations Conference on Trade and Development
Gross capital formation (gcf)	Value of additions to fixed and net changes of inventories as a percentage of GDP	Worldwide Development Indicators
Government consumption(govcon)	General government final consumption expenditure as a percentage of GDP	Worldwide Development Indicators
Inflation (inf)	Percentage change of consume price index	Worldwide Development Indicators
Gdp per capita (logrgdpca)	Log of gross domestic product per person in constant prices (constant 2010 US\$)	Worldwide Development Indicators
Rule of law index (rl)	It measures the extent to which citizen abide by the rules of the society. It ranges between -2.5 (weak index of rule of law) to +2.5 (strong index of rule of law)	Worldwide Governance Indicators
Voice and Accountability (va)	It measures the extent to which citizen has the freedom of expression. It ranges between -2.5 (weak index of voice and accountability) to +2.5 (strong index of voice and accountability)	Worldwide Governance Indicators

Control of corruption (cc)	It measures the extent to which policymakers interested for private gain. It ranges between -2.5 (weak index of control of corruption) to +2.5 (strong index of control of corruption)	Worldwide Governance Indicators
Government effectiveness (ge)	It measures the extent to which public services are independent from political interferences, and the degree of civil service quality. It ranges between -2.5 (weak index of government effectiveness) to +2.5 (strong index of government effectiveness)	Worldwide Governance Indicators
Political Stability (ps)	It measures the existence of political instability. It ranges between -2.5 (weak index of political stability) to +2.5 (strong index of political stability)	Worldwide Governance Indicators
Regulatory quality (rq)	It measures the extent to which policymakers implement sound policies. It ranges between -2.5 (weak index of regulatory quality) to +2.5 (strong index of regulatory quality)	Worldwide Governance Indicators
Fiscal rule Index	It measures the strength of fiscal rules based on the statutory of the rules, the correction mechanisms, the monitoring bodies and the binding character of the rule.	European Commission Dataset
Budget Balanced Rule dummy (bbr)	It takes value 1 if a budget balanced rule is in place, and 0 otherwise	International Monetary Fund Dataset
Debr Rule Dummy (dr)	It takes value 1 if a debt rule is in place, and 0 otherwise	International Monetary Fund Dataset
Expenditure rule dummy	It takes value 1 if an expenditure rule is in place, and 0 otherwise	International Monetary Fund Dataset

Appendix B

Table B1. Descriptive statistics for Ireland

	N	Mean	Std. Dev.	Min	Max
logrgdpca	17	10.9030	0.154134	10.77042	11.24717
to	17	180.828	27.80252	146.5523	226.0414
fdi	17	10.6235	0.617828	10.03369	12.29165
gcf	17	25.2471	5.815608	17.08068	37.41433
govcon	17	16.0162	2.541244	11.90030	20.13667
inf	17	1.51267	2.401802	-4.47810	4.897116
inst	17	0.65009	0.346041	0	1
fri	17	-0.18657	0.950634	-0.95247	1.361246

Table B2. Descriptive statistics for Italy

	N	Mean	Std. Dev.	Min	Max
logrgdpca	17	10.49007	0.041354	10.42426	10.55248
to	17	53.11629	4.376471	45.41876	60.51154
fdi	17	9.732274	1.438425	4.527317	10.68852
gcf	17	19.67108	1.976765	16.89239	22.24605
govcon	17	19.4366	0.584313	18.5460	20.67864
inf	17	1.675908	1.045108	-0.09401	3.347833
inst	17	0.038522	0.271767	0	1
fri	17	0.837548	1.291174	-0.10005	2.796741

Table B3. Descriptive statistics for Cyprus

	N	Mean	Std. Dev.	Min	Max
logrgdpca	17	10.3041	0.060326	10.19743	10.39591
to	17	120.865	13.93982	102.7909	146.4048
fdi	17	9.06243	1.572787	6.79284	11.09665
gcf	17	19.9994	4.500670	12.92516	28.95597
govcon	17	17.0375	1.373658	14.68574	19.08799
inf	17	1.54438	1.972809	-2.09699	4.669008
inst	17	0.60446	0.299893	0	1
fri	17	0.09248	1.106206	-0.88273	1.418389

Table B4. Descriptive statistics for Greece

	N	Mean	Std. Dev.	Min	Max
logrgdpca	17	10.1446	0.1096762	10.01015	10.31078
to	17	57.8448	7.437514	47.74385	72.5197
fdi	17	7.35413	1.184959	3.677712	8.585765
gcf	17	18.3202	6.450568	10.21701	27.37489
govcon	17	20.4600	1.192763	18.95885	23.30901
inf	17	1.85611	2.073864	-1.73603	4.712973
inst	17	0.57995	0.347773	0	1
fri	17	-0.35690	0.768070	-0.96544	0.901754

Table B5. Descriptive statistics for Spain

	N	Mean	Std. Dev.	Min	Max
logrgdpca	17	10.3341	0.038565	10.27197	10.40272
to	17	58.5566	5.586084	46.99487	67.51969
fdi	17	10.2860	0.544500	9.054648	11.25146
gcf	17	23.4474	4.886345	17.2157	30.56535
govcon	17	18.7673	1.391445	16.62433	20.67171
inf	17	2.01355	1.489165	-0.50046	4.075661
inst	17	0.53059	0.298303	0	1
fri	17	1.30288	0.652418	0.664202	2.123073

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

European Entrepreneurship Reinforcement Policies in Macro, Meso, and Micro Terms for the Post-COVID-19 Era

Dimos Chatzinikolaou¹, Michail Demertzis² & Charis Vlados^{1,3}

¹ Department of Economics, Democritus University of Thrace, Komotini, Greece

² Department of Law, Democritus University of Thrace, Komotini, Greece

³ School of Business, University of Nicosia, Nicosia, Cyprus

Correspondence: Michail Demertzis, Department of Law, Democritus University of Thrace, University Campus, 69100 Komotini, Greece. E-mail: michaieldemertzis@gmail.com

Received: February 28, 2021 Accepted: March 29, 2021 Online Published: April 7, 2021

doi:10.5539/res.v13n2p39

URL: <https://doi.org/10.5539/res.v13n2p39>

Abstract

In today's unprecedented transformation in the global socio-economic system caused by the COVID-19 pandemic crisis and the escalating fourth industrial revolution, reinforcing innovative entrepreneurship appears a significant policy objective that can lead to overall socio-economic development. In this drastically changed context, entrepreneurship support policies seem that they need to be both conceptually and practically readjusted, simultaneously at the macro, meso, and micro levels. This paper investigates the case of public entrepreneurship policies in the European Union (EU), aiming to find specific patterns and suggest a new multilevel policy framework. Initially, the article offers a brief overview of the related trends created in the emerging post-COVID-19 era. Next, the "competitiveness web" perspective in terms of "macro-meso-micro" level synthesis is presented, considering that it can function as a theoretical framework for entrepreneurship reinforcement. Recent EU entrepreneurship support policy guidelines are then explored, emphasizing the latest trends and the development opportunities arising with the EU Recovery and Resilience Facility establishment to deal with the consequences of the current health and socio-economic crisis. Upon this basis, the paper concludes in a proposal for an integrated "macro-meso-micro" policy, placing at the epicenter the mechanism of the Institutes of Local Development and Innovation (ILDI). This policy aims to strengthen the spatially-located firms to reposition and readapt the "Stra.Tech.Man" potential they have and activate in their local business ecosystem (strategy-technology-management synthesis).

Keywords: Competitiveness web, Entrepreneurship support policy, EU Recovery and Resilience Facility (RRF), European integration, European public policy, ILDI, Macro-meso-micro, Post-COVID-19 era, Stra.Tech.Man approach

1. Introduction

In all the conditions and historical phases of capitalism, the firms' innovative action transforms the hosting socio-economic systems structurally (Schumpeter, 1942, 1954). Especially in the ongoing fourth industrial revolution and the emerging post-COVID-19 era, where digital transformation for all socio-economic actors seems imperative due to the progressive "blurring" between the physical and the digital world, innovative entrepreneurship acquires increasing significance as it constitutes the corridor for exiting the crisis (Roper & Turner, 2020; Umar, Rizvi, & Naqvi, 2021). Besides entrepreneurship, public policy also has a critical role, given that business innovation and regulatory efficiency are interdependent forces that can drive a socio-economic system towards greater sophistication, resilience, adaptability, and development (Carayannis et al., 2018; Ignatov, 2018; Uyarra & Flanagan, 2010; Vlados et al., 2018b). It is not by chance that the European heads of states, considering the recent COVID-19 outbreak, call for a regulatory environment and state aid framework that favors innovation and facilitates entrepreneurs' full involvement (European Council, 2020).

Therefore, it seems significant to investigate how public policymakers can reshape an institutional environment that strengthens entrepreneurship and supports innovation. Interpreting how public policies for reinforcing entrepreneurship evolve could point to new elements for an integrated policy for the post-COVID-19 era (Terjesen, 2021; Zahra, 2021). To this end, a multilevel policy approach could be investigated, exploring macro-level aspects of the economy and society, the meso-level of localities and sectoral agglomerations, and the micro-level of firms and individuals (Baumann et al., 2019; Peneder, 2017). In this context, the European Union's (EU) case can be an example of how public policies for entrepreneurship support are shaped and directed (Podkaminer, 2019). In the post-COVID-19 era and before reaching the "Europe 2020" development goals, Europe is forced to re-examine its focus (Grimaccia, 2020). The European

socio-economic formation seems to be acquiring a repositioned content based on the results that countries achieve in health and socio-economic crisis management (Bozorgmehr et al., 2020; Meunier & Mickus, 2020; Paché, 2020; Rui, 2020). Attracting investment, protecting employment, fostering innovation, and having an outward-oriented profile through integrated entrepreneurship and competitiveness policies seems to be of utmost significance (Chaves-Maza & Martel, 2020; Ketels & Porter, 2020).

Therefore, a research gap can be identified in terms of finding specific patterns or models on strengthening entrepreneurship to suggest integrated ways of stimulating the firms' innovation and resilience potential in the post-COVID-19 era, focusing especially on entrepreneurship enhancement policies in Europe. The research question that this study investigates is the following: At what levels (macro, meso, and micro) relevant public policies for supporting entrepreneurship are usually articulated? Could the EU case help us define respective patterns and reaffirm the need for a repositioned interventional perspective? Moreover, what implications are created concerning the structuration of more integrated policies in the post-COVID-19 era?

In this conceptual paper, a semi-systematic and critical review of the literature is conducted, aiming to explore the various kinds of applied policies to strengthen the resilience, innovativeness, and competitiveness of firms (Gilson & Goldberg, 2015; Snyder, 2019). Also, according to basic principles of conceptual studies (Jaakkola, 2020), this article attempts a synthesis of the theoretical perspectives examining recent COVID-19 implications, entrepreneurship and related public policy issues, and interventions exercised at the overarching EU strategy level, having as primary goal to examine from a restructured perspective the articulation of various entrepreneurship support policies.

In section two, the emerging post-COVID-19 global environment and its implications for business are examined. In section three, public policy targets to reinforce entrepreneurship are conceptualized, followed by investigating a multileveled "competitiveness web" perspective that helps to define the macro, meso, and micro socio-economic development levels in different spatial systems. The recent European Union (EU) policy guidelines are explored in the fourth section, focusing on the entrepreneurship support case and contemporary trends in the post-COVID-19 era (the EU Recovery and Resilience Facility). In the fifth section, conclusions are drawn by emphasizing and counter-suggesting an integrated macro-meso-micro public policy for supporting entrepreneurship in today's Europe.

2. The Emerging Post-COVID-19 Global Environment and the Implications for Entrepreneurship

The global socio-economic system has entered an unprecedented crisis following the worldwide spread of COVID-19 since early 2020. According to António Guterres, Secretary-General of the United Nations, this situation of COVID-19 is bringing the world to a readjustment (United Nations, 2020). Humanity is facing unique challenges, where the most inferior socio-economic classes and localities are becoming more vulnerable. Guterres talks of the need for rapid worldwide coordinated intervention to deter the proliferation of similar health issues and to secure the world and these less-developed communities from socio-political extremism.

The COVID-19 pandemic crisis has sparked a decisive blow to the world's economy, as per the World Bank (2020), with the recession's size estimated to exceed all earlier recessions after the Second World War. In the same report, the World Bank forecasted a modest recovery for the global economy's GDP in 2021, following similar forecasts published by international organizations in the same period. Similarly, the International Monetary Fund (2020) refers to this COVID-19 socio-economic crisis as a situation and turbulence unlike any other, having expected a minor turnaround for the world economy in 2021. The International Labor Organization (2020) has suggested that four hundred million full-time jobs will have been lost in the second quarter of 2020 due to government-imposed lockdowns and social distancing. The World Trade Organization (Azevêdo, 2020) compared the present with the earlier global downturn of 2008-2009 and predicted that the current would be far worse in all indexes. Another issue that concerns the global community, as various international organizations argue (Food and Agriculture Organization, 2020; Organisation for Economic Co-operation and Development, 2020c), is the further reinforcement and spread of underdevelopment trends and socio-economic "pathogenies" across the world, with specific attention being paid to potential new exclusion types and development blockages and hysteresis. The industrial environment also appears to be transformed rapidly across the world since various economic sectors enter an aggressive recalibration and restructuring (International Civil Aviation Organization, 2020; International Energy Agency, 2020; World Health Organization, 2020).

The potential short-term recovery of the global economy is also an issue treated by policymakers and scholars from diverging perspectives. The OECD (2020b), for instance, forecasted a quasi-V-shaped rebound for global GDP in 2021, following a sharp fall in 2020. The European Central Bank (2020) predicted a less intensive rebound for the Eurozone, estimating that the real GDP will not record more than a 1.3% rise in 2021 and 1.4% in 2022. In this context—and despite various scholars suggesting a V-shaped "revival" for the global economy—a swift turnaround from the crisis seems extremely difficult to be achieved (Beech, 2020; Gómez-Pineda, 2020; Gregory et al., 2020). Instead, in various socio-economic niches, an L-shaped turnaround appears more likely since a lack of flexibility, adaptability, and

innovation could drive these less-developed areas to diminished competitiveness even though international trade would have begun to recover (Boschma, 2015; Vladoš et al., 2019). Therefore, it becomes obvious that the world is entering gradually and inevitable restructuring, with most downside scenarios appearing increasingly probable to occur.

Concerning the impact of COVID-19 on business and entrepreneurship, in a policy research working paper series by the World Bank (Apedo-Amah et al., 2020), the short-term implications are addressed, focusing on the case of developing countries. The authors collected and analyzed data from fifty-one countries covering over 100,000 businesses and concluded that the COVID-19 crisis has severely hit most sectors, recording the most negative imprint on sales. Small firms are in greater financial danger, while all firms appear to rely on digital solutions to deal with the crisis implications. Kalemlı-Ozcan et al. (2020) use a representative firm-level database in seventeen countries to measure SMEs' liquidity deficit during and after COVID-19. The authors find a significant rise of nine percentage points in SMEs' failure rate during this crisis, while they also name the most affected sectors, such as the accommodation and food services, arts, entertainment and recreation, education, and other services. This paper also puts forward a policy implication, noting that immediate business support measures can decrease business failures, although with a high fiscal cost. The suggested method for public policy is targeted interventions by avoiding resource misallocation and supporting firms that would fail one way or another.

In a report oriented towards supplying policy responses for SME development, OECD (2020a) notices that SMEs make up 50% of employment across all OECD countries. The most worrying observation is that this percentage rises significantly in the sectors hit most by the crisis, approaching 75% on average across OECD countries and about 90% in Greece and Italy (Figure 1).

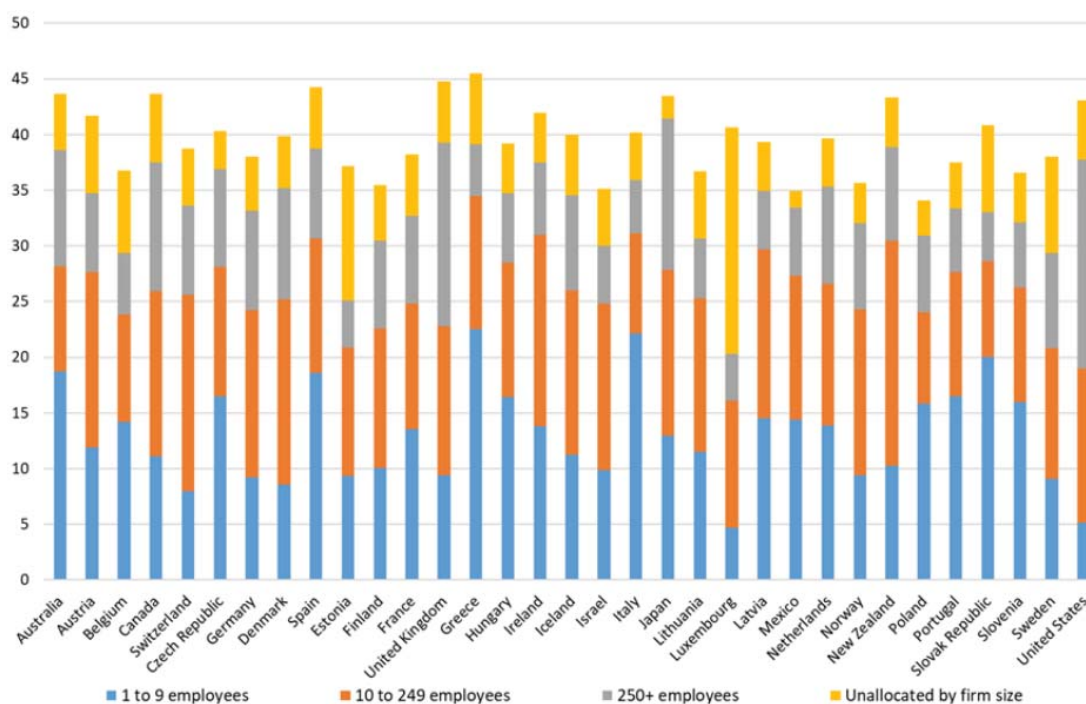


Figure 1. Smaller firms dominate in the most affected sectors. Share of total employment in the most adversely affected sectors by firm size (%), as reproduced from OECD (2020a)

According to this report, the most affected sectors are transport, manufacturing, construction, wholesale and retail trade, air transport, accommodation and food services, real estate, professional services, and other personal services. The report continues by arguing that liquidity worries most entrepreneurs in these circumstances. To this end, although various governments have undertaken policy measures to address this liquidity gap and support SME survival, the most significant challenge is to support recovery for these firms in the post-COVID-19 era.

Overall, the newly emerging conditions of the post-COVID-19 era create for the entire global economy unprecedented challenges and pressures at all levels of today's socio-economic co-existence and co-evolution. At the macro-level of national and supranational policies (Dodds et al., 2020; Larionova & Kirton, 2020), at the meso-level of economic sectors and various localities (Bragazzi, 2020; Gong et al., 2020), as in the micro-level of specific firms and

entrepreneurship (Akpan et al., 2020; Anker, 2021). The following section addresses the problem of reinforcing these specific socio-economic levels by exploring various conceptual directions.

3. Macro, Meso, and Micro Public Policy Analysis for Supporting Entrepreneurship and the Competitiveness Web

Entrepreneurship is considered the primary development issue nowadays, especially in the arising post-COVID-19 era, where it can offer a sustainable route for exiting the crisis and setting up a long-term growth trajectory for the respective socio-economic systems and subsystems (Maritz et al., 2020; Shepherd, 2020). By reviewing recent definitions in the literature, a variety of interpretations can be found, each with a different outset and conclusion:

- ❖ Crumpton and Bird (2019, p. 171) mostly view entrepreneurship as innovation and opportunity: *“Entrepreneurship means a creative or innovative approach to creating new value, typically in a commercial enterprise. It speaks to nontraditional methods of practice or discovering hidden opportunities to pursue.”*
- ❖ Bell (2020, p. xiii) attributes significance to overall economic development triggered by entrepreneurship: *“Entrepreneurship is about more than economic development; it is also about human development. Entrepreneurship provides individuals the opportunity to guide their own destinies through work.”*
- ❖ The Information Resources Management Association (2019, p. 202) stresses the prerequisite individual effort and ethos: *“Entrepreneurship refers to the activities an individual goes through from the development of an idea until the creation of an enterprise.”*

Although various scholars conceive contemporary entrepreneurship within a relatively abstract context, the evolutionary “theory of the firm” contributions argue that entrepreneurship is called upon to implement the specific process of innovation (Etemad, 2017; Malen, 2015). Entrepreneurship means economic and commercial exploitation of scientific knowledge, which translates into technology and inventions. The inventor is not the innovator (Berkun, 2007). The entrepreneur is the risk-taker who undertakes the effort to combine the always-scarce production factors for improving the firm’s performance (to innovate). This entrepreneurial innovation—and from a neo-Schumpeterian perspective (Bodrožić & Adler, 2018; Chatzinikolaou & Vlahos, 2019)—leads the entire socio-economic system towards positive development spirals. In this context, there are diverse theoretical perspectives in exploring the way entrepreneurship is reinforced in any socio-economic system. As a term, public policy for entrepreneurship evolves from more straightforward to complex conceptualizations and with the focus continually shifting (Elsner, 2017; Kurtz, 2018). In a typical definition, entrepreneurship support policy is identified as measures increasing entrepreneurial activity levels and creating an environment that encourages people to become entrepreneurs (Lundström & Stevenson, 2005). Concerning the individual, public policy for entrepreneurship can turn the simple man into an entrepreneur by enriching the environment in which people grasp knowledge (Link, 2007).

A usual analytic expression in socio-economic sciences is the distinction between diverse levels. Although nowadays theoretical compartmentalization still exists between microeconomic and macroeconomic analysis—as Galbraith (1987) has noted in the past—this appears increasingly inadequate to embrace the whole spectrum of today’s political economy. Modern approaches are progressively suggesting that all levels must be synthesized and thereby conceive all socio-economic phenomena from a unified perspective (Dopfer, 2011). At the policy articulation level, it could be argued that there are at least seven kinds of theoretical and practical approaches: macro, meso, micro, macro-meso, macro-micro, meso-micro, macro-meso-micro (Table 1).

Table 1. Various socio-economic policy levels in terms of reinforcing entrepreneurship. Definitions of macro, meso, micro policy levels

Entrepreneurship support policy level	Suggested definition	Various related contributions
Macro	Macro policy refers to measures oriented towards improving the aggregate economic and business environment, expressed in national, international, or supranational terms.	(Ahluwalia, 2015; Hartwell, 2014; Timmer, 2000)
Meso	Meso policy is about strengthening specific sectoral, industrial, business cluster, and business ecosystem environments, aiming to reinforce them selectively.	(Aranguren et al., 2017; Marra et al., 2018; Meyer-Stamer, 2005; Parr, 1999; Sedelmeier, 2002)
Micro	Micro policy refers to measures targeting the short-term reinforcement of specific firms, favoring the usage of advising, training, and	(Bianchi, 2000; Fotopoulos & Storey, 2019; OECD, 2007)

	consulting instruments.	
Macro-meso	Macro-meso policy is primarily a traditional regional growth instrument, usually articulated in top-down terms and executed nationwide.	(Falck et al., 2011; Godlewska-Majkowska et al., 2016; Hemphill & White, 2013; OECD, 2009; Vlados & Chatzinikolaou, 2020a)
Macro-micro	Macro-micro policy is primarily a conventional practice, suggesting that macroeconomic growth can lead to direct business development.	(Basu & Mallick, 2008; Islam et al., 1992; Sowell, 2012; Watkins, 2014)
Meso-micro	Meso-micro policy concerns suggested and implemented supporting measures via intermediate organizations, having the aim to link all actors that could stimulate specific entrepreneurial structures at various localities and sectoral orientations.	(Falck et al., 2010; Menu, 2012; Porter, 1990; Rinkinen, 2016; Vlados & Chatzinikolaou, 2020b)
Macro-meso-micro	Macro-meso-micro policy is about an integrated and unified conceptualization and practice—in macro, meso, and micro levels simultaneously—directed towards achieving long-term socio-economic development goals in national, international, and supranational terms.	(Dovers, 1995; Howlett, 2009; Mirzanti et al., 2015; Virtanen & Uusikylä, 2004; Vlados & Katimertzopoulos, 2018; Zezza & Llambi, 2002)

According to Audretsch and Beckmann (2007), entrepreneurship support policy is a multilevel system that enables the creation and commercialization of innovative ideas. From these definitions supplied in Table 1, the multilevel framework’s dynamic character can be discerned, emphasizing the linking and “intermediating” role of the meso-level. The meso-level gives a dynamic and evolving socio-economic dimension to targeted economic policies (Lee, 2011; Mann, 2011). However, in the “macro-meso-micro” analytical direction, a novel and synthesizing approach is born. According to Vlados (2019b), the socio-economic system is a multilevel and evolutionary synthesis of subsystems that interact dynamically—a “competitiveness web” (Figure 2).

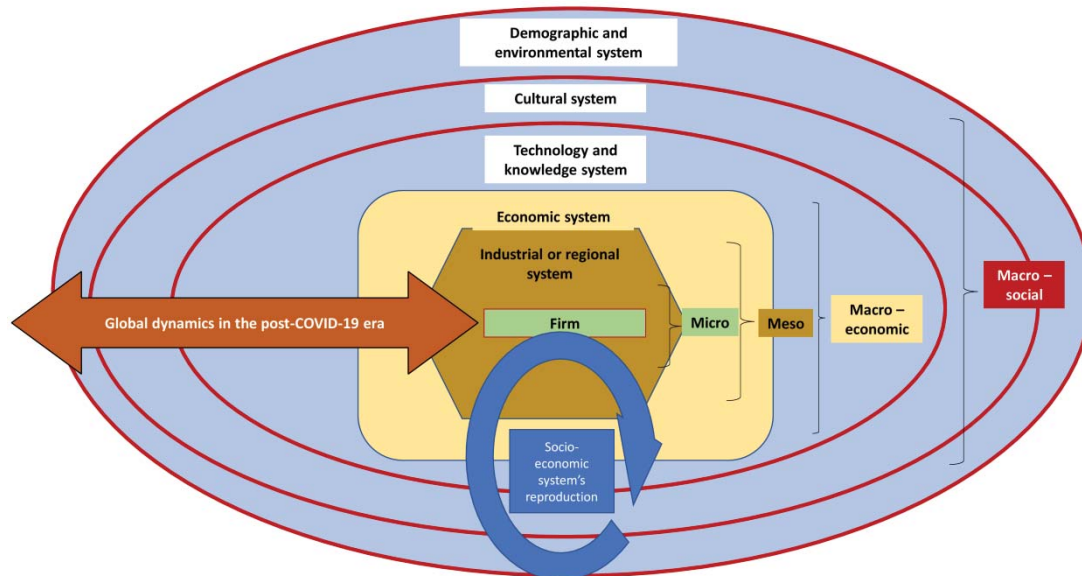


Figure 2. The multilevel socio-economic system in the form of the competitiveness web, based on Vlados (2019b)

All spatial levels and socio-economic subsystems are structurally correlated in this “web” of interdependencies, having in front of them nowadays the challenge of effectively adapting into the post-COVID-19 era. Any change in the macro, the meso, or the micro transforms in systemic terms all other levels. By considering that the competitiveness web is an attempt at conceiving the socio-economic system in its entirety, including the interactions among its systemic elements, it can become a tool for analyzing different economic policies, such as public policies for stimulating entrepreneurship. Based on the dynamic formation offered by this reasoning, entrepreneurship support policies can be distinguished in those that affect:

1. the various social factors related to the system's development prospects, such as the technological and cognitive dynamics and the cultural and demographic-environmental dynamics (macro-social),
2. the dynamics of the economy, as determined by the increase or decrease in aggregate economic performances (macro-economic),
3. the dynamics of localities and other spatial aggregations (industries and clusters) between firms (meso)
4. the evolutionary dynamics of the firm (micro).

This unifying theoretical scheme can be applied at any spatial level (local, national, or supranational). From this systemic web perspective, competitiveness analysis enters a repositioned conceptual framework in the post-COVID-19 era. It is assumed that all spatial socio-economic subsystems interact and reproduce their survival potential in a dynamic and multilevel way (macro-meso-micro). This “macro-meso-micro” perspective of the competitiveness web can also be useful for creating integrated public policies to strengthen entrepreneurship as it helps to conceive at what level various policy programs are targeted. The following section examines the case of relevant policy guidelines put forth by the European Union.

4. The EU Policy Framework Case for Entrepreneurship Support: Contemporary Trends and the Recovery and Resilience Facility (RRF)

After The European Union (EU), although “supranational,” is an integrated system under construction and a distinct legal entity—*sui generis* (Binder & Hofbauer, 2017; Phelan, 2012). Since the signing of the Maastricht Treaty and the single market implementation, it has become increasingly significant to recognize the European Community (now the European Union) as a legal order that consists of an organized and structured system of legal rules, with respective sources, institutions, and practical procedures to interpret and enforce these rules (Kochenov, 2008; Reimann & Zimmermann, 2019). The EU institutions resemble respective institutions and norms found in traditional international organizations. However, according to De Cruz (1999), a comparative law approach can highlight the EU institutions' specificity. First, the institutions do not correspond to the classic form of separation of powers since, for example, the European Parliament (formerly the Common Assembly) is primarily an advisory body with no competence to influence the legislation's content. Second, another unique feature of the institutions is that they are involved—and usually exercise a significant degree of regulatory control—in issues that have traditionally been within sovereign states' exclusive competence. Finally, it should be stressed that, unlike other international institutions, they were created with the primary goal of European political integration and, therefore, even the European Court of Justice takes decisions with European integration in mind. Thus, the EU law has separate power and will bypass local law where the latter is not directly applicable.

Although the “problem of supranationality” creates political and legal dilemmas within the methods and *modus operandi*, the EU's effort in promoting economic development and worldwide democracy and human rights is increasingly noticed (Bulmer & Joseph, 2016; Cross, 2007). The EU tries to promote cooperation and sub-regional integration outside its borders, which requires political stability, socio-economic development and fighting poverty and social exclusions (Decreux & Guérin, 2001; Draper, 2012; Jetschke & Murray, 2012). However, stability in a regional integration formation such as the EU requires the ability to set up and reinforce three main dynamics: a continuous strengthening in competencies, a deepening level of integration, and an increasing number of regional participants (Pelkmans, 1993). From a historical perspective, the EU has always been committed to one—or two at most aims—but has never been able to implement all three simultaneously and effectively. Yvars (2010) argues that such simultaneous action goes beyond any regional integration possibilities.

In this context, the EU creates and implements various policies geared towards sustainable socio-economic development in the member-states. These overarching policy directions set agendas on various issues, mostly from a multilevel perspective. In recent years, the EU has been increasingly giving weight to promoting entrepreneurship and business development by promoting at least four converging orientations—various of them were developed actively during the past years. The corresponding EU framework is primarily directed by its industrial policy guidelines, implemented as targeted programs and action plans focused on strengthening the entrepreneurial environment and specific skills at the micro-level. The Small Business Act (SBA), the Entrepreneurship 2020 Action Plan (EAP), and the Research and Innovation Strategy for Smart Specialization (RIS3), based on the Smart Specialization Strategies (S3s) from the EU's 2014-2020 cohesion policy, are significant projects in this direction, focusing on overlapping critical points (Table 2).

Table 2. Summary of the main points and goals of fundamental EU policies that directly or indirectly aim to foster and support entrepreneurship. Sources: European Commission (2012, 2013, 2014, 2017, 2017), Council of the European Union (2017)

EU's industrial policy	Funding, modernization through digitization, and workforce training for businesses—Skills development in specific industries—Trade policy to ensure fair competition in the areas of space, defense, and steel—Small and medium-sized enterprises (SMEs) support—Stimulation of innovation—Promotion of trade, environmental goals, digitization, and facilitation of easy access to raw materials—Take advantage of modern technologies and the EU's single market—Attract investment
Small Business Act (SBA)	Education and training for entrepreneurship—Efficient bankruptcy procedures and a second chance for entrepreneurs—"Think Small First": Institutional and regulatory framework for SME policymaking—Support services for SMEs and public procurement—Supporting SMEs so that they can take advantage of Euro-Mediterranean networks and partnerships—Internationalization of SMEs—Improve the approach to entrepreneurship in Europe—Simplify the regulatory framework for SMEs—Remove the remaining obstacles to SME development (access to finance and markets)
Entrepreneurship 2020 Action Plan	Entrepreneurial education and professional training—Access to finance—Strengthening new businesses in crucial phases of their lifecycle and helping them grow—Unleashing new business opportunities in the digital age—Second chances for honest bankrupts—Regulatory burden (clearer and more straightforward rules)—Unleash Europe's business dynamics—Strengthening entrepreneurial education and supporting business creation
Research and Innovation Strategy for Smart Specialization (RIS3)	Revealing what a country or region does best in terms of R&D and innovation and prioritizing critical decisions—Materializing structural changes in the EU industry with a decentralized logic—Encourage EU regions to turn their needs, strengths, and competitive advantages into marketable goods and services—Reorganize traditional sectors through the shift to high value-adding activities, new markets, or value chains—Modernization of existing businesses through the adoption and diffusion of modern technologies—Differentiation through technology and the development of new activities via innovations

There seems to be a multilevel conception geared towards reinforcing all socio-economic activity in the relevant EU policy guidelines. More general lines are set in the overarching industrial policy, which are further specialized in the other targeted programs towards entrepreneurship support. Interestingly, in industrial policy—which must be "by nature" multileveled since it targets the macro-meso-micro levels simultaneously (Vlados & Chatziniolaou, 2020c; Warwick, 2013)—directions appear that focus on supporting specific firms through training for modernization and digitization, which also are significant aspects for the post-COVID-19 era (Bonilla-Molina, 2020; Winarsih et al., 2021). The SBA and the EAP primarily include macro-targeted measures oriented towards institutionalizing an innovative business environment without intense intervention and "legal frictions," focusing also on aspects related to entrepreneurship education and the creation of innovative businesses. RIS3 appears to specialize the industrial policy directions in specific localities from a prevailing meso-targeting, stressing the need to reorganize specific sectors. It is worth noting that the "smart specialization" approach that led to RIS3 was based on the idea of identifying strategic areas for research and innovation interventions on a "place-based" orientation and practice (Foray, 2018; Foray et al., 2009).

It should also be pointed out that the EU at the central policy level seemed somehow ready to deal with the emerging wave of the fourth industrial revolution and the post-COVID-19 era (Schäfer, 2018; Weresa, 2019). However, it should be noted that the idiosyncratic politico-economic and legal nature and not fully integrated socio-economic structure of this supranational entity currently prevents a single, common economic policy, and, therefore, the impact of the EU policies naturally varies from one country to another (Andreou et al., 2017; Autio, 2016; Muller et al., 2015). Moreover, the basic structure of the economic policy regime in the Eurozone is characterized by duality since it is formed by a monetary policy planned centrally at the EU level and by a fiscal policy shaped by the national governments (Stockhammer, 2017), which do not always seem to consider the related European criteria as binding (Schalck, 2012). Consequently, the EU policies that directly or indirectly focus on fostering and supporting entrepreneurship do not always look alike, nor do they lead to the same results across European countries.

Nowadays, amid the pandemic crisis of COVID-19, the European Council agreed on July 21, 2020, to put forth the "Next Generation EU (NGEU)," a massive recovery fund of 750 billion euros to support the member-states (European Council, 2020). The "NGEU" is tied to the 2021-2027 next EU Multiannual Financial Framework, spanning over the years 2021-2023 (Crum, 2020). The breakthrough in the EU policy design that the NGEU achieved was that for the first time in its history, the EU would issue European sovereign bonds for distributing grants and loans to the member states by generating own resources with direct taxation—a practice considered a significant step towards fiscal integration in the EU (Cabral, 2021; Porte & Jensen, 2021). More specifically, member states agreed to submit national Recovery and

Resilience Plans (RRP) to receive support from the Fund that would outline how they will use these investments to contribute to the green and digital goals set by the European Commission. Thirty-seven percent of investment should be channeled to green actions and twenty-one percent to digital actions, following the EU climate neutrality goal of 2050 (Dupont et al., 2020; Karlsson & Silander, 2020).

In conclusion, the political guidelines for supporting entrepreneurship in the EU have mostly scattered “macro, meso, and micro” elements that do not follow an integrated perspective as in the competitiveness web approach. Creating and promoting a unified “macro-meso-micro” framework also seems to determine the RRF’s success. Member states now need to further coordinate their economic policies, oriented towards entrepreneurship support that can decisively contribute to the sustainable green and digital goals. In the concluding section, a policy aligned with the present-day challenges in Europe is suggested.

5. Concluding Remarks and Proposals: The ILDI and the “Macro-Meso-Micro” Entrepreneurship Enhancement Policy Mechanism for the EU in the Post-COVID-19 Era

This conceptual paper analyzed various policy schemes for supporting and strengthening innovative entrepreneurship and safeguard the resilience and viability of firms and socio-economic systems in the emerging post-COVID-19 era. It tried to examine at what levels relevant public policies that strengthen entrepreneurship are articulated, focusing on the European Union’s case. It studied the arising context of the COVID-19 pandemic crisis and the fourth industrial revolution’s acceleration, emphasizing current entrepreneurship implications. After defining the diverse macro, meso, and micro levels and their combinations, it highlighted the increasing significance of a unified conceptualization in macro-meso-micro policy alignment. The main research implication is that EU relevant policy guidelines appear to have scattered macro, meso, and micro constituents that, if further unified and in terms of the RRF, can also be the basis for better addressing the current crisis and deriving global restructuring. Specifically, our study concludes that this challenge could be addressed by a specific policy mechanism capable of diagnosing the Stra.Tech.Man physiology (strategy-technology-management synthesis) of the spatially-located firms. A readjusted policy to enhance local entrepreneurship, resilience, and competitiveness can facilitate the adaptation of local socio-economic systems—especially the less developed, adaptable, and innovative ones—to the emerging post-COVID-19 restructured global environment.

In this context, it seems increasingly necessary for all European regions—typically the least developed—to obtain or keep their distinct competitive advantages (Henry & Smith, 2021; Mason & Hruskova, 2021). A policy mechanism has been suggested in the recent past, which can be a more cohesive framework for the post-recovery-fund era in the EU, contributing specifically to local and regional development. Understanding the significance of the macro-meso-micro levels of policy for less-developed European regions, Vlado and Chatzinikolaou (2019a) have suggested the policy mechanism of the “Institutes of Local Development and Innovation” (Figure 3).

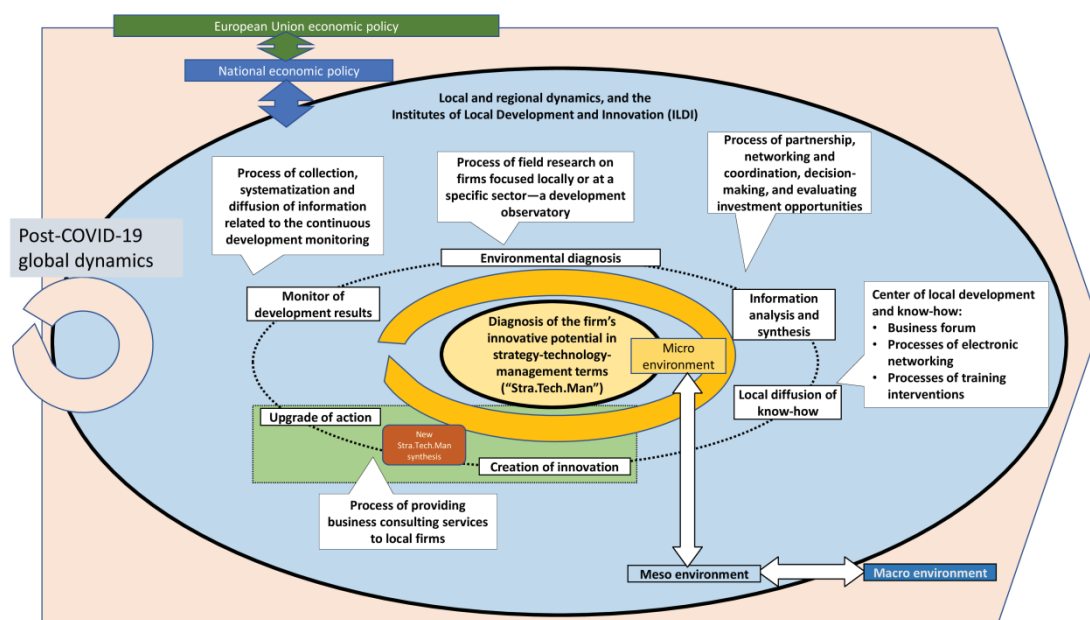


Figure 3. The complete macro-meso-micro policy mechanism of the Institutes of Local Development and Innovation (ILDI), adjusted from Vlado and Chatzinikolaou (2019a)

In this policy recommendation, firms are conceived as “socio-economic organisms” who think and act—they have a specific business rationale or “physiology”—according to how they synthesize the spheres of strategy, technology, and management (Vlados, 2004, 2019a). Each sphere corresponds to a series of questions that lead to a preliminary diagnosis of the firm’s innovation potential in terms of “Stra.Tech.Man” (strategy-technology-management synthesis). The firm’s strategy corresponds to where the organization is and where it desires to go in the foreseeable future, technology concerns how it creates and uses its knowledge, and management the methods it implements to handle its always-scarce available resources. The suggested macro-meso-micro policy mechanism of the ILDI is built around this diagnosis as a one-stop-shop calibrated towards regional entrepreneurship development and innovation (Pike et al., 2012; Scholta et al., 2019).

The ILDI could follow a six-step method by initially building a system of environment diagnosis and creating the conditions to process specific field research on firms focused locally or at a specific sector—to construct a “development observatory.” The next step refers to analyzing and synthesizing available information, moving forward with seeking regional partnership, networking and coordination, decision-making, and evaluating investment opportunities. The third step concerns diffusing knowledge locally by setting up digital business forums and general (cross-industry) training interventions. The following two steps of this policy cycle refer to firm-specific consulting by the institution’s experts, aiming to foster innovation and upgrade the firm’s “Stra.Tech.Man.” The last step is about keeping momentum by publishing reports concerning the synthesizing development results achieved over the past cycle. Conclusively, such a mechanism may stimulate the innovative potential of a whole country that implements it—and so the EU—and it is not by chance that regional and local development policies are a priority in the post-COVID-19 era for a growing number of countries (Epifanova et al., 2020; Rodríguez-Cohard et al., 2020).

In this direction, various approaches related to the “helix theory” have been developed, suggesting a method of reinforcing innovation in different spatial levels (Rodrigues & Melo, 2012; Sá et al., 2018). The three fundamental dimensions synthesized in the helix theory are the industry, the academia, and the government, which can also function within the framework of different spatial-based policies to reinforce specific business ecosystems (Metcalf, 2010; Nakwa et al., 2012). The ILDI approach could function as an intermediate organization in this helix theory scheme (Figure 4).

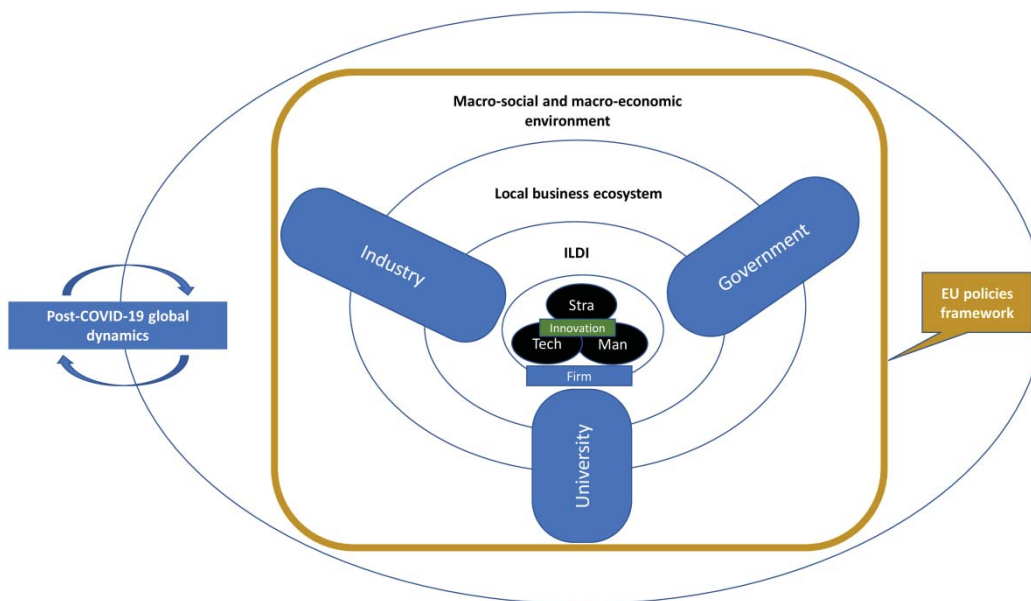


Figure 4. The Institutes of Local Development and Innovation (ILDI) as an intermediate organization from the perspective of helix theory, as adjusted from Vlados and Chatzinikolaou (2019b)

According to Vlados and Chatzinikolaou (2019b), firms are the socio-economic organizations that lie at the center of the business ecosystem, while the ways they synthesize their spheres of strategy, technology, and management decide the entire system’s evolutionary prospects. The ILDI can be an intermediate organization that draws and spreads knowledge and skills from the three helices within the current dynamics of globalization in the post-COVID-19 era. Therefore, the ILDI is a policy mechanism that could synthesize at the European level the “macro-meso-micro” environment from a unified perspective. In this sense, a practical integrated policy linking the EU’s overall intervention

for the post-COVID-19 era with different national policies could be articulated based on the agreed Recovery and Resilience Facility. These national policies could be further specialized in various regional and industrial plans and actions, using the ILDI as a synthesis mechanism for all actors that can potentially stimulate local development (Vlados, Deniozos, & Chatzinikolaou, 2018). These local actors are universities and other educational and training institutions, startup financing mechanisms, chambers of commerce, national organizations for employment, banks, cooperatives, and other related institutions (Figure 5).

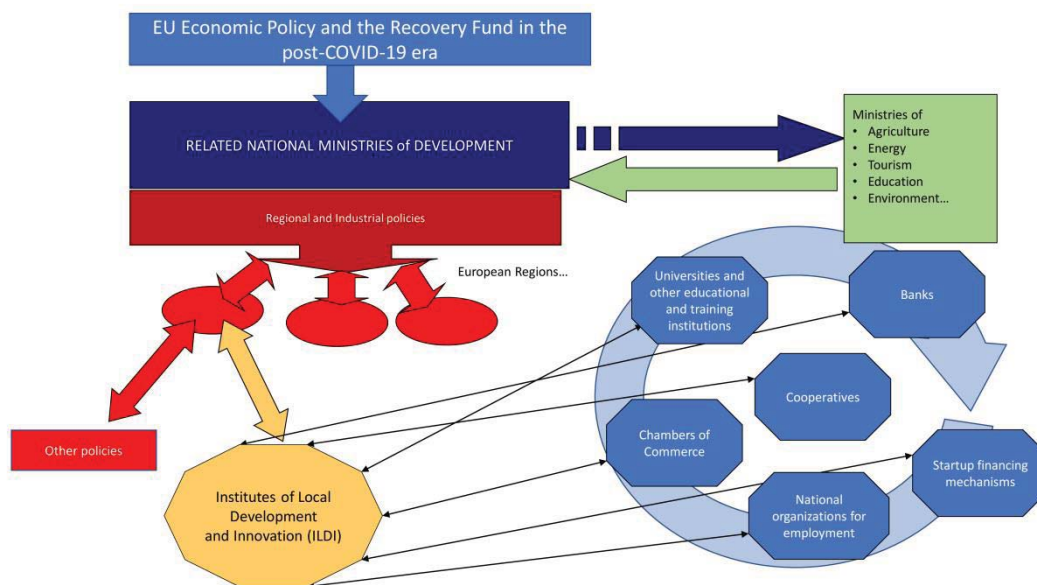


Figure 5. The macro-meso-micro policy mechanism of the Institutes of Local Development and Innovation (ILDI) for various regional and industrial plans in Europe in the post-COVID-19 era, as adjusted from Vlados et al. (2018a)

In this way, the ILDI can be a bridge to the EU policy articulation with other national policies in Europe, focusing on the locality and the various economic sectors (meso) and having as a final goal the strengthening of every firm's internal potential exerted in this specific space (micro). In this unique environment that rises nowadays, it will be of utmost significance how all firms—at any spatial or sectoral level—succeed to reposition themselves in terms of strategy-technology-management by reproducing a new “Stra.Tech.Man” innovative synthesis to adapt in the post-COVID-19 era. This suggested mechanism could offer solutions for new questions and challenges arising for all socio-economic systems within the EU and, in particular:

- A. Help the common European policy focus on various localities and economic sectors, emphasizing the specific needs of the most affected and vulnerable cases.
- B. Aid specific firms in a wide variety of sectoral and local foci to strengthen their internal potential by upgrading their strategic, technological, and managerial capabilities and thus improving their resilience and sustainability.
- C. Enable various socio-economic systems to heal the wounds left by the COVID-19 crisis at all levels of their socio-economic web, enhancing their ability to set a new sustainable development trajectory in the post-COVID-19 era.

Acknowledgments

We warmly thank Dr. Andreas Andrikopoulos, Associate Professor at the Department of Business Administration of the University of the Aegean, who offered valuable comments on this manuscript's last version.

References

- Ahluwalia, M. S. (2015). *Role of economists in policy-making* (No. 144; WIDER Working Paper Series). World Institute for Development Economic Research (UNU-WIDER). <https://doi.org/10.35188/UNU-WIDER/2015/033-1>
- Akpan, I. J., Soopramanien, D., & Kwak, D.-H. (2020). Cutting-edge technologies for small business and innovation in the era of COVID-19 global health pandemic. *Journal of Small Business & Entrepreneurship*, 1–11. <https://doi.org/10.1080/08276331.2020.1799294>

- Andreou, A., Andrikopoulos, A., & Nastopoulos, C. (2017). Chapter 1 - Debt markets, financial crises, and public finance in the Eurozone: Action, structure, and experience in Greece. In F. Economou, K. Gavriilidis, G. N. Gregoriou, & V. Kallinterakis (Eds.), *Handbook of investors' behavior during financial crises* (pp. 3–28). <https://doi.org/10.1016/B978-0-12-811252-6.00001-3>
- Anker, T. B. (2021). At the boundary: Post-COVID agenda for business and management research in Europe and beyond. *European Management Journal*. <https://doi.org/10.1016/j.emj.2021.01.003>
- Apedo-Amah, M. C., Avdiu, B., Cirera, X., da Cruz, M. J. V., Davies, E., Grover, A., ... Thu Tran T. (2020). *Unmasking the impact of COVID-19 on businesses: Firm level evidence from across the world* (Policy Research Working Paper No. 9434; Finance, Competitiveness and Innovation Global Practice). World Bank. <https://doi.org/10.1596/1813-9450-9434>
- Aranguren, M. J., Magro, E., & Wilson, J. R. (2017). Regional competitiveness policy evaluation as a transformative process: From theory to practice. *Environment and Planning C: Politics and Space*, 35(4), 703–720. <https://doi.org/10.1177/0263774X16662469>
- Audretsch, D. B., & Beckmann, I. A. (2007). From small business to entrepreneurship policy. In D. B. Audretsch, I. Grilo, & A. Thurik (Eds.), *Handbook of research on entrepreneurship policy* (pp. 36–53). Cheltenham: Edward Elgar. <https://doi.org/10.4337/9781847206794>
- Autio, E. (2016). *Entrepreneurship support in Europe: Trends and challenges for EU policy* [Report prepared for EU DG Growth]. London: Imperial College Business School.
- Azevêdo, D. G. (2020). Trade set to plunge as Covid-19 pandemic upends global economy. *WTO Trade Forecast Press Conference*, 8. Retrieved from https://www.wto.org/english/news_e/pres20_e/pr855_e.htm
- Basu, S., & Mallick, S. (2008). When does growth trickle down to the poor? The Indian case. *Cambridge Journal of Economics*, 32(3), 461–477. <https://doi.org/10.1093/cje/bem053>
- Baumann, C., Cherry, M., & Chu, W. (2019). Competitive Productivity (CP) at macro–meso–micro levels. *Cross Cultural & Strategic Management*, 26(2), 118–144. <https://doi.org/10.1108/CCSM-08-2018-0118>
- Beech, P. (2020, May 19). *Z, V or “Nike swoosh” – what shape will the COVID-19 recession take?* World Economic Forum. Retrieved from <https://www.weforum.org/agenda/2020/05/z-u-or-nike-swoosh-what-shape-will-our-covid-19-recovery-take/>
- Bell, D. (2020). *Aid donor collaboration, organizational behavior, and aid flow predictability: Not your father's bureaucracy*. Lexington Books. Retrieved from <http://public.eblib.com/choice/PublicFullRecord.aspx?p=6235833>
- Berkun, S. (2007). *The myths of innovation*. Cambridge: O'Reilly.
- Bianchi, P. (2000). Policies for Small and Medium-Sized Enterprises (SMEs). In W. Elsner & J. Groenewegen (Eds.), *Industrial policies after 2000* (pp. 321–343). https://doi.org/10.1007/978-94-011-3996-0_11
- Binder, C., & Hofbauer, J. A. (2017). The perception of the EU legal order in international law: An in- and outside view. In M. Bungenberg, M. Krajewski, C. Tams, J. P. Terhechte, & A. R. Ziegler (Eds.), *European yearbook of international economic law 2017* (pp. 139–203). https://doi.org/10.1007/978-3-319-58832-2_6
- Bodrožić, Z., & Adler, P. S. (2018). The evolution of management models: A neo-schumpeterian theory. *Administrative Science Quarterly*, 63(1), 85–129. <https://doi.org/10.1177/0001839217704811>
- Bonilla-Molina, L. (2020). Covid-19 on Route of the Fourth Industrial Revolution. *Postdigital Science and Education*, 2(3), 562–568. <https://doi.org/10.1007/s42438-020-00179-4>
- Boschma, R. (2015). Towards an Evolutionary Perspective on Regional Resilience. *Regional Studies*, 49(5), 733–751. <https://doi.org/10.1080/00343404.2014.959481>
- Bozorgmehr, K., Saint, V., Kaasch, A., Stuckler, D., & Kentikelenis, A. (2020). COVID and the convergence of three crises in Europe. *The Lancet Public Health*, 5(5), e247–e248. [https://doi.org/10.1016/S2468-2667\(20\)30078-5](https://doi.org/10.1016/S2468-2667(20)30078-5)
- Bragazzi, N. L. (2020). Digital Technologies-Enabled Smart Manufacturing and Industry 4.0 in the Post-COVID-19 Era: Lessons Learnt from a Pandemic. *International Journal of Environmental Research and Public Health*, 17(13), 4785. <https://doi.org/10.3390/ijerph17134785>
- Bulmer, S., & Joseph, J. (2016). European integration in crisis? Of supranational integration, hegemonic projects and domestic politics. *European Journal of International Relations*, 22(4), 725–748. <https://doi.org/10.1177/1354066115612558>
- Cabral, N. da C. (2021). Borrowing in the European Union: From a pure national model to the antechamber of a

- European fiscal federal solution. *Journal of European Integration*, 1–16. <https://doi.org/10.1080/07036337.2021.1881499>
- Carayannis, E., Grigoroudis, E., Campbell, D., Meissner, D., & Stamati, D. (2018). The ecosystem as helix: An exploratory theory-building study of regional co-opetitive entrepreneurial ecosystems as Quadruple/Quintuple Helix Innovation Models. *R&D Management*, 48(1), 148–162. <https://doi.org/10.1111/radm.12300>
- Chatzinikolaou, D., & Vlado, Ch. (2019). Schumpeter, neo-Schumpeterianism, and Stra.Tech.Man evolution of the firm. *Issues in Economics and Business (International Economics and Business)*, 5(2), 80–102. <https://doi.org/10.5296/ieb.v5i2.16097>
- Chaves-Maza, M., & Martel, E. M. F. (2020). Entrepreneurship support ways after the COVID-19 crisis. *Entrepreneurship and Sustainability Issues*, 8(2), 662–681. [https://doi.org/10.9770/jesi.2020.8.2\(40\)](https://doi.org/10.9770/jesi.2020.8.2(40))
- Council of the European Union. (2017). *A renewed EU industrial policy strategy: Council adopts conclusions* [Press release, 30 November]. Retrieved from <https://www.consilium.europa.eu/en/press/press-releases/2017/11/30/a-renewed-eu-industrial-policy-strategy-council-adopts-conclusions>
- Cross, M. K. D. (2007). An EU homeland security? Sovereignty vs. supranational order. *European Security*, 16(1), 79–97. <https://doi.org/10.1080/09662830701442410>
- Crum, B. (2020). *How to provide political guidance to the Recovery and Resilience Facility?* European Parliament. <https://doi.org/10.2861/108171>
- Crumpton, M. A., & Bird, N. J. (2019). Educating the entrepreneurial librarian. In J. Crum & S. Hines (Eds.), *Supporting entrepreneurship and innovation* (Vol. 40, pp. 169–182). <https://doi.org/10.1108/S0732-067120190000040011>
- De Cruz, P. (1999). *Comparative law in a changing world*. London: Cavendish.
- Decreux, Y., & Guérin, J.-L. (2001). Mercosur: Free-trade area with the EU or with the Americas? Some lessons from the model Mirage. *Conference on Impacts of Trade Liberalization Agreements on Latin America and the Caribbean, Inter-American Development Bank, Washington DC, 5-6 November 2001*.
- Dodds, K., Broto, V. C., Detterbeck, K., Jones, M., Mamadouh, V., Ramutsindela, M., ... Woon, C. Y. (2020). The COVID-19 pandemic: Territorial, political and governance dimensions of the crisis. *Territory, Politics, Governance*, 8(3), 289–298. <https://doi.org/10.1080/21622671.2020.1771022>
- Dopfer, K. (2011). The origins of meso economics: Schumpeter's legacy and beyond. *Journal of Evolutionary Economics*, 22(1), 133–160. <https://doi.org/10.1007/s00191-011-0218-4>
- Dovers, S. R. (1995). A framework for scaling and framing policy problems in sustainability. *Ecological Economics*, 12(2), 93–106. [https://doi.org/10.1016/0921-8009\(94\)00042-T](https://doi.org/10.1016/0921-8009(94)00042-T)
- Draper, P. (2012). Breaking free from Europe: Why Africa needs another model of regional integration. *The International Spectator*, 47(1), 67–82. <https://doi.org/10.1080/03932729.2012.655008>
- Dupont, C., Oberthür, S., & von Homeyer, I. (2020). The Covid-19 crisis: A critical juncture for EU climate policy development? *Journal of European Integration*, 42(8), 1095–1110. <https://doi.org/10.1080/07036337.2020.1853117>
- Elsner, W. (2017). Complexity economics as heterodoxy: Theory and policy. *Journal of Economic Issues*, 51(4), 939–978. <https://doi.org/10.1080/00213624.2017.1391570>
- Epifanova, T. V., Kurinova, Y. I., & Tertishnikova, M. P. (2020). Development of regional business ecosystems as an effective tool to counter the COVID-19 crisis. *International Journal of Economics & Business Administration (IJEBA)*, 8(4), 807–818. <https://doi.org/10.35808/ije/630>
- Etemad, H. (2017). Towards an emerging evolutionary life-cycle theory of internationalized entrepreneurial firms: From born globals to borderless firms? *Journal of International Entrepreneurship*, 15(2), 111–120. <https://doi.org/10.1007/s10843-017-0204-5>
- European Central Bank. (2020). *ECB staff macroeconomic projections for the euro area, March 2020*. European Central Bank. Retrieved from https://www.ecb.europa.eu/pub/projections/html/ecb.projections202003_ecbstaff~dfa19e18c4.en.html
- European Commission. (2012). *Guide to Research and Innovation Strategies for Smart Specialisation (RIS3)*. European Commission. Retrieved from

- https://ec.europa.eu/regional_policy/sources/docgener/presenta/smart_specialisation/smart_ris3_2012.pdf
- European Commission. (2013). *Entrepreneurship 2020 Action Plan: Reigniting the entrepreneurial spirit in Europe*. European Commission. Retrieved from <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52012DC0795&from=EL>
- European Commission. (2014). *Regional Implementation of the SBA*. Publications Office of the European Union. Retrieved from <https://op.europa.eu/en/publication-detail/-/publication/cfb47ae4-abc4-4a18-8058-177976f15647/language-en>
- European Commission. (2017a). *Industry in Europe: Facts & figures on competitiveness & innovation 2017*. Publications Office of the European Union. Retrieved from <https://op.europa.eu/en/publication-detail/-/publication/354c1e8b-1db0-11e7-aeb3-01aa75ed71a1/language-en>
- European Commission. (2017b). *Strengthening innovation in Europe's regions: Strategies for resilient, inclusive and sustainable growth*. European Commission. Retrieved from https://ec.europa.eu/regional_policy/en/information/publications/communications/2017/strengthening-innovation-in-europe-s-regions-strategies-for-resilient-inclusive-and-sustainable-growth
- European Council. (2020). *Special Meeting of the European Council (1 and 2 October 2020) – Conclusions*. Note from General Secretariat of the Council to Delegations. Retrieved from <https://www.consilium.europa.eu/media/45910/021020-euco-final-conclusions.pdf>
- Falck, O., Gollier, C., & Woessmann, L. (2011). *Industrial policy for national champions*. Cambridge: MIT Press. <https://doi.org/10.7551/mitpress/9780262016018.001.0001>
- Falck, O., Heblich, S., & Kipar, S. (2010). Industrial innovation: Direct evidence from a cluster-oriented policy. *Regional Science and Urban Economics*, 40(6), 574–582. <https://doi.org/10.1016/j.regsciurbeco.2010.03.007>
- Food and Agriculture Organization (2020). *COVID-19 and rural poverty: Supporting and protecting the rural poor in times of pandemic*. Food and Agriculture Organization of the United Nations. Retrieved from <http://www.fao.org/3/ca8824en/CA8824EN.pdf>
- Foray, D. (2018). Smart specialisation strategies and industrial modernisation in European regions—Theory and practice. *Cambridge Journal of Economics*, 42(6), 1505–1520. <https://doi.org/10.1093/cje/bey022>
- Foray, D., David, P. A., & Hall, B. (2009). Smart specialization: The concept. In *Knowledge for growth: Prospects for science, technology and innovation: Selected papers from Research Commissioner Janez Potočnik's expert group* (pp. 20-24). Luxembourg: Publications Office of the European Union.
- Fotopoulos, G., & Storey, D. J. (2019). Public policies to enhance regional entrepreneurship: Another programme failing to deliver? *Small Business Economics*, 53(1), 189–209. <https://doi.org/10.1007/s11187-018-0021-9>
- Galbraith, J. K. (1987). *Economics in perspective: A critical history*. Boston: Houghton Mifflin.
- Gilson, L. L., & Goldberg, C. B. (2015). Editors' comment: So, what is a conceptual paper? *Group & Organization Management*, 40(2), 127–130. <https://doi.org/10.1177/1059601115576425>
- Godlewska-Majkowska, H., Komor, A., & Typa, M. (2016). Special Economic Zones as growth and anti-growth poles as exemplified by Polish regions. *Entrepreneurial Business and Economics Review*, 4(4), 189–212. <https://doi.org/10.15678/EBER.2016.040412>
- Gómez-Pineda, J. G. (2020). Growth forecasts and the Covid-19 recession they convey. *Covid Economics, Vetted and Real-Time Papers*, 40, 196-213. Retrieved from https://www.researchgate.net/profile/Ioannis-Laliotis/publication/343307261_CovidEconomics40/links/5f22b3e1a6fdcccc43995642/CovidEconomics40.pdf#page=201
- Gong, H., Hassink, R., Tan, J., & Huang, D. (2020). Regional resilience in times of a pandemic crisis: The case of COVID-19 in China. *Tijdschrift Voor Economische En Sociale Geografie*, 111(3), 497–512. <https://doi.org/10.1111/tesg.12447>
- Gregory, V., Menzio, G., & Wiczer, D. G. (2020). *Pandemic Recession: L or V-Shaped?* (No. w27105). National Bureau of Economic Research. <https://doi.org/10.3386/w27105>
- Grimaccia, E. (2020). An analysis of the performance of European Union countries in the light of Europe 2020 strategy indicators. *Review of European Studies*, 12(4), 12-19. <https://doi.org/10.5539/res.v12n4p12>
- Hartwell, C. A. (2014). Capital controls and the determinants of entrepreneurship. *Czech Journal of Economics and Finance (Finance a Uver)*, 64(6), 434–456. Retrieved from

- http://journal.fsv.cuni.cz/storage/1310_434-456---hartwell.pdf
- Hemphill, T. A., & White, G. O. (2013). China's National Champions: The Evolution of a National Industrial Policy—Or a New Era of Economic Protectionism? *Thunderbird International Business Review*, 55(2), 193–212. <https://doi.org/10.1002/tie.21535>
- Henry, N., & Smith, A. (2021). Europe and/or the UK: Post-Brexit urban and regional development futures – A special issue. *European Urban and Regional Studies*, 28(1), 3–7. <https://doi.org/10.1177/0969776420982742>
- Howlett, M. (2009). Governance modes, policy regimes and operational plans: A multi-level nested model of policy instrument choice and policy design. *Policy Sciences*, 42(1), 73–89. <https://doi.org/10.1007/s11077-009-9079-1>
- Ignatov, A. (2018). Entrepreneurial innovation: The European Union perspective. *Review of Economic Perspectives*, 18(2), 137–154. <https://doi.org/10.2478/revecp-2018-0008>
- Information Resources Management Association. (2019). *Social entrepreneurship: Concepts, methodologies, tools, and applications*. <https://doi.org/10.4018/978-1-5225-8182-6>
- International Civil Aviation Organization. (2020, November 12). Effects of novel coronavirus (COVID-19) on civil aviation: Economic impact analysis. *Air Transport Bureau*. Retrieved from https://www.aaco.org/Library/Files/Uploaded%20Files/Economics/Corona%20studies/3dec%20ICAO_Coronavirus_Econ_Impact.pdf
- International Energy Agency. (2020). *World energy outlook 2020* [Part of World Energy Outlook]. International Energy Agency. Retrieved from <https://www.iea.org/reports/world-energy-outlook-2020>
- International Labour Organization. (2020). *ILO Monitor: COVID-19 and the world of work. Fifth edition*. International Labour Organization. Retrieved from https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/documents/briefingnote/wcms_749399.pdf
- International Monetary Fund. (2020). *A crisis like no other; an uncertain recovery* (World Economic Outlook Reports, World Economic Outlook Update, June 2020). Retrieved from <https://www.imf.org/en/Publications/WEO/Issues/2020/06/24/WEOUpdateJune2020>
- Islam, N., McClelland, D. A., Charest, C., Harris, D. J., & Genné, M. (1992). Growth, poverty and rural development: From trickle-down toward the great ascent—A review article. *Canadian Journal of Development Studies / Revue Canadienne d'études Du Développement*, 13(3), 443–462. <https://doi.org/10.1080/02255189.1992.9669472>
- Jaakkola, E. (2020). Designing conceptual articles: Four approaches. *AMS Review*, 10(1), 18–26. <https://doi.org/10.1007/s13162-020-00161-0>
- Jetschke, A., & Murray, P. (2012). Diffusing regional integration: The EU and Southeast Asia. *West European Politics*, 35(1), 174–191. <https://doi.org/10.1080/01402382.2012.631320>
- Kalemli-Ozcan, S., Gourinchas, P.-O., Penciakova, V., & Sander, N. (2020). COVID-19 and SME Failures. *IMF Working Papers*, 20(207). <https://doi.org/10.5089/9781513557748.001>
- Karlsson, C., & Silander, D. (2020). *Implementing sustainable development goals in Europe: The role of political entrepreneurship*. Cheltenham: Edward Elgar Publishing. <https://doi.org/10.4337/9781789909975>
- Ketels, C., & Porter, M. E. (2020). Rethinking the role of the EU in enhancing European competitiveness. *Competitiveness Review: An International Business Journal*, 31(2), 189–207. <https://doi.org/10.1108/CR-08-2020-0100>
- Kochenov, D. (2008). *EU enlargement and the failure of conditionality: Pre-accession conditionality in the fields of democracy and the rule of law*. Alphen aan den Rijn: Wolters Kluwer Law & Business. <https://doi.org/10.5771/9783845212272-103>
- Kurtz, C. (2018). Are we ready for complexity? *Journal on Policy and Complex Systems*, 4(1), 135–154. <https://doi.org/10.18278/jpcs.4.1.7>
- Larionova, M., & Kirton, J. (2020). Global Governance After the COVID-19 Crisis. *International Organisations Research Journal*, 15(2), 7–23. <https://doi.org/10.17323/1996-7845-2020-02-01>
- Lee, K. Y. (2011). *From third world to first: Singapore and the Asian economic boom*. New York: Harper Business.
- Link, A. N. (2007). Public policy and entrepreneurship. In D. B. Audretsch, I. Grilo, & A. Thurik (Eds.), *Handbook of research on entrepreneurship policy* (pp. 130–139). Cheltenham: Edward Elgar.
- Lundström, A., & Stevenson, L. (2005). *Entrepreneurship policy: Theory and practice*. New York: Springer.

- Malen, J. (2015). Motivating and enabling firm innovation effort: Integrating penrosian and behavioral theory perspectives on slack resources. *Hitotsubashi Journal of Commerce and Management*, 49(1), 37–54. Retrieved from www.jstor.org/stable/43697708
- Mann, S. (Ed.). (2011). *Sectors matter! Exploring mesoeconomics*. New York: Springer. <https://doi.org/10.1007/978-3-642-18126-9>
- Maritz, A., Perenyi, A., de Waal, G., & Buck, C. (2020). Entrepreneurship as the unsung hero during the current COVID-19 economic crisis: Australian perspectives. *Sustainability*, 12(11), 4612. <https://doi.org/10.3390/su12114612>
- Marra, A., Mazzocchitti, M., & Sarra, A. (2018). Knowledge sharing and scientific cooperation in the design of research-based policies: The case of the circular economy. *Journal of Cleaner Production*, 194, 800–812. <https://doi.org/10.1016/j.jclepro.2018.05.164>
- Mason, C., & Hruskova, M. (2021). The impact of Covid-19 on entrepreneurial ecosystems. In P. McCann & T. Vorley, *Productivity and the pandemic* (pp. 59–72). <https://doi.org/10.4337/9781800374607.00011>
- Menu, S. (2012). The role of cluster policy on leadership: Evidence from two pôles de compétitivité. *Environment and Planning C: Government and Policy*, 30(5), 816–834. <https://doi.org/10.1068/c1190>
- Metcalfe, A. S. (2010). Examining the trilateral networks of the triple helix: Intermediating organizations and academy-industry-government relations. *Critical Sociology*, 36(4), 503–519. <https://doi.org/10.1177/0896920510365920>
- Meunier, S., & Mickus, J. (2020). Sizing up the competition: Explaining reform of European Union competition policy in the Covid-19 era. *Journal of European Integration*, 42(8), 1077–1094. <https://doi.org/10.1080/07036337.2020.1852232>
- Meyer-Stamer, J. (2005). *Systemic competitiveness revisited: Conclusions for technical assistance in private sector development* [Mesopartner Working Paper 14]. Retrieved from https://www.mesopartner.com/fileadmin/media_center/Working_papers/mp-wp14_01.pdf
- Mirzanti, I. R., Simatupang, T. M., & Larso, D. (2015). Entrepreneurship policy implementation model in Indonesia. *International Journal of Entrepreneurship and Small Business*, 26(4), 399–415. <https://doi.org/10.1504/IJESB.2015.072765>
- Muller, P., Caliendo, C., Peycheva, V., Gagliardi, D., Marzocchi, C., Ramlogan, R., & Cox, D. (2015). *Annual report on european SMEs* [EU DG Internal Market, Industry, Entrepreneurship and SMEs]. European Commission. Retrieved from <https://ec.europa.eu/docsroom/documents/16341/attachments/2/translations/en/renditions/native>
- Nakwa, K., Zawdie, G., & Intarakumnerd, P. (2012). Role of Intermediaries in Accelerating the Transformation of Inter-Firm Networks into Triple Helix Networks: A Case Study of SME-based Industries in Thailand. *Procedia - Social and Behavioral Sciences*, 52, 52–61. <https://doi.org/10.1016/j.sbspro.2012.09.441>
- Organisation for Economic Co-operation and Development. (2007). *Micro-policies for growth and productivity Summary of key findings*. Paris: Organisation for Economic Co-operation and Development.
- Organisation for Economic Co-operation and Development. (2009). Competition policy, industrial policy and national champions. *Roundtable on Competition Policy, Industrial Policy and National Champions*. Global Forum on Competition. Retrieved from <https://www.oecd.org/daf/competition/44548025.pdf>
- Organisation for Economic Co-operation and Development. (2020a). *Coronavirus (COVID-19): SME policy responses* (Updated July 15th, 2020). Retrieved from https://read.oecd-ilibrary.org/view/?ref=119_119680-di6h3qgi4x&title=Covid-19_SME_Policy_Responses
- Organisation for Economic Co-operation and Development. (2020b). *OECD economic outlook, Volume 2020 Issue 2*. Paris: Organisation for Economic Co-operation and Development.
- Organisation for Economic Co-operation and Development. (2020c). *E-commerce in the time of COVID-19* (Tackling Coronavirus (COVID-19): Contributing to a Global Effort). Secretary-General of the Organisation for Economic Co-operation and Development. Retrieved from <http://www.oecd.org/coronavirus/policy-responses/e-commerce-in-the-time-of-covid-19-3a2b78e8/>
- Parr, J. B. (1999). Growth-pole strategies in regional economic planning: A retrospective view: Part 1. Origins and advocacy. *Urban Studies*, 36(7), 1195–1215. <https://doi.org/10.1080/0042098993187>
- Paché, G. (2020). The “day after” Covid-19 pandemic: Logistical disorders in perspective. *Review of European Studies*,

- 12(3), 1-8. <https://doi.org/10.5539/res.v12n3p1>
- Pelkmans, J. (1993). Comparando las integraciones económicas: Prerequisitos, opciones e implicaciones [Comparing economic integrations: Prerequisites, options and implications]. *Integración Latinoamericana*, 191, 3-17.
- Peneder, M. (2017). Competitiveness and industrial policy: From rationalities of failure towards the ability to evolve. *Cambridge Journal of Economics*, 41(3), 829–858. <https://doi.org/10.1093/cje/bew025>
- Phelan, W. (2012). What is sui generis about the European Union? Costly international cooperation in a self-contained regime. *International Studies Review*, 14(3), 367–385. <https://doi.org/10.1111/j.1468-2486.2012.01136.x>
- Pike, A., Rodríguez-Pose, A., & Tomaney, J. (2012). *Handbook of local and regional development*. London: Routledge. Retrieved from <http://www.credoreference.com/book/routlrd>
- Podkaminer, L. (2019). Is better economic integration in the EU possible? *European Journal of Economics and Economic Policies: Intervention*, 16(3), 370–380. <https://doi.org/10.4337/ejeep.2019.0054>
- Porte, C. de la, & Jensen, M. D. (2021). The next generation EU: An analysis of the dimensions of conflict behind the deal. *Social Policy & Administration*, 1-15. <https://doi.org/10.1111/spol.12709>
- Porter, M. (1990). *The competitive advantage of nations* (First Free Press Edition 1990). New York: Free Press. <https://doi.org/10.1007/978-1-349-11336-1>
- Reimann, M., & Zimmermann, R. (2019). *The Oxford handbook of comparative law*. Oxford: Oxford University Press. <https://doi.org/10.1093/oxfordhb/9780198810230.001.0001>
- Rinkinen, S. (2016). *Clusters, Innovation Systems and Ecosystems: Studies on innovation policy's concept evolution and approaches for regional renewal* [Lappeenranta University of Technology]. Retrieved from <http://urn.fi/URN:ISBN:978-952-335-035-9>
- Rodrigues, C., & Melo, A. (2012). The Triple Helix Model as an Instrument of Local Response to the Economic Crisis. *European Planning Studies*, 20(9), 1483–1496. <https://doi.org/10.1080/09654313.2012.709063>
- Rodríguez-Cohard, J. C., Juste-Carrión, J. J., & Vázquez-Barquero, A. (2020). Local development policies: Challenges for post-COVID-19 recovering in Spain. *Symphonya. Emerging Issues in Management*, (2), 41–54. <https://doi.org/10.4468/2020.2.05rodriguez.juste.vazquez>
- Roper, S., & Turner, J. (2020). R&D and innovation after COVID-19: What can we expect? A review of prior research and data trends after the great financial crisis. *International Small Business Journal*, 38(6), 504–514. <https://doi.org/10.1177/0266242620947946>
- Ruiu, M. L. (2020). Mismanagement of Covid-19: Lessons learned from Italy. *Journal of Risk Research*, 23(7–8), 1007–1020. <https://doi.org/10.1080/13669877.2020.1758755>
- Sá, E., Casais, B., & Silva, J. (2018). Local development through rural entrepreneurship, from the triple helix perspective: The case of a peripheral region in Northern Portugal. *International Journal of Entrepreneurial Behavior & Research*, 21(1), 5–26. <https://doi.org/10.1108/IJEER-03-2018-0172>
- Schäfer, M. (2018). The fourth industrial revolution: How the EU can lead it. *European View*, 17(1), 5–12. <https://doi.org/10.1177/1781685818762890>
- Schalck, C. (2012). Investigating heterogeneity in European fiscal behaviours. *Research in Economics*, 66(4), 383–390. <https://doi.org/10.1016/j.rie.2012.06.002>
- Scholta, H., Mertens, W., Kowalkiewicz, M., & Becker, J. (2019). From one-stop shop to no-stop shop: An e-government stage model. *Government Information Quarterly*, 36(1), 11–26. <https://doi.org/10.1016/j.giq.2018.11.010>
- Schumpeter, J. (1942). *Capitalism, socialism and democracy* (Edition published in the Taylor&Francis e-Library, 2003). New York: Harper & Brothers.
- Schumpeter, J. (1954). *History of economic analysis* (Edition published in the Taylor&Francis e-Library, 2006). Oxford: Oxford University Press.
- Sedelmeier, U. (2002). Sectoral dynamics of EU enlargement: Advocacy, access and alliances in a composite policy. *Journal of European Public Policy*, 9(4), 627–649. <https://doi.org/10.1080/13501760210152466>
- Shepherd, D. A. (2020). COVID 19 and Entrepreneurship: Time to pivot? *Journal of Management Studies*, 57(8), 1750–1753. <https://doi.org/10.1111/joms.12633>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business*

- Research*, 104, 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- Sowell, T. (2012). *Trickle down theory and tax cuts for the rich*. Stanford (California): Hoover Institution Press.
- Stockhammer, E. (2017). Post-Keynesian economics. In L. Fischer, J. Hasell, J. C. Proctor, D. Uwakwe, Z. Ward-Perkins, & C. Watson (Eds.), *Rethinking Economics: An introduction to pluralist economics* (pp. 6–18). <https://doi.org/10.4324/9781315407265>
- Terjesen, S. (2021). Entrepreneurial finance: Research, practice, and policy for post-Covid-19 economic recovery. *Journal of Risk and Financial Management*, 14(1), 18. <https://doi.org/10.3390/jrfm14010018>
- Timmer, C. P. (2000). The macro dimensions of food security: Economic growth, equitable distribution, and food price stability. *Food Policy*, 25(3), 283–295. [https://doi.org/10.1016/S0306-9192\(00\)00007-5](https://doi.org/10.1016/S0306-9192(00)00007-5)
- Umar, M., Rizvi, S. K. A., & Naqvi, B. (2021). Dance with the devil? The nexus of fourth industrial revolution, technological financial products and volatility spillovers in global financial system. *Technological Forecasting and Social Change*, 163, 120450. <https://doi.org/10.1016/j.techfore.2020.120450>
- United Nations. (2020). *Global humanitarian response plan: COVID-19* (United Nations coordinated appeal: April-December 2020). Retrieved from <https://www.unocha.org/sites/unocha/files/Global-Humanitarian-Response-Plan-COVID-19.pdf>
- Uyarra, E., & Flanagan, K. (2010). From regional systems of innovation to regions as innovation policy spaces. *Environment and Planning C: Government and Policy*, 28(4), 681–695. <https://doi.org/10.1068/c0961>
- Virtanen, P., & Uusikylä, P. (2004). Exploring the missing links between cause and effect: A conceptual framework for understanding micro–macro conversions in programme evaluation. *Evaluation*, 10(1), 77–91. <https://doi.org/10.1177/1356389004043136>
- Vlados, Ch. (2004). *La dynamique du triangle stratégie, technologie et management: L'insertion des entreprises grecques dans la globalisation [The dynamics of the triangle of strategy, technology and management: The insertion of Greek enterprises into globalization]* [Thèse de doctorat de Sciences Économiques, Université de Paris X-Nanterre]. Retrieved from <http://www.theses.fr/2004PA100022>
- Vlados, Ch. (2019a). Change management and innovation in the “living organization”: The Stra.Tech.Man approach. *Management Dynamics in the Knowledge Economy*, 7(2), 229–256. <https://doi.org/10.25019/MDKE/7.2.06>
- Vlados, Ch. (2019b). Porter’s diamond approaches and the competitiveness web. *International Journal of Business Administration*, 10(5), 33–52. <https://doi.org/10.5430/ijba.v10n5p33>
- Vlados, Ch., & Chatzinikolaou, D. (2019a). Business ecosystems policy in Stra.Tech.Man terms: The case of the Eastern Macedonia and Thrace region. *Journal of Entrepreneurship, Management and Innovation*, 15(3), 163–197. <https://doi.org/10.7341/20191536>
- Vlados, Ch., & Chatzinikolaou, D. (2019b). Developments on helix theory: Exploring a micro-evolutionary repositioning in Stra.Tech.Man terms. *International Journal of World Policy and Development Studies*, 5(10), 87–99. <https://doi.org/10.32861/ijwpds.510.87.99>
- Vlados, Ch., & Chatzinikolaou, D. (2020a). From growth poles and clusters to business ecosystems dynamics: The ILDI counterproposal. *International Journal of World Policy and Development Studies*, 6(7), 115–126. <https://doi.org/10.32861/ijwpds.67.115.126>
- Vlados, Ch., & Chatzinikolaou, D. (2020b). Macro, meso, and micro policies for strengthening entrepreneurship: Towards an integrated competitiveness policy. *Journal of Business & Economic Policy*, 7(1), 1–12. <https://doi.org/10.30845/jbep.v7n1a1>
- Vlados, Ch., & Chatzinikolaou, D. (2020c). Thoughts on competitiveness and integrated industrial policy: A field of mutual convergences. *Research in World Economy*, 11(3), 12–25. <https://doi.org/10.5430/rwe.v11n3p12>
- Vlados, Ch., Chatzinikolaou, D., Katimertzopoulos, F., & Koutroukis, T. (2019). Regional underdevelopment and less developed business ecosystems: The case of Eastern Macedonia and Thrace. *Bulletin of Applied Economics*, 6(2), 31–44.
- Vlados, Ch., Deniozos, N., & Chatzinikolaou, D. (2018a). Towards a new approach of local development under crisis conditions: Empowering the local business ecosystems in Greece, by adopting a new local development policy. *International Journal of Regional Development*, 5(1), 1–24. <https://doi.org/10.5296/ijrd.v5i1.11955>
- Vlados, Ch., Deniozos, N., Chatzinikolaou, D., & Demertzis, M. (2018b). Towards an evolutionary understanding of the current global socio-economic crisis and restructuring: From a conjunctural to a structural and evolutionary

- perspective. *Research in World Economy*, 9(1), 15–33. <https://doi.org/10.5430/rwe.v9n1p15>
- Vlados, Ch., & Katimertzopoulos, F. (2018). Assessing meso and micro-competitiveness boosting policies, in Stra.Tech.Man terms. *International Journal of Business and Social Research*, 8(9), 1–15. <https://doi.org/10.5296/jebi.v5i2.13477>
- Warwick, K. (2013). *Beyond industrial policy: Emerging issues and new trends* (OECD Science, Technology and Industry Policy Papers No. 2). <https://doi.org/10.1787/5k4869clw0xp-en>
- Watkins, J. P. (2014). Quantitative easing as a means of reducing unemployment: A new version of trickle-down economics. *Journal of Economic Issues*, 48(2), 431–440. <https://doi.org/10.2753/JEI0021-3624480217>
- Weresa, M. A. (2019). Technological competitiveness of the EU member states in the era of the fourth industrial revolution. *Economics and Business Review*, 5(3), 50–71. <https://doi.org/10.18559/ebr.2019.3.4>
- Winarsih, Indriastuti, M., & Fuad, K. (2021). Impact of Covid-19 on digital transformation and sustainability in Small and Medium Enterprises (SMEs): A conceptual framework. In L. Barolli, A. Poniszewska-Maranda, & T. Enokido (Eds.), *Complex, intelligent and software intensive systems* (pp. 471–476). https://doi.org/10.1007/978-3-030-50454-0_48
- World Bank. (2020). *Global economic prospects*. <https://doi.org/10.1596/978-1-4648-1553-9>
- World Health Organization. (2020). *WHO Director-General's opening remarks at the media briefing on COVID-19—23 July 2020*. Retrieved from <https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---23-july-2020>
- Yvars, B. (2010). EU integration and other integration models. In F. Bindi (Ed.), *The foreign policy of the European Union: Assessing Europe's role in the world* (pp. 273–289). Washington, DC: Brookings Institution Press.
- Zahra, S. A. (2021). International entrepreneurship in the post Covid world. *Journal of World Business*, 56(1), 101143. <https://doi.org/10.1016/j.jwb.2020.101143>
- Zeza, A., & Llambí, L. (2002). Meso-economic filters along the policy chain: Understanding the links between policy reforms and rural poverty in Latin America. *World Development*, 30(11), 1865–1884. [https://doi.org/10.1016/S0305-750X\(02\)00113-4](https://doi.org/10.1016/S0305-750X(02)00113-4)

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Implications of the Digital Divide for the Learning Process During the COVID-19 Crisis

Gila Cohen Zilka¹, Idit Finkelstein², Revital Cohen² & Ilan Daniels Rahimi²

¹ Bar-Ilan University; the Director of the Department for Teaching Social Science and Communication; Achva Academic College, Israel

² Ono Academic College

Correspondence: Gila Cohen Zilka, Bar-Ilan University; the Director of the Department for Teaching Social Science and Communication; Achva Academic College, Israel

Received: March 14, 2021 Accepted: April 12, 2021 Online Published: April 25, 2021

doi:10.5539/res.v13n2p57

URL: <https://doi.org/10.5539/res.v13n2p57>

Abstract

With the outbreak of the COVID-19 crisis, higher education institutions organized for online learning. The aim of the present study was to examine the implications of online learning for students with limited access to information and communication technology (ICT), content infrastructures, and digital environments, assuming that such limited access may impair their ongoing learning process when instruction moves online, and cause situations of stress and frustration, as well as a desire to drop out of school. The mixed-method study involved 639 students studying at institutions of higher education in Israel, who completed a questionnaire containing open and closed questions. The findings show that 13% of participants reported that they had limited access, difficulties, and malfunctions resulting from a weak connection to the Internet, and numerous disconnects, especially during synchronous lectures. They reported having difficulties downloading content from the Internet and uploading materials. It has been shown that limited access to the Internet has implications for the learning process, motivation, self-efficacy, as well as for feelings and emotions. It is liable to lead to the widening or the creation of gaps between students who have full and those who have limited access to the Internet. The findings show that little use is made of forums (10%). A more extensive use of the forums is recommended in courses where students have limited access to the Internet, to create a supportive learning community.

Keywords: information and communication technology (ICT), distance learning; equal opportunities, social emotional learning (SEL)

1. Introduction

With the outbreak of the COVID-19 crisis, higher education institutions organized for online learning (Agarwal & Kaushik, 2020; Dhawan, 2020; Riva et al., 2020). The aim of the present study was to examine the implications of online learning for students with limited access to information and communication technology (ICT), content infrastructures, and digital environments, assuming that such limited access may impair their ongoing learning process when instruction moves online, and cause situations of stress and frustration, as well as a desire to drop out of school.

1.1 The Purpose of Study

In this study, we examined the correlation between limited/full accessibility, use of tools and skills, democratic principles in learning, students' motivation and self-efficacy, and feelings and emotions during the COVID-19 crisis. It is important to examine the learning experiences of students who have full and limited access to a digital environment because limited access is liable to lead to the widening or the creation of gaps between students who have a full access to the Internet and those who have limited access.

2. Digital Learning Environments

The digital environment changes a person's existential, social, and cultural environment. It brings about a change in individuals' behavior, lifestyle, the manner of communication with others, the extent to which they need and the way they locate and process information, and in their thinking patterns (Carr, 2011; Chen & Su, 2019; Hayles, 2012; Lieberman, 2021; Rahayu, 2020; Zilka, 2016, 2019a). The digital environment has led to cancelling the boundaries of time and place. At present, learners have fascinating and varied opportunities for collaboration and learning, which are not limited in time or place (Feenberg, 2010; Mahler, 2012). Researchers (Cohen et al., 2015 Zilka et al., 2018) found that the digital environment leads to increased motivation of learners, increased academic and social engagement, and provides

fascinating and diverse environments. It helps learners understand the study material through images, animations, simulations, and videos available to learners online. Researchers examined the integration of digital environments into the learning process (Jan et al., 2016; Johnson et al., 2011) and found that their availability “anywhere and anytime” makes it possible to make learning part of the learners’ daily routine, and foster learner involvement and collaboration. It also allows creating equal opportunities for learners with special needs (Ardito et al., 2006; Gikas & Grant, 2013). Researchers (Mayer, 2014; Zohar & Levy, 2019) found that factors that determine the “user experience” stem from the capabilities and limitations of the sensory system and the basic processing of sensory information in the brain. Therefore, changes in font size, font color, background, and spacing can lead to a change in the students' learning process.

2.1 Integrating Democratic Learning Principles

Democratic principles in learning and teaching provide learners with challenging learning environments that encourage innovation and initiative, fostering personality traits, approaches, talents and generic skills (Cochran-Smith et al., 2018; Sahlberg, 2010; Scott, 2016). They also encourage the development of thinking skills in various fields, such as the ability to choose a suitable medium from the wide variety available, skills in using hardware, software, and digital communication tools for different needs (Ertmer & Ottenbreit-Leftwich, 2010; Zilka, 2017a, 2017b, 2020a). The digital environment serves as an intellectual partner for learners in the construction, processing, and presentation of knowledge, in the activation of meta-cognitive reflective processes, processes of self-direction, and cognitive, emotional, and differential processes (Christensen et al., 2008; Voogt & Pelgrum, 2005; Zilka, 2019). It serves in the development of social and emotional learning (SEL) skills; of self-awareness, social adaptability in a changing reality, collaborative skills, inclusion, self-acceptance and acceptance of the other, maintaining privacy; the development of emotional attitudes and skills, focusing on social, cross-cultural, and global skills; sharing and collaborations, personal and social development, development of self and social leadership, multiculturalism, and a protected environment (Bell, 2015; Brush & Saye, 2014; De Pinho et al., 2015; Cochran-Smith et al., 2018; Sahlberg, 2010; Scott, 2016). It encourages the formation of an authentic personal identity rooted in firm values in a changing world. It develops the learners’ responsibility and commitment to their learning. It promotes teacher-student dialogue and dialogue between students. It allows addressing differences between learners and provides for equal opportunities and reducing gaps between learners (Au, 2016; Cochran-Smith et al., 2018; Horizon Report, 2017; Zilka, 2019b).

Online learning processes. Online learning refers to a digital teaching system that connects students and teachers separated from each other by physical distance. An online environment allows students to intensify the learning process and usually provides a wide berth for inquiry-based learning, inclusion of texts (visual, auditory, and verbal), and the integration of higher-order thinking tasks. Because of the dynamism and variety of possibilities it offers, an online learning environment allows honing interpersonal communication skills, and supports collaboration and spatial division (Feenberg, 2010; Zilka, 2020b; Zilka et al., 2018; Zilka et al., 2019). At the same time, physical separation between teacher and students is liable to create transactional distance. This concept, coined by Moore (1993), indicates the presence of a psychological-communicative space between the teacher and the learners, which is liable to emerge in the learning process, causing negative feelings such as anger and leading to gaps in understanding or to learners’ misconceptions about themselves and the learning process. According to Moore, the psychological-communicative space is not a permanent factor, but a variable that can be reduced.

3. Motivation, Perception of Self-Efficacy, and Social-Emotional Aspects

3.1 Motivation

Ford (1992) defined motivation as a psychological state that stimulates, directs, and preserves human behavior aiming at a particular goal. Motivation is an internal process that directs the person to perform an action and persevere in it (Law et al., 2010; Law & Breznik, 2017; Law & Geng, 2018; Reeves, 2006).

3.2 Self-efficacy

Researchers (Bandura, 1986; Schunk, 1989) defined self-efficacy as a persons’ judgment regarding their ability to organize and successfully perform tasks and actions. The researchers argued that self-efficacy affects the choice of activities, effort, and perseverance of the learner. Individuals with a sense of self-efficacy invest more effort and persevere more than those who doubt their ability. Self-efficacy derives from previous experience, received feedback, and physiological arousal. If students feel capable of accomplishing the assignment, their sense of self-efficacy increases, and when they do not feel this way, their self-efficacy decreases (Bandura, 1995; Chamorro-Premuzic et al., 2010; Schneider & Preckel, 2017).

3.3 Social-Emotional Learning (SEL) Aspects

Researchers (Husaj, 2016; Maurice & Harriett, 2006; Zilka, 2017b) noted that teaching based on this approach involves the advancement and application of social and emotional skills, in socially and culturally appropriate ways for students,

based on the understanding that emotional and social difficulties affect the students' mental wellbeing, academic achievement, and general mood. Researchers separated the goals of the method into five interconnected arrays: self-awareness, self-management, social awareness, interaction management, and assuming responsibility (Beauchamp, 2015; Farr, 2010; Husaj, 2016; Liu, 2015; Maurice & Harriett, 2006; Nooreiny, 2007; Zilka, 2017b).

4. Digital Divide

4.1 Accessibility and Skills

The digital divide is defined as the gap between those who have full access to digital environments, the Internet and computers, and those who have limited access or none at all, and as a gap between those who have digital literacy and those who have partial skills (Castells, 2009; Goyal, 2010; Hsieh et al., 2008; Meinrath et al., 2011; Mesch & Talmud, 2011; Resta & Laferrière, 2015; Ramsetty & Adams, 2020; Zilka, 2016, 2017b, 2019a).

The indicators of digital gaps are expressed in the following aspects (Deursen & Dijk, 2018; Hsieh et al., 2008; Sylvester et al., 2017; United Nations, 2020; Zilka, 2016, 2019a).

1. Access to ICT, content infrastructures, and digital environments: access to the Internet, computers, and other computerized devices, and fast access to information (Katz & Rice, 2003; Livingstone & Sefton-Green, 2016; Talukdar & Gauri, 2011; Wareham et al., 2004; Zilka, 2016, 2019a). Digital environments imply environments that contain diverse sources of information and tools, that allow access to multi-representation of content (text, animation, sound, video, etc.); hypertext; visual means of illustration (through images, simulations, films that illustrate natural phenomena); and interactive functionality that assists the construction of knowledge in a friendly and entertaining way.
2. Digital literacy (OECD, 2018, 2019a, 2019b; Zilka, 2016, 2017a, 2019a), refers to the “21st century skills” required for use in digital environments, according to the OECD outline regarding the Life Long Learning (LLL) program — skills related to the need for information, to locating and identifying information, to dynamic reading and reading as a process, to identifying the main and the secondary points of an issue, and mapping concepts, ideas, and values in the text; to evaluating the information; to information processing and personal interpretation; to asking questions and analyzing claims, their justification, or rejection; to consolidating and expressing an opinion and taking a stand; to writing a text, processing and merging information from a variety of digital sources using diverse and advanced digital tools; to using collaborative tools, such as forums, shared files, blogs, and open content repositories; and to understanding the characteristics, benefits, and limitations of digital environments.

This study examined the implications of online learning for students with limited access to ICT, content infrastructures, and digital environments, assuming that such limited access may impair their ongoing learning process after it moves online, and causes situations of stress and frustration, as well as a desire to drop out of school.

Our research question was: What are the implications of limited access to ICT for the learning process, motivation, self-efficacy, and emotional and social aspects of students during the COVID-19 crisis? We examined the correlations between students' limited/full access, use of tools and skills, democratic principles in learning, and motivation and self-efficacy during the COVID-19 crisis.

5. Methodology

This was a mixed-method study (Civitillo et al., 2017). The questionnaire contained closed and open-ended questions.

We conducted discourse analysis on the findings obtained from the open-ended answers, based on the approach formulated by Adler and Adler (2008), Atkinson and Delamont (2006), and Hammersley (2008), to identify distinct elements and formulate contrasting, complementary, and explanatory themes, as described by Baskarada (2014), Braun and Clarke (2006), Pope and Mays (2009), Spencer et al., (2003), and Tracy (2019). We emphasized contextual discourse analysis of the complexity of learning in an online environment.

6. Sample

The study involved 639 participants. The average age of the participants was 33 years. Most respondents were women (about 78%). Eighty-two (13.1%) participants reported having limited access to ICT. Among those with limited access to ICT, the proportion of women was significantly higher (approximately 81%) compared with those with full access (approximately 74%). The vast majority of the sample reported that they had no learning disabilities (approximately 92%).

7. Research Tool

The questionnaire contained closed and open-ended questions. It was based on questionnaires used in previous studies:

Digital Literacy questionnaire, Digital Gap Indicators questionnaire, Self-Efficiency questionnaire, Motivational questionnaire, and Challenges questionnaire (Bandura, 1986; Lazarus & Folkman, 1988; Pintrich et al., 1991; Zilka, 2017a, 2017b, 2019a; Zilka, Rahimi, & Cohen, 2019).

1. Demographic details included age, gender, learning disabilities, marital status, number of children.
2. Connection to the Internet. Type of Internet connection; Have you encountered any technical problems or other difficulties in using the technology in the last few weeks? If so, list the problems you had (such as Internet connection problems, disconnects, etc.).
3. Learning in online courses—tools, skills. Participants marked the range of digital tools and learning skills they have used in recent weeks, in the online courses they attended (tools and skills are detailed in Tables 1 and 2). Each tool and skill was coded as 1 (used) or 0 (not used). A comprehensive index of digital tools and the comprehensive index of learning skills were calculated based on the sum of values of the relevant statements in each category.

A digital tools index was calculated as the sum of 11 items. Cronbach alpha reliability for the current sample was $\alpha = 0.70$. The range of values was 0-11, a higher score indicating a higher level of use of the digital tools.

A learning skills index was calculated as the sum of 10 items. Cronbach alpha reliability for the current sample was $\alpha = 0.77$. The range of values was 0-10, a higher score indicating a higher level of use of learning skills.

4. SEL aspects, feelings of self-efficacy, challenge/threat, and motivation. Attitudes and feelings about the learning experience during the COVID-19 period. Students were asked to read 39 statements and score them on a 5-point Likert scale ranging from 1 = Not at all, to 5 = To a great extent. For example: I feel overwhelmed by online learning; I feel that online learning is at least as effective for me as face-to-face learning; I discovered that I had better learning habits than I thought; On online forums, I feel like I have something to learn from others; I feel it's a waste of time; Because of the change in the way of learning, I feel sad and despondent; Because of the change in the way of learning, I developed my ability to learn independently. We performed a principal component factor analysis with Varimax rotation on the questionnaire that included 39 statements. Analysis of confirmatory factors revealed three factors that together explain about 56% of the overall variance of the scale. Below is a breakdown of the results for the three factors and the results of preliminary reliability tests conducted to construct the questionnaire indices. Factor 1, Motivation for learning in an online environment (21 statements): Cronbach $\alpha = 0.95$; Factor 2, Dealing with difficulties and problems (12 statements): Cronbach $\alpha = 0.75$; Factor 3, Sense of self-efficacy (6 statements): Cronbach $\alpha = 0.85$.
5. Democratic learning principles. The variable was measured using 8 questionnaire statements. The answers were scored on a 5-point Likert scale ranging from 1 = Not at all, to 5 = To a great extent. For example: students' commitment to the learning process; students' choice of assignments; development of students' reflective skills; development of students' social emotional skills; active inquiry-based learning (digital libraries / learning centers / information centers available to students); cooperation between students / thinking community / forums; encouraging dialogical exchange between students; differences between students are addressed. The variable was constructed as the mean of the answers, so the higher the value, the higher the level of democratic learning principles. Cronbach alpha for the current sample was $\alpha = 0.91$.
6. Open questions. Significant learning experiences during the COVID-19 period, positive/negative elements in the online learning experience. What were the most significant learning experiences during the COVID-19 period?

7. Findings

Below we present the findings in the following order: access to digital tools and learning skills, attitudes and feelings about the learning experience during the COVID-19 period, democratic learning principles, SEL variable predictive model, correlations between key research variables, negative elements in the learning experience (quality discourse analysis).

8. Access to the Internet, Use of Digital Tools, and Learning Skills

Participants were asked to clarify their access to the Internet. The findings show that 269 (43%) of all participants reported that they had full access to the Internet and that they did not encounter any Internet communication problems or problems downloading materials requested by the lecturers, movies, or software; 275 (44%) participants reported having good, but not full and fast, access; they reported few problems, mainly in downloading materials from the Internet; 82 (13.1%) participants reported having limited access, resulting in many difficulties and problems due to weak Internet, many interrupted connections, especially during synchronous lectures, difficulty or inability downloading materials from the Internet, and difficulty uploading materials to the Internet.

Participants were presented with a list of digital tools and learning skills, and were asked which ones they used in the

online courses they took during the COVID-19 period.

Table 1 shows the distribution of the frequency of use of digital tools, both for the entire sample and according to access to technology (the table shows the percentages of participants who responded that they used tools).

Table 1. Prevalence of the use of digital tools in the entire sample and by access to technology (N = 639)

<i>Digital tools</i>	<i>Entire sample</i>	<i>Full access</i>	<i>Limited access</i>	χ^2
	<i>N (%)</i>	<i>N=267 N (%)</i>	<i>N=356 N (%)</i>	
Course website	(%80.2) 506	(%80.9) 216	(%75.9) 283	0.18
Real-time lectures	(%88.3) 557	(%89.1) 238	(%87.9) 313	0.22
Links to videos on the Web	(%50.4) 318	(%55.1) 147	(%47.5) 169	3.51
Exercise sheets	(%23.8) 150	(%25.8) 69	(%22.2) 79	1.12
Interactive environments	(%20.0) 126	(%22.5) 60	(%18.5) 66	1.46
Digital libraries / learning centers / information centers	(%21.9) 138	(%18.7) 50	(%23.9) 85	2.38
Personal assignments on the course website	(%47.4) 303	(%47.6) 127	(%48.9) 174	0.10
Group assignments on the course website	(%20.8) 131	(%17.6) 47	(%23.3) 83	3.01
Links to free online databases	(%9.4) 59	(%11.2) 30	(%8.1) 29	1.69
Use of advanced online tools	(%21.1) 133	(%19.9) 53	(%22.2) 79	0.50
Forums	(%9.7) 62	(%9.4) 25	(%10.4) 37	0.18

$p < .05^*$, $p < .01^{**}$

Table 2 shows the distribution of the frequency of use of learning skills, both for the entire sample and by access to technology (the table shows the percentage of participants who responded that they did use the learning skills).

Table 2. Prevalence of the use of learning skills in the entire sample and by access to technology (N = 639)

<i>Learning skills</i>	<i>Entire sample</i>	<i>Full access</i>	<i>Limited access</i>	χ^2
	<i>N (%)</i>	<i>N (%)</i>	<i>N (%)</i>	
Locating information	(%22.5) 142	(%22.7) 60	(%22.6) 80	0.97
Processing information	(%11.1) 70	(%8.2) 22	(%13.2) 47	3.81*
Merging texts	(%9.2) 58	(%8.6) 23	(%9.6) 34	0.16
Dynamic reading and process reading	(%11.6) 73	(%9.7) 26	(%12.9) 46	1.51
Asking questions	(%31.5) 199	(%35.6) 95	(%29.2) 104	2.84
Analyzing claims	(%13.6) 86	(%15.0) 40	(%12.9) 46	0.54
Expressing opinions/positions	(%26.1) 165	(%29.6) 79	(%24.2) 86	2.31
Combining information	(%10.8) 69	(%10.5) 28	(%11.2) 40	0.08
Mapping concepts in a digital text	(%7.8) 49	(%8.2) 22	(%7.6) 27	0.09
Peer learning	(%22.3) 141	(%24.7) 66	(%21.1) 75	1.16

Table 2 shows that the most common learning skills used were: asking questions (about 31%), expressing an opinion and taking a stand (about 25%); locating and collecting information (about 22%); and peer learning (about 22%). Next, among less frequently used skills were analysis of claims presented in the text, their justification or rejection (about 13%); dynamic and process reading, with identification of the essential and secondary content and marking of concepts/ideas/values in the text (about 12%); processing information from verbal, visual, and vocal information sources and turning it into knowledge (about 11%); merging information from a variety of digital texts (about 10%); skills for merging texts (about 9%); and conceptual mapping of digital text (about 7%).

Significant differences were found between students with full and partial access to technology in the frequency of the use of information processing and its transformation into knowledge. Students with partial access to technology used it at a higher rate (13%) than did those with full access. For the rest of the learning skills, no differences were found in the frequency of use between those with full access to technology and those with partial access.

9. Attitudes and Feelings About the Learning Experience During the COVID-19 Period

Table 3 shows the distribution of averages and standard deviations of the questionnaire variables. In addition, a t-test was performed for independent samples to examine the differences in these variables according to access to technology.

Table 3. Mean distribution of attitudes and feelings about the learning experience in the COVID-19 period for the entire sample and by access to technology

	<i>Entire sample</i>		<i>Full access</i>		<i>Limited access</i>		t
	N=639	M (SD)	N=267	M (SD)	N=356	M (SD)	
Self-efficacy	(0.96)	3.17	(0.90)	3.39	(0.95)	3.03	4.66**
Coping with difficulties and problems	(0.67)	3.44	(0.63)	3.57	(0.66)	3.37	3.64**
Motivation for learning	(0.81)	3.45	(0.76)	3.65	(0.80)	3.32	5.09**

$p < .05^*$, $p < .01^{**}$

Significant differences were found in the level of self-efficacy ($t(594) = 4.66$, $p < .01$), coping with difficulties ($t(595) = 3.64$, $p < .01$) and motivation for learning ($t(594) = 5.09$, $p < .01$) by access to technology. The level of self-efficacy, coping with difficulties and problems, and the motivation to learn of students with full access to technology were significantly higher than those of students with limited access to technology.

10. Democratic Learning Principles

Table 4 shows the distribution of averages and standard deviations of the democratic learning principles variable. We performed a t-test for independent samples to examine the differences according to access to technology.

Table 4. Distribution of averages of democratic learning principles for the entire sample by access to technology

	<i>Entire sample</i>		<i>Full access</i>		<i>Limited access</i>		t
	N=639	M (SD)	N=267	M (SD)	N=356	M (SD)	
Democratic learning principles	(0.88)	3.17	(0.83)	3.37	(0.87)	3.04	4.44**

$p < .05^*$, $p < .01^{**}$

Table 4 shows that the level of democratic learning principles was moderate on average. Significant differences were found in democratic learning principles by access to technology ($t(556) = 4.44$, $p < .01$). Students with full access to technology reported significantly higher levels of democratic learning principles than did those with limited access to technology.

11. Predictive Model

To predict SEL variables (the emotional-social aspect of attitudes and feelings about the learning experience during the COVID-19 period), we performed a hierarchical linear regression model. In the first step, we introduced the socio-demographic control variable, and in the second step, the predictor of access to technology. The findings are presented in Table 5.

Table 5. Hierarchical linear regression coefficients for predicting attitudes and feelings about the COVID-19 period learning experience

Predictors	Self-efficacy	Motivation to learning	Coping with difficulties and problems
	β	β	β
First step			
Marital status (1=single)	0.01	-0.05	-0.01
Children (1=yes)	0.08	0.02	0.09
Age	0.07	0.07	0.01
Gender (1=male)	0.03	-0.03	0.04
Step two			
Access to technology (1=full)	0.19**	0.22**	0.14**
	$R^2 = 0.05$	$R^2 = 0.06$	$R^2 = 0.03$

$p < .05^*$, $p < .01^{**}$

The regression for predicting **self-efficacy** was found to be significant ($F(5, 579) = 6.44$, $p < .01$), with the predictive variables adding 5% to the explained variance of self-efficacy. We found that in the first step, the background variables did not make a significant unique contribution to the model. In the second step, the accessibility of technology variable made a distinct unique positive contribution to the model, so that full access to technology was associated with higher self-efficacy, and it added 5% to the explained variance of self-efficacy.

The regression for predicting motivation to learn was found to be significant ($F(5, 580) = 8.06$, $p < .01$), with the predictive variables adding 6% to the explained variance of motivation for learning. We found that in the first step the background variables did not make a significant unique contribution to the model. In the second step, the accessibility of technology variable made a distinct unique positive contribution to the model, so that full access to technology was associated with higher motivation for learning, and it added 6% to the explained variance of motivation for learning.

The regression for predicting coping with difficulties and problems was found to be significant ($F(5, 580) = 3.65$, $p < .01$), with the predictive variables adding 3% to the explained variance of coping with difficulties and problems. We found that in the first step, the background variables did not make a significant unique contribution to the model. In the second step, the accessibility of technology variable made a significant unique positive contribution to the model, so that full access to technology was associated with better coping with difficulties and problems, and it added 3% to the explained variance of coping with difficulties and problems.

12. The Correlations Between the Main Research Variables

To examine the correlations between the main research variables, we performed a Spearman correlation. The findings are presented in Table 6.

Table 6. Spearman correlations between the main research variables (N = 631)

	1	2	3	4	5	6
1. Use of digital tools	---					
2. Use of learning skills	.54**	---				
3. Democratic learning principles	.24**	.22**	---			
4. Self-efficacy	.20**	.14**	.53**	---		
5. Coping with difficulties and problems	.17**	.07	.20**	.45**	---	
6. Motivation to learn	.23**	.20**	.54**	.76**	.26**	---

$p < .05^*$, $p < .01^{**}$

Table 6 shows that significant positive correlations were found between the use of digital tools and the use of learning skills ($r_s = 0.54$, $p < .01$), democratic learning principles ($r_s = 0.24$, $p < .01$), self-efficacy ($r_s = 0.20$, $p < .01$), coping with difficulties and problems ($r_s = 0.17$, $p < .01$), and motivation for learning ($r_s = 0.23$, $p < .01$). A higher level of use of digital tools was associated with a higher level of use of learning skills, democratic learning principles, self-efficacy, coping with difficulties and problems, and motivation for learning.

Significant positive correlations were found between the use of learning skills and democratic learning principles ($r_s = 0.22$, $p < .01$), self-efficacy ($r_s = 0.14$, $p < .01$) and motivation for learning ($r_s = 0.20$, $p < .01$). A higher level of use of learning skills was associated with a higher level of democratic learning principles, self-efficacy, and motivation for learning.

Significant positive correlations were found between democratic learning principles and self-efficacy ($r_s = 0.53$, $p < .01$), coping with difficulties and problems ($r_s = 0.20$, $p < .01$), and learning motivation ($r_s = 0.54$, $p < .01$). A higher level of democratic learning principles was associated with a higher level of self-efficacy, coping with difficulties and problems, and motivation for learning.

Significant positive associations were found between self-efficacy and coping with difficulties and problems ($r_s = 0.45$, $p < .01$), and motivation for learning ($r_s = 0.76$, $p < .01$). A higher level of self-efficacy was associated with a higher level of coping with difficulties and problems and motivation for learning. A significant positive correlation was also found between coping with difficulties and problems and motivation for learning ($r_s = 0.26$, $p < .01$). A higher level of coping with difficulties and problems was associated with a higher level of motivation for learning.

13. Negative Elements of the Learning Experience: Analysis of Answers by Students With Limited Internet Access

Below is a selection of answers to the open question.

Load. Tension. Frustration. Helplessness. Many disconnects. Interruptions of the lecture sequence due to technical problems. It takes a lot of mental effort to listen to online lectures when there are technical problems. It's hard to concentrate. Unable to understand instructions and guidelines. Difficulty dealing with technology. Inability to download videos recommended by the lecturer from the Internet. Difficulty accessing certain links. A feeling that they are failing to learn and that their learning process has been impaired. Desire to stop or suspend studies.

14. Discussion

With the outbreak of the COVID-19 crisis, institutions of higher education organized for online teaching. The aim of the study was to examine the implications of online learning for students with limited access to ICT, content infrastructures, and digital environments, assuming that such limited access may impair their ongoing learning process after instruction moves online, and cause situations of stress and frustration, as well as a desire to drop out of school.

In this study, we examined the correlations between limited/full Internet accessibility, use of tools and skills, democratic principles in learning, motivation, and self-efficacy of students during the COVID-19 crisis.

15. Digital Divide: Access to Digital Tools and Learning Skills

The findings show that 82 (13%) of the participants reported that they had limited access to the Internet, experienced

many difficulties/failures because of a weak connection, many disconnects, especially during synchronous lectures, difficulty or inability to download materials from the Internet, and difficulty uploading materials to the Internet.

The findings (Table 1) show that the most commonly used digital tool was the Zoom video conferencing software to deliver real-time lectures. Students with limited access had many disconnects during the lectures, screen freezes, speaker sound problems and more, and they had to watch the recorded lectures in addition to the real-time lectures, which increased their load. In addition, it should be remembered synchronous lectures have different characteristics than face-to-face lectures. Researchers (Riva et al., 2020; Wiederhold, 2020) have noted that synchronous lessons delivered through applications such as Zoom have different characteristics from those of face-to-face lessons, and emphasized that in a synchronous lesson, orientation in a two-dimensional space differs from orientation in a face-to-face lesson. There is difficulty in locating the source of sound, locating and understanding the facial expressions of the person speaking, understanding interpersonal interactions, making eye contact, understanding messages, and in general, there is difficulty in the perception by individuals of their space. Therefore, many students complained about fatigue, concentration problems, feelings of overload and of blurring of boundaries, in other words, Zoom fatigue. It is recommended that in courses where students have limited access to the Internet, forums should be used to create a learning community and to bridge the psychological-communicative distance. The findings of the present study show that little use is made of forums (Table 1, about 10%). Other researchers (Aboagye et al., 2020; Kapasia et al., 2020) found that during the COVID-19 crisis, forums were not widely used to bridge the psychological gap created by online learning. Garrison (2007) and Zilka et al. (2018) noted that teacher presence in a face-to-face lecture has different characteristics from that in an online lecture. They defined “lecturer presence” as meaningful communication for shaping, assisting, and directing cognitive and social processes, encouraging a participatory climate, encouraging community cohesion, and creating social presence. Researchers (Allen & Seaman, 2010; Engstrom et al., 2008; Pittman & Richmond, 2008; Zilka et al., 2018) defined “social presence” as creating a space for collaborative discourse, where students feel free to express their views and needs. Social presence is likely to reduce the psychological-communicative gap created by online learning between students, as a result of the students' lack of understanding or misconceptions about themselves and about the learning process, and create instead a sense of closeness, as opposed to isolation, a sense of safe haven, as opposed to that of anonymity (Edwards et al., 2011; Holley & Dobson, 2008). Researchers (DeGennaro, 2008; Gomez et al., 2010; Velasquez et al., 2013) found that in online learning environments there was more extensive communication than in a face-to-face environment, that the forums allowed dialogue and created a space for distributed cognition — interactions between lecturers and students in a significant and branching out learning process. Integrating forums into distance learning enables the application of skills such as analysis of claims presented in the text, their justification or rejection, expressing opinions and taking a stand in forums. The findings (Table 2) indicate that skills such as expressing an opinion and taking a position (approximately 25%), analyzing claims presented in the text, justifying them or rejecting them (approximately 13%), were only partially present. Active participation in forums was usually possible even when there was only partial access to the Internet.

16. Democratic Learning Principles

Implementation of democratic principles in learning creates a challenging learning environment that encourages learners' innovation and initiative, cultivates personal characteristics, helps acquire methods, skills, and abilities. In this study, we examined whether democratic principles were reflected in learning, and we found that limited access to the Internet disrupted the learning process. The findings (Table 4) show that students with full access to technology reported significantly more expressions of democratic learning principles than did those with limited access to technology (13%), who reported that these principles were expressed only in a limited way. The digital environment has led to the cancelling of the boundaries of time and place, and for some students served as a partner in the construction of knowledge, in the processing and presentation of knowledge, and in the activation of meta-cognitive reflective processes, self-direction processes, cognitive processes, and emotional and differential processes (Voogt & Pelgrum, 2005; Christensen et al., 2008; Zilka, 2020a).

17. Attitudes and Feelings Regarding the Learning Experience During the COVID-19 Period

An intriguing finding that emerged from this study is the correlation between limited Internet access and self-efficacy, coping with difficulties and problems, and motivation. The findings (Table 3) show that the levels of self-efficacy, coping with difficulties and problems, and motivation to learn of students with full access to technology are significantly higher than those of students with limited access to technology. It appears that full access to technology is associated with higher self-efficacy, higher motivation for learning, and better coping with difficulties and problems (Table 5). Motivation is an internal process that directs the person to perform an action and persevere in it (Law et al., 2010; Law & Breznik, 2017; Law & Geng, 2018; Reeves, 2006). When people must learn in an environment that imposes difficulties, motivation is impeded, as is their sense of self-efficacy and ability to successfully perform tasks and actions. If the students feel that they can accomplish the task, their self-efficacy increases, and if they do not feel like it, their self-efficacy decreases

(Bandura et al., 1995; Chamorro-Premuzic et al., 2010; Schneider & Preckel, 2017).

The findings of this study suggest that full access to technology is also associated with better coping with difficulties and problems, whereas a lack of full access is liable to impair the students' sense of resilience, ability to make decisions, self-management, and management of interactions. Researchers (Husaj, 2016; Zilka, 2017b) have argued that emotional and social difficulties affect learners' emotional wellbeing, academic achievement, and overall mood. Students related that they considered suspending or abandoning their studies, that it was difficult for them to learn because of the many disconnects and other difficulties. Below are some sample quotes from the responses of students with limited Internet access: "Online learning depends on the quality of Internet connection; I felt it on my hide. Before COVID-19, I used computers on campus. It's really hard for me now. I'm considering suspending my studies for a while." "Because of Zoom disconnects, I could not understand what was happening in the lessons, and then a gap was created in my knowledge, which made it difficult for me late." "The lecturer referred to videos, and I couldn't download them, so I couldn't complete the assignments on time." The analysis of the discourse on the negative elements in the learning experience of students who have limited access to the Internet shows that they felt overwhelmed by tension, frustration, and helplessness, in short, a sense that they were failing to learn and that their learning process has been impaired. This often led to a desire to stop or suspend their studies.

In conclusion, limited access to the Internet has implications for the learning process, for motivation, self-efficacy, and feelings and emotions, and it is liable to lead to the opening or widening of gaps between students who have full access and those who have limited access. It is recommended to incorporate additional digital tools for video conferencing. It is recommended that in courses where students have limited access to the Internet, forums be used to create a learning community to bridge the psychological-communicative distance. The use of a variety of digital tools may result in all students being able to apply democratic principles in learning, and in the digital environment becoming a partner in the construction of knowledge, the processing and presentation of knowledge, and the activation of meta-cognitive reflective processes, self-direction processes, as well as cognitive, emotional, and differential processes.

18. Compliance with Ethical Standards

Informed consent was obtained from all individual participants included in the study.

The study received approval from the institutional review board (IRB) of Achva Academic College.

No funding/grant for this study.

No conflict of interest.

References

- Aboagye, E., Yawson, J. A., & Appiah, K. N. (2020). COVID-19 and E-Learning: the Challenges of Students in Tertiary Institutions. *Social Education Research*, 109-115. <https://doi.org/10.37256/ser.122020422>
- Adler, P. A., & Adler, P. (2008). Of Rhetoric and Representation: The Four Faces of Ethnography. *The Quarterly Sociological*, 49(1), 1-30. <https://doi.org/10.1111/j.1533-8525.2007.00104.x>
- Agarwal, S., & Kaushik, J. S. (2020). Student's perception of online learning during COVID pandemic. *The Indian Journal of Pediatrics*, 87(7), 554. <https://doi.org/10.1007/s12098-020-03327-7>
- Allen, I. E., & Seaman, J. (2010). *Learning on demand: Online education in the United States, 2009*. The Sloan Consortium. Retrieved December 2020 from: <https://eric.ed.gov/?id=ED529931>
- Ardito, C., Costabile, M. F., Marsico, M. D., Lanzilotti, R., Levialdi, S., Roselli, T., & Rossano, V. (2006). An approach to usability evaluation of e-learning applications. *Universal access in the information society*, 4(3), 270-283. <https://doi.org/10.1007/s10209-005-0008-6>
- Atkinson, E., & Delamont, S. (2006). In the roiling smoke: qualitative inquiry and contested fields. *International Journal of Qualitative Studies in Education*, 19(6), 747-755. <https://doi.org/10.1080/09518390600975974>
- Au, W. (2016). Meritocracy 2.0: High-stakes, standardized testing as a racial project of neoliberal multiculturalism. *Educational Policy*, 30(1), 39-62. <https://doi.org/10.1177/0895904815614916>
- Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, NJ: Prentice-Hall.
- Bandura, A. (1995). *Self-efficacy in changing societies*. New York: Cambridge University Press. <https://doi.org/10.1017/CBO9780511527692>
- Baskarada, S. (2014). Qualitative case study guidelines. *The Qualitative Report*, 19, 1-18.

<https://doi.org/10.46743/2160-3715/2014.1008>

- Beauchamp, C. (2015). Reflection in teacher education: issues emerging from a review of current literature. *International and Multidisciplinary Perspectives*, 16(1), 123-141. <https://doi-org.ezprimo1.idc.ac.il/10.1080/14623943.2014.982525>
- Bell, S. (2015). Project-Based Learning for the 21st Century: Skills for the Future, *The Clearing House: A Journal of Educational Strategies, Issues and Ideas*, 8(2), 39-43. <https://doi-org.ezprimo1.idc.ac.il/10.1080/00098650903505415>
- Brush, T., & Saye, J. (2014). Guest Editors' Introduction: Special Issue on Technology-Supported Problem-based Learning in Teacher Education. *Interdisciplinary Journal of Problem-Based Learning*, 8(1). <https://doi.org/10.7771/1541-5015.1480>
- Carr, N. G. (2011). *The shallows: What the internet is doing to our brains*. New York, NY: W. W. Norton.
- Castells, M. (2009). *Communication power*. New York, NY: Oxford University Press.
- Chamorro-Premuzic, T., Harlaar, N., Greven, C. U., & Plomin, R. (2010). More than just IQ: A longitudinal examination of self-perceived abilities as predictors of academic performance in a large sample of UK twins. *Intelligence* (38), 385–392. <https://doi.org/10.1016/j.intell.2010.05.002>
- Chen, C. H., & Su, C. Y. (2019). Using the BookRoll E-Book System to Promote Self-Regulated Learning, Self-Efficacy and Academic Achievement for University Students. *Educational Technology & Society*, 22(4), 33-46.
- Christensen, C., Horn, M. B., & Johnson, C. W. (2008). *Disruptive class: How disruptive innovation will change the way the world learns*. New York: McGraw Hill.
- Civitillo, S., Schachner, M., Juang, L., van de Vijver, F. J., Handrick, A., & Noack, P. (2017). Towards a better understanding of cultural diversity approaches at school: A multi-informant and mixed-methods study. *Learning, Culture and Social Interaction*, 12, 1–14. <https://doi.org/10.1016/j.lcsi.2016.09.002>
- Cochran-Smith, M., Carney, M. C., Keefe, E. S., Burton, S., Chang, W. C., Fernandez, M. B., ... & Baker, M. (2018). *Reclaiming accountability in teacher education*. Teachers College Press.
- Cohen, J., Vincent, J. L., Adhikari, N. K., Machado, F. R., Angus, D. C., Calandra, T., & Tracey, K. (2015). Sepsis: a roadmap for future research. *The Lancet infectious diseases*, 15(5), 581-614. [https://doi.org/10.1016/S1473-3099\(15\)70112-X](https://doi.org/10.1016/S1473-3099(15)70112-X)
- De Pinho, L., Mota, F., Conde, M., Alves, L., & Lopes, R. (2015) Mapping Knowledge Produced on Problem-Based Learning between 1945 and 2014: A Bibliometric Analysis. *Creative Education*, 6, 576-584. <https://doi.org/10.4236/ce.2015.66057>
- DeGennaro, D. (2008). Learning designs: An analysis of youth-initiated technology use. *Journal of Research on Technology in Education*, 41(1), 1-20. <https://doi.org/10.1080/15391523.2008.10782520>
- Deursen, A. J. M. V., & Dijk, J. A. V. (2018). The first-level digital divide shifts from inequalities in physical access to inequalities in material access. *New Media & Society*, 7. <https://doi.org/10.1177/1461444818797082>
- Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. *Journal of Educational Technology Systems*, 49(1), 5-22. <https://doi.org/10.1177%2F0047239520934018>
- Edwards, M., Perry, B., & Janzen, K. (2011). The making of an exemplary online educator. *Distance Education*, 1(32), 101118. <https://doi.org/10.1080/01587919.2011.565499>
- Engstrom, M., Santo, S., & Yost, R. (2008). Knowledge building in an online cohort. *The Quarterly Review of Distance Education*, 9(2), 151-167.
- Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change: How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education*, 42(3), 255-284. <https://doi-org.ezprimo1.idc.ac.il/10.1080/15391523.2010.10782551>
- Farr, F. (2010). *The discourse of teaching practice feedback: A corpus-based investigation of spoken and written modes*. London: Routledge. <https://doi.org/10.4324/9780203846742>
- Feenberg, A. (2010). *Between reason and experience: Essays in technology and modernity*. Cambridge, MA: Cambridge MIT Press. <https://doi.org/10.7551/mitpress/8221.001.0001>
- Ford, M. E. (1992). *Human motivation: Goals, emotions, and personal agency beliefs*. CA: Sage: Newbury Park.

<https://doi.org/10.4135/9781483325361>

- Garrison, D. R. (2007). Online community of inquiry review: Social, cognitive, and teaching presence issues. *Online Community of Inquiry Review*. <https://doi.org/10.24059/olj.v11i1.1737>
- Gikas, J., & Grant, M. M. (2013). Mobile computing devices in higher education: Student perspectives on learning with cellphones, smartphones and social media. *The Internet and Higher Education*, 19, 18-26. <https://doi.org/10.1016/j.iheduc.2013.06.002>
- Gomez, M. L., Schieble, M., Curwood, J., & Hassett, D. (2010). Technology, learning and instruction: Distributed cognition in the secondary English classroom. *Literacy*, 44(1), 20-27. <https://doi.org/10.1111/j.1741-4369.2010.00541.x>
- Goyal, A. (2010). Information, direct access to farmers, and rural market performance in central India. *American Economic Journal: Applied Economics*, 2(3), 22-45. <https://doi.org/10.1596/1813-9450-5315>
- Hammersley, M. (2008). *Questioning Qualitative Research: Critical Essays*. London, UK: Sage. <https://doi.org/10.4135/9780857024565>
- Hayles, K. (2012). *How we think: Digital media and contemporary technogenesis*. Chicago, IL: The University of Chicago Press. <https://doi.org/10.7208/chicago/9780226321370.001.0001>
- Holley, D., & Dobson, C. (2008). Encouraging student engagement in a blended learning environment: The use of contemporary learning spaces. *Learning, Media, & Technology*, 33(2), 139-150. <https://doi.org/10.1080/17439880802097683>
- Horizon Report, (2017). EDUCAUSE Learning Initiative (ELI) New Media Consortium (NMC). <https://library.educause.edu/resources/2017/2/2017-horizon-report>
- Husaj, S. (2016). Social Emotional Learning (SEL). *European Journal of Multidisciplinary Studies*, 1(3), 168-171. <http://dx.doi.org/10.26417/ejms.v1i3.p168-171>
- Hsieh, J. J., Rai, A., & Keil, M. (2008). Understanding digital inequality: Comparing continued use behavioral models of the social-economically advantaged and disadvantaged. *MIS Quart.*, 32, 97-126. <https://doi.org/10.2307/25148830>
- Jan, S. R., Ullah, F., Ali, H., & Khan, F. (2016). Enhanced and Effective Learning through Mobile Learning: An Insight into Students Perception of Mobile Learning at University Level. *International Journal of Scientific Research in Science, Engineering and Technology*, 2(2), 674-681.
- Johnson, L., Smith, R., Willis, H., Levine, A., & Haywood, K. (2011). *The 2011 Horizon Report*. Austin, TX: The New Media Consortium.
- Kapasia, N., Paul, P., Roy, A., Saha, J., Zaveri, A., Mallick, R., Barman, B., Das, P., & Chouhan, P. (2020). Impact of lockdown on learning status of undergraduate and postgraduate students during COVID-19 pandemic in West Bengal, India. *Children and Youth Services Review*, 105194. <https://doi.org/10.1016/j.childyouth.2020.105194>
- Katz, J. E., & Rice, R. E. (2003). Comparing internet and mobile phone usage: digital divides of usage, adoption, and dropouts. *Telecommunications Policy*, 27(8-9), 597-623. [https://doi.org/10.1016/S0308-5961\(03\)00068-5](https://doi.org/10.1016/S0308-5961(03)00068-5)
- Lazarus, R. S., & Folkman, S. (1988). *Stress, appraisal and coping*. New York: Springer.
- Law, K. M. Y., Lee, V. C. S., & Yu, Y. T. (2010). Learning motivation in e-learning facilitated computer programming courses. *Computers & Education*, 55(1), 218-228. <https://doi.org/10.1016/j.compedu.2010.01.007>
- Law, K. M. Y., & Breznik, K. (2017). Impacts of innovativeness and attitude on entrepreneurial intention: Among engineering and non-engineering students. *International Journal of Technology and Design Education*, 27, 1-18. <https://doi-org.ezprimo1.idc.ac.il/10.1007/s10798-016-9373-0>
- Law, K. M. Y., & Geng, S. (2018). How innovativeness and handedness affect learning performance of engineering students? *International Journal of Technology and Design Education*, (3), 1-18. <https://doi-org.ezprimo1.idc.ac.il/10.1007/s10798-018-9462-3>
- Lieberman, M. (2021). *Digital Games: Powerful Motivation Tool or Not So Much?*. EducationWeek. <https://www.edweek.org/technology/digital-games-powerful-motivation-tool-or-not-so-much/2021/01>
- Liu, K. (2015). Critical reflection as a framework for transformative learning in teacher education. *Educational Review*, 67(2), 135-157. <https://doi-org.ezprimo1.idc.ac.il/10.1080/00131911.2013.839546>
- Livingstone, S., & Sefton-Green, J. (2016). *The class: Living and learning in the digital age*. New York, NY: New York University Press. <https://doi.org/10.18574/nyu/9781479884575.001.0001>

- Mahler, D. (2012). Teaching literacy in primary schools using an interactive whole-class technology: Facilitating student-to student whole-class dialogic interaction. *Technology, Pedagogy and Education*, 21(1), 137-152. <https://doi-org.ezprimo1.idc.ac.il/10.1080/1475939X.2012.659888>
- Maurice, J. E., & Harriett, A. (Ed.). (2006). *The Educator's Guide to Emotional Intelligence and Academic Achievement Social-Emotional Learning in the Classroom*. Saga Corwinpress, California.
- Mayer, R. E. (Ed.) (2014). *Cambridge handbook of multimedia learning*, 2nd edition. New York, NY: Cambridge University Press. https://doi-org.ezprimo1.idc.ac.il/10.1007/978-1-4614-3185-5_31
- Mesch, G. S., & Talmud, I. (2011). Ethnic differences in Internet access: The role of occupation and exposure. *Information, Communication & Society*, 14(4), 445-471. <https://doi-org.ezprimo1.idc.ac.il/10.1080/1369118X.2011.562218>
- Meinrath, S. D., Losey, J., & Lennett, B. (2011). A growing digital divide: Internet freedom and the negative impact of command-and-control networking. *IEEE Internet Computing*, 15(4), 75–79. <https://doi.org/10.1109/MIC.2011.85>
- Moore, M. G. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical principles of distance education* (pp. 22-38). London, New York: Routledge.
- Nooreiny, M. (2007). Telling his or her story through reflective journals. *International Education Journal*, 8(1), 205-220.
- OECD. (2018). *The future of Education and skills. Education 2030*. Paris:OECD Publishing.
- OECD. (2019a). *TALIS 2018 Results (Volume I): Teachers and school leaders as lifelong learners, TALIS*. Paris: OECD Publishing.
- OECD. (2019b). *Trends shaping educating 2019*. Paris:OECD Publishing.
- Pintrich, P., Smith, D., Garcia, T., & McKeachie, W. (1991). *A manual for the use of the motivated strategies for learning questionnaire (MSLQ)*. National Center for Research to Improve Post secondary Teaching and Learning.
- Pittman, L. D., & Richmond, A. (2008). University belonging, friendship quality, and psychological adjustment during the transition to college. *The Journal of Experimental Education*, 76(4), 343-361. <https://doi.org/10.3200/JEXE.76.4.343-362>
- Pope, C., & Mays, N. (2009). Critical reflections on the rise of qualitative research. *BMJ*, 339, b3425. <https://doi.org/10.1136/bmj.b3425>
- Rahayu, D. (2020). Synchronous zoom web conference system: An exploratory study on students' E-Learning experience. *Journal of ELT Research: The Academic Journal of Studies in English Language Teaching and Learning*, 5(1), 68-79.
- Ramsetty, A., & Adams, C. (2020). Impact of the digital divide in the age of COVID-19. *Journal of the American Medical Informatics Association*, 27(7), 1147–1148. <https://doi.org/10.1093/jamia/ocaa078>
- Reeves, J. R. (2006). Secondary teacher attitudes toward including English-language learners in mainstream classrooms. *Journal of Educational Research*, 99(3), 131–143. <https://doi-org.ezprimo1.idc.ac.il/10.3200/JOER.99.3.131-143>
- Resta, P., & Laferrière, T. (2015). Digital equity and intercultural education. *Education Information Technology*, 20, 743-756. <https://doi-org.ezprimo1.idc.ac.il/10.1007/s10639-015-9419-z>
- Riva, G., Mantovani, F., & Wiederhold, K. B. (2020). Positive Technology and COVID-19. *Cyberpsychology, Behavior, and Social Networking*, 23(9), 581-587. <https://www.liebertpub.com/doi/full/10.1089/cyber.2020.29194.gri>
- Sahlberg, P. (2010). Rethinking accountability in a knowledge society. *Journal of Educational Change*, 11(1), 45-61. <https://doi.org/10.1007/s10833-008-9098-2>
- Schneider, M., & Preckel, F. (2017). Variables associated with achievement in higher education: A systematic review of meta-analyses. *Psychological Bulletin*, (143), 565–600. <https://doi-org.ezprimo1.idc.ac.il/10.1037/bul0000098>
- Scott, J. (2016). The Politics of Market Based Education Reform. In *Learning from the Federal Marketbased Reforms*, edited by M. Matthis and T. Trujillo. 9–37. Charlotte, NC: Information Age Publishing. <https://doi-org.ezprimo1.idc.ac.il/10.3102/0091732X16681001>
- Schunk, D. H. (1989). Self-efficacy and cognitive skill learning. *Research on motivation in education*, 3, 13-44.
- Spencer, L., Ritchie, J., Lewis, J., & Dillon, L. (2003). *Quality in qualitative evaluation: A framework for assessing research evidence*. London: The Cabinet Office.
- Sylvester, A., Toland, J., & Parore, P. (2017). Is the digital divide still relevant in 2017? Two cases from marginalised

- communities in Aotearoa-New Zealand. In: PACIS 2017 Proceedings, 123. Available at: <http://aisel.aisnet.org/pacis2017/123>
- Talukdar, D., & Gauri, D. K. (2011). Home Internet Access and Usage in the USA: Trends in the Socio-Economic Digital Divide. *Communications of the Association for Information Systems*, 28, 7. <https://doi.org/10.17705/1CAIS.02807>
- Tracy, S. J. (2019). *Qualitative research methods: Collecting evidence, crafting analysis, communicating impact*. John Wiley & Sons.
- United Nation. (2020). Policy Brief: Education during COVID-19 and beyond. Retrieved December 2020 from: https://www.un.org/development/desa/dspd/wpcontent/uploads/sites/22/2020/08/sg_policy_brief_covid-19_and_education_august_2020.pdf
- Velasquez, A., Graham, C. R., & Osguthorpe, R. (2013). Caring in a technology-mediated online high school context. *Distance Education*, 34(1), 97–118. doi:10.1080/01587919.2013.770435
- Voogt, J., & Pelgrum, H. (2005). ICT and curriculum change. *Human Technology: An Interdisciplinary Journal on Humans in ICT Environments*, 1, 157-175. <https://doi.org/10.17011/ht/urn.2005356>
- Wareham, J., Levy, A., & Shi, W. (2004). Wireless diffusion and mobile computing: implications for the digital divide. *Telecommunications Policy*, 28(5-6), 439-457. <https://doi.org/10.1016/j.telpol.2003.11.005>
- Wiederhold, K. B. (2020). Connecting Through Technology During the COVID-19virus Disease 2019 Pandemic: Avoiding “Zoom Fatigue”. *Cyberpsychology, Behavior, and Social Networking*, 23(7). <https://www.liebertpub.com/doi/full/10.1089/cyber.2020.29188.bkw>
- Zilka, C. G. (2016). Reducing the digital divide among children who received desktop or hybrid computers for the home. *Journal of Information Technology Education: Research*, 15, 233-251. <https://doi.org/10.28945/3519>
- Zilka, C. G. (2017a). Awareness of eSafety and potential online dangers amongst children and teenagers. *Journal of Information Technology Education: Research*, 16, 319-338. <https://doi.org/10.28945/3864>
- Zilka, C. G. (2017b). Awareness of ICT capabilities, digital literacy, and use of reflective processes in children who received their first home computer. *Journal of Technology Enhanced Learning*, 9(1), 80-98. <https://doi.org.ezprimo1.idc.ac.il/10.1504/IJTEL.2017.084074>
- Zilka, C. G. (2019a). The digital divide: Implications for children and adolescents’ eSafety. *International Journal of Technology Enhanced Learning*, 11(1), 20-35. <https://doi.org/10.1504/IJTEL.2019.096736>
- Zilka, C. G. (2019b). The use of mobile technologies by immigrant adolescents in coping with the new language and with their formal studies. In A. Forkosh-Baruch, & H. Meishar-Tal. (Eds.). *Mobile technologies in educational organizations*, (pp. 192-210). IGI Global, USA.
- Zilka, C. G. (2020a). Openness and development or self-criticism of preservice teachers watching videos of themselves teaching a lesson. *Review of European Studies*, 12(4). <https://doi.org/10.5539/res.v12n4p1>
- Zilka, C. G. (2020b). Teenagers connected to digital environments – what happens when they get to school? Commonalities, similarities and differences from their perspective. *Education and Information Technologies*, 25, 1743–1758. <https://doi.org/10.1007/s10639-019-10052-y>
- Zilka, C. G., Cohen, R., & Rahimi, D. I. (2018). Teacher Presence and Social Presence in Virtual and Blended Courses. *Journal of Information Technology Education: Research*, 17, 103-126. <https://doi.org/10.28945/4061>
- Zilka, C. G., Rahimi, D. I., & Cohen, R. (2019). Sense of challenge, threat, self-efficacy, and motivation of students learning in virtual and blended courses. *American Journal of Distance Education*, 33(1), 2-15. <https://doi.org/10.1080/08923647.2019.1554990>
- Zohar, A., & Levy, S. T. (2019). Attraction vs. Repulsion - learning about forces and energy in chemical bonding with the Eli-Chem simulation. *Chemistry Education Research and Practice*, 20(4). <https://doi.org/10.1039/C9RP00007K>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Subjective Well-being, Mental Health and Concerns During the COVID-19 Pandemic: Evidence From the Global South

Lina Martínez¹, Valeria Trofimoff², Isabella Valencia³

¹ Associate professor of public policy – Director of POLIS (Observatorio de Políticas Públicas) Universidad Icesi, Colombia; Universidad ICESI – POLIS, Cali, Colombia

² Universidad ICESI, Researcher of POLIS (Observatorio de Políticas Públicas) Universidad Icesi, Colombia.

³ Universidad ICESI, Researcher of POLIS (Observatorio de Políticas Públicas) Universidad Icesi, Colombia.

Correspondence: Lina Martínez, Universidad ICESI – POLIS, Cali, Colombia

Received: February 18, 2021 Accepted: March 31, 2021 Online Published: April 25, 2021

doi:10.5539/res.v13n2p72

URL: <https://doi.org/10.5539/res.v13n2p72>

Abstract

COVID-19 pandemic is harming many social and economic spheres beyond physical health. The subjective well-being of the population (positive emotions and life satisfaction) and the prevalence of stressors affecting good mental health like worry, depression, and anxiety are increasing worldwide. This analysis presents evidence of subjective well-being and mental health in Colombia, South America, during the current crisis. The data for this analysis comes from an online survey released after one month of quarantine. In total, 941 adults participated in the study. Results show that women are more affected by their well-being and experience more often worry, depression, and anxiety than males. In particular, younger women and from the lower socioeconomic strata. Respondents identify three primary concerns because of the pandemic: i) financial consequences, ii) health (personal and loved one's health), and iii) productivity. Respondents are, on average, more concerned for the health of loved ones than their health. 49% of study participants report having an income reduction as a consequence of the pandemic, but women in all subgroups analyzed are more affected than males. In terms of productivity –working remotely-, educated people, and from 50+ age range, feels more productive working from home. Evidence from this analysis contributes to the broader research of the consequences of COVID-19 on the well-being of the population. Evidence comes from a country in the global South with high population ratings of subjective well-being, happiness, and life satisfaction before the pandemic.

Keywords: subjective well-being, mental health, COVID-19, Colombia, gender

1. Introduction

Coronavirus pandemic is hitting the entire world severely with significant consequences through live losses and economic stagnation. The pandemic has shifted its epicenter, starting in China and now with devastating outcomes in Latin America, a region that only until a few decades ago is experiencing the transition from low to middle income in the vast majority of its countries (OECD, 2019). With low spending on their health system and lack of government capacity for implementing a broad range of social policies for the poor, Latin America will suffer long-lasting consequences (Blackman et al., 2020). Some population groups, like women and the poor, will be more vulnerable to the pandemic's economic and social aftermath, deepening existing inequalities (World Bank, 2020). This crisis harms the physical and mental health of the population, affecting the positive reports of high levels of subjective well-being and life satisfaction in the region (Rojas, 2016).

Latin America is experiencing a steady rise in the number of new cases and deaths as a consequence of COVID-19 (Marquez, Aguilera & Calderon, 2020). By May 2020, The World Health Organization declared Latin America the new epicenter of the pandemic. In early July, over three million cases were in the official records, and more than 130,000 people have died (Horton, 2020). Latin America is a region facing several challenges during this pandemic, ranging from the low capacity of the public health system to the high prevalence of poverty and inequality (Blackman et al., 2020).

Latin America experimented an important social and economic prosperity over the last two decades but is still the most unequal region in the world (OECD, 2019). The prevalence of poverty and the need of the poor to bring food to the table, have contributed to the inefficacy of lockdowns implemented across the region since March. Besides the economic considerations that are a significant challenge during this pandemic, the health system in the region cannot test and monitor the pandemic's trajectory as other countries in the global North, given the

scarce resources and reduced health care infrastructure. By 2017 per-person health spending in the region was a quarter compared with the spending on health on OECD countries (OECD, 2020).

Before the pandemic, the reports in Latin America of subjective well-being and life satisfaction, which are core components of good mental and physical health, have remained high (Beytía, 2016). People had self-reported as very happy and satisfied with their life despite poverty, inequality, and exclusion from the welfare system (Ateca-Amestoy, 2016). The positive subjective well-being reported in Latin America has strong correlations with good physical and mental health (Florenzano & Dussailant, 2016; Elizondo-Lara & Rojas, 2016) income and job satisfaction (Montero & Rau, 2016), and family relations (Rojas & Elizondo-Lara, 2016). The Coronavirus pandemic's pervasiveness has direct and negative impacts on all the factors associated with high subjective well-being in the region. Many have loosed their loved ones, experimented with illness, lost their jobs, increase stress, anxiety, and depression, and family relations are exposed to additional stressors.

This pandemic is a very recent episode and is uncertain about the long-term implications for the population's well-being and mental health. The preliminary evidence available shows important changes in the mental health of the population worldwide, with reports of increasing anxiety, depression, and stress during this pandemic (Wang, Pan, Wan, 2020; Wang, Pan, Wan, 2020; Cao, Fang, Hou, 2020; El-Zoghby, Soltan, Salama, 2020; Losada-Baltar, et al., 2020; Sønderskov, Dinesen, Santini, Østergaard, 2020).

Intending to contribute to the global discussion of the implications of COVID-19 in people's well-being and mental health, we present evidence from Colombia. In this analysis, we discuss information from an online survey conducted in the country after three weeks of a strict confinement. The survey inquired about two factors related to subjective well-being: i) how home confinement relates to life satisfaction and negative emotions like depression, worry, and anxiety; and ii) what are the main people's concerns associated with the crisis. We report that COVID-19 is taking a negative toll on people's well-being with more negative consequences on women. Compared with previous national measures of well-being, there are important reductions in life satisfaction and happiness, and there is an increase in worry and depression.

This analysis is organized in six sections, being this introduction the first part. Second section presents a brief summary of the evidence available about subjective well-being and emotional distress during the COVID-19 pandemic. Third section describes the general Colombian context during this crisis. Research questions and the study design are presented afterwards, followed by results and a discussion of the conclusions.

2. Subjective Well-being, Emotional Distress and the Pandemic

The notion of subjective well-being is broad. It encompasses good mental states, the evaluations –positive and negative– that people make about their lives and affective reactions to experiences. It also includes people's evaluations about different life aspects, as well as “purpose” in life (OECD, 2013). The burgeoning literature on life satisfaction that has spurred over the last decades (Diener et al., 2018), have shown consistently that life satisfaction is highly correlated with a good mental and physical health (Veenhoven, 2008; Blanchflower & Oswald, 2008; Cummins, 2010), social relations (Lamu & Olsen, 2016), job stability and income (Diener et al., 2015), and government performance (Leyden et al., 2011; Florida et al., 2013). The COVID-19 crisis had affected negatively all the aspects correlated with our well-being. COVID-19 is a direct threat to the physical health, and the draconian measures taken by governments as quarantines are a direct threat to our mental health (De Lima et al., 2020). The countless social distancing measures implemented across the world impede the social closeness that increases life satisfaction. The economic consequences of COVID-19 have rendered many jobless and is adding pressure to the financial conditions of millions of households. Moreover, this crisis is unveiling the limited capacities of governments to help, solve, and control a crisis of this dimension (Greer et al., 2020). COVID-19 in short, is affecting the fabric that constitute our well-being.

We know little about how this crisis will affect people's well-being and mental health in the long term. The recent evidence shows that the crisis caused by COVID-19 has a significant effect on the emotional distress and subjective well-being reduction of people around the world. The losses caused by COVID-19 in the number of deaths, contagion, and the economic consequences are unprecedented. Some have even called the crisis caused by COVID-19 “the largest physiological experiment even conducted” (Van Hoof, 2020). The evidence available about the effects of COVID-19 of emotional distress shows that the disruption on daily activities, career trajectories, peer socialization, and the ability to perform daily activities have increased stress, anxiety, and depression (Zhai & Du, 2020). Evidence from China suggests that the impact of COVID-19 on mental health is moderate to severe with respondents reporting spikes in anxiety and depression (Cao et al., 2020). Similar findings are reported in other latitudes across the world (Losada-Baltar et al., 2020; Huckins et al., 2020; Brooks et al., 2020; Zandifar & Badrfam, 2020).

Social confinement, despite the negative toll on mental health and the economy, remains the best non-pharmacological alternative to reduce contagion. However, the correlation of this restrictive measures with the prevalence of negative

emotions is reported across different populations ranging from school-aged children to the elderly (Hossain, et al., 2020). Life satisfaction has been also negatively affected during the COVID-19 crisis. In a world-wide study about social participation and life satisfaction during confinement, researchers conclude that the interruptions of daily living, social contact and interactions, and isolation negatively impacts life satisfaction of the respondents (Ammar et al., 2020).

The preliminary evidence points to the same direction: COVID-19 is affecting negatively people's well-being and life satisfaction. However, is still unknown the long-lasting consequences, the differences by different population groups, and more importantly, is necessary more evidence to provide more robust evidence for policy-making and program intervention for the possible consequences of this crisis.

3. Colombian Context During the Pandemic

Taking all together, Colombia is one of the countries in Latin America currently with the highest contagion rates. By late November, the health ministry reported over 34,000 deaths and over 1,2 million cases (Ministerio de Salud, 2020).

Generally speaking, Coronavirus in Colombia is mostly an urban phenomenon. Large cities like Bogotá (over 8 million inhabitants), and Cali and Medellín report the largest share of cases. In the country, the implementation of draconian measures started early. The first case of Coronavirus was reported on March 6th, the school system closed on March 14th, the elderly was ordered to stay at home on March 20th, and national quarantine was imposed on March 25th (Ignatius, 2020). The quarantine in the country extended several times. Initially, the government order was for three weeks and gradually extended until September 1st, totaling 6 months, one of the longest quarantines in the world during the COVID-19 crisis (Taylor, 2020). Since May, some workers are allowed to work, but there were severe penalty fees (over a monthly minimum wage) for those who did not complain about the quarantine. Despite the enforcement, many people were on the streets. The employment rate for May 2020 was 21,4%, increasing almost 11 percentage points in the same period in 2019 (DANE, 2020a) and the highest amongst countries in the OECD (OECD, 2020). This crisis is creating the major economic crisis in recent history in the country.

Regarding subjective well-being and mental health, preliminary results of a phone survey conducted by the National Statistics Office (DANE) in the country, show the prevalence of negative emotions such as worry, tiredness, loneliness, and sadness in the population during this crisis. The prevalence of negative emotions is higher amongst women. On average, women report a higher prevalence of feeling worried (38,6% vs. 35,9% for males), tired (18,1% vs. 15,3% for males), lonely (12,2% vs. 9,9% for males), and sad (20,6% vs. 15% for males). Negative emotions are also more prevalent amongst unemployed and women without income (DANE, 2020a).

4. Study Design

The main purpose of this study is to provide insights on two factors generated by the COVID-19 crisis: i) how home confinement, relates to life satisfaction and negative emotions like depression, worry, and anxiety; and ii) what are the main people's concerns associated to the crisis.

To answer those questions, researchers created an online survey released in Colombia in April 2020, three weeks after strict confinement. POLIS, the Observatory of Public Policies of Universidad Icesi, designed the survey, using the same metrics of a panel study of subjective well-being in Cali, the third-largest city in the country. Since 2014, POLIS measures life satisfaction and subjective well-being every year (2014 – 2019) through a yearly population survey called CaliBRANDO (Martínez, 2017). The questionnaire used standard socioeconomic variables coming from the national statistical office in Colombia (DANE, 2020b). For the measures of subjective well-being and the prevalence of negative emotions, the questionnaire included subjective well-being core measures battery recommended by the Organization of Economic Co-operation and development (OECD, 2013 – annex A).

The online survey reported in this article inquired about COVID-19 consequences on the well-being and mental health of the population. Typeform, an online server for pooling, was the platform used for collecting the data. Alongside the survey, researchers created a short video explaining the motivations for conducting the study and presented general results of the CaliBRANDO survey and national statistics of subjective well-being. The video asked respondents to participate in the study to explore how the pandemic and the quarantine affected life satisfaction, worry, depression, and anxiety to track the changes in subjective well-being in the population before and during the pandemic. As a reward for participation, participants downloaded a gratitude journal and a stress management diary designed for this study at the end of the survey. For this study, a web platform was designed to display the survey, videos, and reports of life satisfaction and subjective well-being in Cali and Colombia¹. The survey circulated through a snowball sampling strategy. Social networks and postings from journalists in the country were pivotal for its distribution. In total, 941 adults in Colombia participated in the study.

¹ <https://www.icesi.edu.co/polis/investigaciones/seccionsalud/salud-covid-19.php>

The survey was available to all adults (18 years and older) in the country who wanted to participate. Most of the respondents of this study were female, from medium-high socioeconomic status, with higher educational attainment. The survey circulated mainly through a local newspaper (Dario El País) and posted from journalists, generally followed by individuals with higher educational attainment. This survey does not represent the general population in Colombia, the average years of education in the country is 13 years (high school and some technical education), and 51% are females (DANE, 2021).

The questionnaire had seven sociodemographics questions (city, gender, age, education, occupation, socioeconomic strata, and race/ethnicity). For measuring well-being, we used life satisfaction measures and the prevalence of the most common negative emotions affecting good mental health (worry and depression). This survey used the standardized and validated scale of core measures of well-being (OECD, 2013). For these questions, respondents were asked:

- On a scale, 0 -10, zero means you feel “not at all satisfied” and 10 means you feel “completely satisfied” Overall, how satisfied are you with life as a whole these days?
- How you felt yesterday on a scale from 0 to 10. Zero means you did not experience the feeling “at all” yesterday while 10 means you experienced the feeling “all the time”. Yesterday you felt:
 1. Worried
 2. Depressed

The questionnaire also includes questions about feelings of anxiety the day before (scale 0-10) and a set of questions regarding concerns and direct affections. Respondents were asked for the following (scale 0-10): worry for their health; worry for the health of loved ones; feeling productive working from home; worry about economic consequences of COVID-19.

Respondents gave their consent to use the information for academic purposes and this survey is covered by the ethics committee approval of Universidad Icesi (code # 311). A policy brief aiming at informing local policymakers was distributed in late May (POLIS, 2020).

Raw data, questionnaire and the materials associated with this study are available at Mendeley data (DOI: 10.17632/3z6k2r3rmd.2) and there is an open access publication presenting the details of this survey (Martínez et al., 2020). This paper presents descriptive statistics of mean differences by gender, age, socioeconomic strata and educational attainment. Analysis are performed using Stata 14. Differences by gender are estimated with t-test setting standard significance levels in social sciences (Lewis-Beck et al., 2003).

5. Results

Participants of the survey were mostly women (63%), educated, young (18 – 35 years old), and middle socioeconomic strata. The proportion of self-employment and formal employment are relatively equally distributed. In this sample, 63% of females report technical or professional education. Table 1 present the general characteristics of the population participating in the survey.

Table 1. Demographic characteristics of participants

<i>Gender</i>		N
Female	63%	595
Male	37%	346
<i>Age</i>		
18 - 35 years	57%	530
36 - 50 years	24%	217
50 +	19%	176
<i>Socioeconomic strata (SES)</i>		
High SES	34%	321
Middle SES	49%	465
Low SES	17%	156
<i>Educational attainment</i>		
High school or less	7%	74
Technical - professional education	92%	868
Employed	44%	414
Self-employed - informal worker	40%	373
Other	16%	155

5.1 Subjective Well-being

Before COVID-19, national reports of subjective well-being were high in Colombia. National measurements collected between 2015 and 2018 reported high levels of life satisfaction and positive emotions like happiness (Castro, Puerta & Castañeda, 2019). The average life satisfaction score in Colombia during 2015 – 2018 was 8,6 without significant variations by year. This score is one unit higher than OECD countries scoring, on average, 7,5 in the life satisfaction measure during the same period (OECD, 2020). Negative emotions like worry were, on average, 3,8 on a scale of 0-10 with differences by gender: 3.9 for males and 5.7 for females. At the national level, the affect balance measure (positive emotions versus negative emotions like worry or depression), was on average, 7,7, indicating a higher prevalence of subjective well-being (life satisfaction, happiness, and positive emotions) within the population than negative emotions (worry and depression). Similar numbers are reported in other cities in Colombia (Martínez & Short, 2020).

Within the sample who took part in the study during the pandemic of COVID-19, the life satisfaction score was, on average, 7,5 without important differences by gender or population group (age, socioeconomic strata, education, or employment). Females report on average a higher prevalence of worry than males, mainly the younger and less educated, in which differences are significant. For depression and anxiety, we find the same pattern. Women report negative emotions with higher prevalence than males. Younger women (18 -35-age range) report a higher prevalence of depression, whereas middle-aged women (36-50 age range) report more prevalence of anxiety. Less-educated women report a higher prevalence of worry, depression, and anxiety than males with the same educational attainment, and those differences are significant. Table 2 presents the results of life satisfaction and feelings of depression, worry, and anxiety during the quarantine.

Table 2. Life satisfaction, worry, depression, and anxiety by gender

	Life satisfaction			Worry			Depress			Anxiety		
	Male	Female	Diff	Male	Female	Diff	Male	Female	Diff	Male	Female	Diff
18 - 35 years	7,5	7,2	-	4,9	5,6	***	3,1	3,7	*	5	6	-
36 - 50 years	8	7,8	-	4,9	5,2	-	2,8	3,2	-	5,5	7,1	*
50 +	7,9	8,2	-	5,4	4,8	-	2,7	2,5	-	5,8	6,1	-
High SES	8	7,8	-	5,1	5,3	-	2,7	3,1	-	5,2	4,7	-
Middle SES	7,5	7,3	-	4,8	5,3	-	2,9	3,5	*	5,3	5,9	-
Low SES	7,3	7,4	-	5,2	5,7	-	3,6	3,8	-	5,9	6,3	-
High school or less	7,7	7,5	-	4,2	5,7	*	2,5	4,3	*	5,7	5,8	*
Technical - professional education	7,7	7,5	-	5,1	5,3	-	3	3,4	-	5,1	6	-
Employed	7,8	7,8	-	5,1	5,4	-	2,8	3,3	-	6,2	6,6	-
Self-employed - informal worker	7,6	7,5	-	4,8	5,4	-	2,5	3	-	6,5	6,9	-
Other	7,4	7,2	-	4,9	5,3	-	3,4	3,8	-	5,7	6	-

*** p>0.99 ** p>0.95 * p>0.90

5.2 The Concerns Caused by the Pandemic

The survey inquired about different aspects that could increase concerns and worries, such as government measures (quarantine and social distancing), the pervasiveness of negative news in the media, universal adherence to restrictive measures, financial consequences, productivity, and concerns about the possibility of being infected by the virus. Three concerns stand out in the results: i) the financial consequences of the pandemic; ii) concerns for the infection in physical health (personal health and loved ones); and iii) productivity.

5.2.1 Financial Consequences of COVID-19

The primary concern reported among respondents was the financial consequences of the pandemic. Moreover, 49% of the

people answering the survey report that their income was affected. Both males and females in all population groups analyzed are equally concerned with economic issues; however, women report a significant affection for their income. In almost all the subgroups analyzed, women report that their income is affected in a higher proportion than males. Table 3 presents the results.

Table 3. Income reduction and concerns about financial consequences by gender

	Your income is affected by COVID-19 (Yes - No question)			Concerned about the financial consequences of COVID-19 (Average scale 0 -10)		
	Male	Female	Diff	Male	Female	Diff
Male	46%	-	-	8,7	-	-
Female	-	51%	-	-	8,6	-
18 - 35 years	36%	64%	***	8,8	8,7	-
36 - 50 years	30%	70%	***	8,8	8,6	-
50 +	44%	55%	-	8,6	8,1	-
High SES	38%	62%	***	8,9	8,7	-
Middle SES	34%	66%	***	8,6	8,6	-
Low SES	35%	65%	***	8,6	8,3	-
High school or less	33%	67%	**	8,3	8,2	-
Technical - professional education	36%	64%	***	8,7	8,6	-
Employed	44%	55%	-	8,7	8,7	-
Self-employed - informal worker	36%	64%	***	8,8	8,5	-
Other	30%	70%	***	8,6	8,6	-

*** p>0.99 ** p>0.95 * p>0.90

5.2.3 Health

Participants of the survey report a more significant concern for the physical health of loved ones than their health. On average, on a scale 0-10, respondents rate their concern for personal health on 6, whereas the concerns about the health of loved ones are 8,5. There are no differences by gender in almost all categories analyzed; however, younger women report greater concern for the health of loved ones than males. Table 4 presents the results by gender.

Table 4. Concerns about personal and loved ones health by gender

	I'm concerned about my health (Average scale 0-10)			I'm concerned for the health of my loved ones (Average scale 0-10)		
	Male	Female	Diff	Male	Female	Diff
High school or less	6,2	6,3	-	8,5	8,8	-
Technical - professional education	6,1	6,1	-	8,2	8,4	-
18 - 35 years	5,8	6,1	-	8,4	8,7	*
36 - 50 years	6,2	6,2	-	7,9	8,3	-
50 +	6,5	6,1	-	8	7,8	-
High SES	5,8	6	-	8,3	8,4	-
Middle SES	6,3	6,2	-	8,3	8,5	-
Low SES	6	6,1	-	7,8	8,5	-
Employed	6	6	-	8,4	8,4	-
Self-employed - informal worker	6,2	6,2	-	8,1	8,4	-
Other	6	6,2	-	8,1	8,6	*

*** p>0.99 ** p>0.95 * p>0.90

5.2.4 Productivity

In terms of productivity (working from home), the participants of this study, rate their professional productivity at 6 (scale 0-10). Older (50+ years) and from higher socioeconomic status are the ones rating higher in this component. Women with less educational attainment and from lower socioeconomic strata are the ones rating lower on their productivity working remotely. In terms of gender differences, professional educated and formally employed women report a higher feeling of being productive working remotely.

Table 5. Feeling productive working remotely by gender

	Feels productive working remotely (average scale 0 - 10)		
	Male	Female	Diff
High school or less	4,8	4,4	-
Technical - professional education	4,9	5,4	-
18 - 35 years	4,4	4,7	-
36 - 50 years	5,8	5,9	-
50 +	5,8	6,5	-
High SES	5,5	5,7	*
Middle SES	4,6	5,3	-
Low SES	4,5	4,3	-
Employed	5,1	5,8	*
Self-employed - informal worker	5,4	6	-
Other	4,4	4,5	-

*** p>0.99 ** p>0.95 * p>0.90

6. Discussion and Conclusions

We report on an online survey about the consequences of subjective well-being caused by the COVID-19 pandemic in Colombia. Over 900 adults participated in this study, reporting an average score of 7,5 on life satisfaction, one unit below previous national measures. Results from this sample also suggest an increase in the prevalence of negative emotions like worry and depression, particularly amongst women. Compared to males, younger and less educated women report higher worry, depression, and anxiety. Results show the prevalence of worry, anxiety, and depression, which are negative emotions that affect the population's mental health.

Study results align with the evidence available reporting the negative mental health consequences due to the COVID-19 pandemic worldwide. There are consistent reports of an increase of negative emotions like depression and anxiety in different contexts with a higher prevalence amongst women (Zhai & Du, 2020; Cao et al., 2020; Losada-Baltar et al., 2020; Huckins et al., 2020; Brooks et al., 2020; Zandifar & Badrfam, 2020). The current crisis broadly affects the population's mental health through different mechanisms. First, the pandemic increases anxiety given the constant worry of being infected, the probability of infecting others, and the possibility of loved ones being infected. The pandemic also affects mental health through concerns about financial stability or unemployment. Another mechanism related to COVID-19 is the burden of domestic work and responsibilities that increase the workload and daily stress (Helliwell et al., 2021).

Similar to the evidence available, the results of this study show three concerns about the consequences of the pandemic: financial consequences, concerns for personal and loved one's health, and labor productivity. Generally speaking, males and females are equally concerned about all aspects; however, women are significantly more penalized than males in terms of earnings. Income reductions because of the pandemic were reported for almost half of the respondents in this survey, but women are more affected than males. Women from all subgroups analyzed report a negative affection on their income, and the differences are significant compared to the income affection reported by males. In particular, women from middle age (35 -50 years old), lower socioeconomic strata, and lower educational attainment. In terms of productivity working from home, poorer and less educated women report the lowest ratings on productivity

These results suggest that women are more affected by their well-being, mental health, and income during this crisis in the context studied. Women are more penalized than males, particularly on their ability to earn their income, on the prevalence of worry, and depression, and being less productive working from home. Gender inequalities, which have been deep in Latin America with women making less than their males' counterparts, and taking more responsibilities at home with the care of children and elderly, plus house chores (UN, 2019), may increase due to the current pandemic.

We are aware of the limitations of an online study and the self-selection bias it entails. This sample is not representative of the country populations by excluding population from the lower socioeconomic strata who do not have access to the internet or do not have the literacy to fill out an online survey.

With this analysis, we aim at contributing to a broader analysis of the consequences of COVID-19 on the different economic and social aspects that burden the worldwide population.

7. Data Availability Statement

Data for this analysis is publicly available at Mendeley Data, DOI:10.17632/3z6k2r3rmd.2. Likewise, detailed information about questionnaire, measures and descriptive statistics, are published on Data in Brief under the title: Subjective Well-being and Mental Health during the COVID-19 pandemic: Data from three population groups in Colombia.

References

- Amestoy, V. A., García-Muñoz, T., & Egado, A. I. M. (2016). Individual and social dimensions of subjective well-being: evidence across Latin-American Countries. In *Handbook of Happiness Research in Latin America* (pp. 357-388). Springer, Dordrecht. https://doi.org/10.1007/978-94-017-7203-7_21
- Ammar, A., Chtourou, H., Boukhris, O., Trabelsi, K., Masmoudi, L., Brach, M., ... & ECLB-COVID19 Consortium. (2020). COVID-19 home confinement negatively impacts social participation and life satisfaction: a worldwide multicenter study. *International journal of environmental research and public health*, 17(17), 6237. <https://doi.org/10.3390/ijerph17176237>
- Beytía, P. (2016). The singularity of Latin American patterns of happiness. *Handbook of happiness research in Latin America*, 17-29. https://doi.org/10.1007/978-94-017-7203-7_2
- Blackman, A., Ibañez, A. M., Izquierdo, A., Keefer, P., Moreira, M. M., Schady, N., & Serebrisky, T. (2020). *La política pública frente al COVID-19: recomendaciones para América Latina y el Caribe* (Vol. 810). Inter-American Development Bank. <https://doi.org/10.18235/0002302>
- Blanchflower, D. G., & Oswald, A. J. (2008). Hypertension and happiness across nations. *Journal of health economics*,

- 27(2), 218-233. <https://doi.org/10.1016/j.jhealeco.2007.06.002>
- Brooks, S. K., Webster, R. K., Smith, L. E., Woodland, L., Wessely, S., Greenberg, N., & Rubin, G. J. (2020). The psychological impact of quarantine and how to reduce it: rapid review of the evidence. *The lancet*, 395(10227), 912-920. [https://doi.org/10.1016/S0140-6736\(20\)30460-8](https://doi.org/10.1016/S0140-6736(20)30460-8)
- Cao, W., Fang, Z., Hou, G., Han, M., Xu, X., Dong, J., & Zheng, J. (2020). The psychological impact of the COVID-19 epidemic on college students in China. *Covid-19. Conacyt.Mx*. <https://doi.org/10.1016/j.psychres.2020.112934>
- Castro, F., Puertam, N., & Castañeda, C. (2019). Subjective well-being analysis: the Colombian case. In Public Policy Observatory - Icesi University, ed., *Life Satisfaction an Expanding Research Area*. Cali, Colombia: Icesi University, 57-62.
- COVID, C. (19). Dashboard by the center for systems science and engineering (CSSE) at Johns Hopkins University (JHU).
- Cummins, R. A. (2010). Fluency disorders and life quality: Subjective well-being vs. health-related quality of life. *Journal of fluency disorders*, 35(3), 161-172. <https://doi.org/10.1016/j.jfludis.2010.05.009>
- DANE (2020b). Encuesta Nacional de Hogares. Microdatos y manuales técnicos. Retrieved from: <https://www.dane.gov.co/index.php/estadisticas-por-tema/mercado-laboral/encuesta-nacional-de-hogares>
- DANE (2021). Estadísticas por tema- Educación. Retrieved from: <https://www.dane.gov.co/index.php/estadisticas-por-tema/educacion>
- DANE. (2020a). Encuesta Pulso Social – Resultados tercera ronda. [Diapositivas]. <https://www.dane.gov.co/index.php/estadisticas-por-tema/encuesta-pulso-social>
- DANE. Gran Encuesta Integrada de Hogares (GEIH) Mercado laboral. <https://www.dane.gov.co/index.php/estadisticas-por-tema/mercado-laboral/empleo-y-desempleo> Published May 2020. Accessed July 17th, 2020.
- de Lima, C. V. C., Cândido, E. L., da Silva, J. A., Albuquerque, L. V., de Menezes Soares, L., do Nascimento, M. M., ... & Neto, M. L. R. (2020). Effects of quarantine on mental health of populations affected by Covid-19. *Journal of affective disorders*, 275, 253-254. b
- Diener, E., Oishi, S., & Lucas, R. E. (2015). National accounts of subjective well-being. *American psychologist*, 70(3), 234. <https://doi.org/10.1037/a0038899>
- Diener, E., Oishi, S., & Tay, L. (2018). Advances in subjective well-being research. *Nature Human Behaviour*, 2(4), 253. <https://doi.org/10.1038/s41562-018-0307-6>
- Elizondo-Lara, M., & Rojas, M. (2016). The Impact of Economic Growth on the Prevalence of Health Problems in Latin America. In *Handbook of Happiness Research in Latin America* (pp. 515-528). Springer, Dordrecht. https://doi.org/10.1007/978-94-017-7203-7_29
- El-Zoghby, S. M., Soltan, E. M., & Salama, H. M. (2020). Impact of the COVID-19 pandemic on mental health and social support among adult Egyptians. *Journal of community health*, 45, 689-695. <https://doi.org/10.1007/s10900-020-00853-5>
- Florenzano, R., & Dussailant, F. (2016). The Determinants of Mental Health: Empirical Evidence from Chile. In *Handbook of Happiness Research in Latin America* (pp. 479-488). Springer, Dordrecht. https://doi.org/10.1007/978-94-017-7203-7_27
- Florida, R., Mellander, C., & Rentfrow, P. J. (2013). The happiness of cities. *Regional Studies*; 47(4), 613-627. <https://doi.org/10.1080/00343404.2011.589830>
- Greer, S. L., King, E. J., da Fonseca, E. M., & Peralta-Santos, A. (2020). The comparative politics of COVID-19: The need to understand government responses. *Global public health*, 15(9), 1413-1416. <https://doi.org/10.1080/17441692.2020.1783340>
- Helliwell, J., Layard, R., & Sachs, J., De Neve, J., Akinin, L., & Wang, S. (2021). World happiness Report 2021. *World Happiness*. Retrieved from: <https://worldhappiness.report/ed/2021/>
- Horton, J. (2020). Coronavirus: What are the numbers out of Latin America. *BBC News*, 28.
- Hossain, M. M., Sultana, A., & Purohit, N. (2020). Mental health outcomes of quarantine and isolation for infection prevention: a systematic umbrella review of the global evidence. *Available at SSRN 3561265*. <https://doi.org/10.2139/ssrn.3561265>

- Huckins, J. F., DaSilva, A. W., Wang, W., Hedlund, E., Rogers, C., Nepal, S. K., ... & Campbell, A. T. (2020). Mental health and behavior of college students during the early phases of the COVID-19 pandemic: longitudinal smartphone and ecological momentary assessment study. *Journal of medical Internet research*, 22(6), e20185. <https://doi.org/10.2196/20185>
- Ignatius, D. (2002). *Colombia planned well for the pandemic. The region is reeling*. The Washington Post. Retrieved from <https://www.washingtonpost.com/opinions/2020/06/22/colombia-planned-well-pandemic-region-is-reeling/>
- Lamu, A. N., & Olsen, J. A. (2016). The relative importance of health, income and social relations for subjective well-being: An integrative analysis. *Social Science & Medicine*, 152, 176-185. <https://doi.org/10.1016/j.socscimed.2016.01.046>
- Lewis-Beck, M., Bryman, A. E., & Liao, T. F. (2003). *The Sage encyclopedia of social science research methods*. Sage Publications. <https://doi.org/10.4135/9781412950589>
- Leyden, K. M., Goldberg, A., & Michelbach, P. (2011). Understanding the pursuit of happiness in ten major cities. *Urban Affairs Review*, 47(6), 861-888. <https://doi.org/10.1177/1078087411403120>
- Losada-Baltar, A., Jiménez-Gonzalo, L., Gallego-Alberto, L., Pedroso-Chaparro, M., Fernandes-Pires, J., & Márquez-González, M. (2020). "We're staying at home". Association of self-perceptions of aging, personal and family resources and loneliness with psychological distress during the lock-down period of COVID-19. *J Gerontol B Psychol Sci Soc Sci.*, 20(20), 1-7. <https://doi.org/10.1093/geronb/gbaa048>
- Marquez, P., Aguilera, S., Calderon, L. (2020). Have South and Central America become the new coronavirus (COVID-19) epicenter?
- Martínez, L. (2017). Life satisfaction data in a developing country: CaliBRANDO measurement system. *Data in brief*, 13, 600. <https://doi.org/10.1016/j.dib.2017.06.038>
- Martínez, L., & Short, J. R. (2020). Life satisfaction in the city. *Scienze Regionali*, 0-0.
- Martínez, L., Valencia, I., & Trofimoff, V. (2020). Subjective well-being and mental health during the COVID-19 pandemic: Data from three population groups in Colombia. *Data in brief*, 32, 106287. <https://doi.org/10.1016/j.dib.2020.106287>
- Ministerio de Salud. Coronavirus – Covid-19. https://www.minsalud.gov.co/salud/publica/PET/Paginas/Covid-19_copia.aspx . Published March 2020. Accessed July 17th, 2020.
- Montero, R., & Rau, T. (2016). Relative Income and Job Satisfaction in Chile. In Rojas M, ed., *Handbook of Happiness Research in Latin America*. Ciudad de México, México: Springer, 205-218. https://doi.org/10.1007/978-94-017-7203-7_13
- Observatorio de políticas públicas, POLIS, Universidad Icesi- Cali, Colombia.
- OECD, CEPAL, CAF and European Union. *Perspectivas económicas de América Latina 2019: Desarrollo en transición*. Paris, France: OECD Publishing; 2019. <https://doi.org/10.1787/g2g9ff1a-es>
- OECD. *How's Life? 2020 Measuring Well-being*. Paris, France: OECD Publishing; 2020. <https://doi.org/10.1787/9870c393-en>
- OECD. *Latin America and the Caribbean countries need to spend more and better on health to be better able to face a major health emergency like COVID-19 effectively*. <https://www.oecd.org/health/latin-america-and-the-caribbean-countries-need-to-spend-more-and-better-on-health-to-be-better-able-to-face-a-major-health-emergency-like-covid-19-effectively.htm> . Published June 16th, 2020. Accessed July 17th, 2020.
- OECD. *OECD Employment Outlook 2020: Worker Security and the COVID-19 Crisis*. Paris, France: OECD Publishing; 2020. <https://doi.org/10.1787/1686c758-en>
- OECD. *OECD guidelines on measuring subjective well-being*. Paris, France: OECD Publishing; 2013. <https://doi.org/10.1787/9789264191655-en>
- POLIS (2020) *Bienestar y salud mental en época de crisis y pandemia. Datos en Breve No. 14*.
- Rojas, M. (2016). Happiness, Research, and Latin America. In *Handbook of happiness research in Latin America*. In Rojas M, ed. *Handbook of Happiness Research in Latin America*. Ciudad de México, México: Springer, 1-13. https://doi.org/10.1007/978-94-017-7203-7_1

- Rojas, M., & Elizondo-Lara, M. (2016). The role of relational goods in the relationship between illnesses and satisfaction in Latin America. In *Handbook of happiness research in Latin America* (pp. 179-190). Springer, Dordrecht. https://doi.org/10.1007/978-94-017-7203-7_11
- Sønderskov, K. M., Dinesen, P. T., Santini, Z. I., & Østergaard, S. D. (2020). The depressive state of Denmark during the COVID-19 pandemic. *Acta neuropsychiatrica*, 1-3. <https://doi.org/10.1017/neu.2020.15>
- Taylor. (2020). Retrieved from <https://www.abc.net.au/news/2020-11-09/colombia-six-month-coronavirus-lockdown-price-to-pay/12855242>
- UN Women. Progress on the Sustainable Development Goals, The Gender Snapshot 2019. New York, USA: UN Women; 2019. Retrieved from: <https://oig.cepal.org/en/documents/progress-sustainable-development-goals-gender-snapshot-2019>
- Van Hoof, E. (2020). *Lockdown is the world's biggest psychological experiment - and we will pay the price*. World Economic Forum. Retrieved from <https://www.weforum.org/agenda/2020/04/this-is-the-psychological-side-of-the-covid-19-pandemic-that-were-ignoring/>
- Veenhoven, R. (2008). Healthy happiness: Effects of happiness on physical health and the consequences for preventive health care. *Journal of happiness studies*, 9(3), 449-469.
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*, 17(5), 1729. <https://doi.org/10.3390/ijerph17051729>
- Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., McIntyre, R. S., ... & Ho, C. (2020). A longitudinal study on the mental health of general population during the COVID-19 epidemic in China. *Brain, behavior, and immunity*, 87, 40-48.
- World Bank. COVID-19 Could Worsen Gender Inequality in Latin America and the Caribbean. <https://www.worldbank.org/en/news/feature/2020/05/15/covid-19-could-worsen-gender-inequality-in-latin-america-and-the-caribbean>. Published May 15th, 2020. Accessed July 17th, 2020.
- Zandifar, A., & Badrfam, R. (2020). Iranian mental health during the COVID-19 epidemic. *Asian journal of psychiatry*, 51. <https://doi.org/10.1016/j.ajp.2020.101990>
- Zhai, Y., & Du, X. (2020). Addressing collegiate mental health amid COVID-19 pandemic. In *Psychiatry Research*. <https://doi.org/10.1016/j.psychres.2020.113003>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Investigation of Causal Correlations Between Higher Education Development and Economic Growth in Vietnam

Nguyen Duc Hanh¹, Bui Manh Dung²

¹ VNU University of Education, Hanoi, Vietnam

² Tan Trao University, Tuyen Quang, Vietnam

Correspondence: Nguyen Duc Hanh, VNU University of Education, Hanoi, Vietnam. E-mail duchanh.xafs@gmail.com

Received: March 14, 2021 Accepted: April 6, 2021 Online Published: April 25, 2021

doi:10.5539/res.v13n2p83

URL: <https://doi.org/10.5539/res.v13n2p83>

Abstract

This work investigated the dynamic relationship between higher education and economic growth in Vietnam using annual data collected ten years from 2010 to 2019. The auto-regressive distributive lag framework was used along with the error correction term to investigate the long-run relationship between real gross domestic product, enrollment in higher education, gross capital formation, and labor. The study used the Granger causality test to assess the relationship between higher education and economic expansion. Follow as the test results, a unidirectional causality running from higher education to economic growth have observed. The necessary diagnostic tests have applied to check the reliability and acceptability of model outputs, and they have been found suitable.

Keywords: auto-regressive distributive lag framework, bounds test, error correction term, Granger causality, higher education

1. Introduction

A high rate of economic growth is one of the foremost aims of all nations. For an extended period, researchers have been the argument that physical capital matters more for economic growth. However, contemporary research on the subject matter indicates other dimensions of capital, such as human capital, as a source of economic increase. According to Becker (1964), Rusli and Hamid (2014), and Devada (2015), human capital is the critical factor in the economic growth attempt of a nation. It is the skills, knowledge, and experience possessed by an individual (Bergheim, 2005). One of the sources from which an individual obtains these essential resources is educational institutions. Therefore, educational institutions can play a significant role in the economic progress of nations. This statement is reflected in 2006 by Mr Kofi Annan, the former United Nations secretary-general. He argued that Asia's primary driver, Africa's development in the 21st century, must be the university.

Skills and knowledge can be developed by attaining a formal educational system in response to which developing countries are expanding educational opportunities. Vietnam is not an exception where expansion in higher education and educational reforms is an important task, especially the third education reform in 1979 (Thuy Linh, 2017). Vietnam's national education policies such as the Party's central resolution 29, in 2013, the new higher education law in 2018, orientation the higher education to feed the demand of a growing economy and to realize the dream of joining the high middle-income group by 2025 (Dang Duc Anh, 2019).

Despite tertiary education in Vietnam being even not a century old, enrollment has increased significantly. According to a report from the Ministry of Education and Training (2020), from 1997/1998 to 2018/2019, it has raised more than 3.3 fold (123,969 in 1997/1998 to 413,277 in 2018/2019), so after twenty years, enrollment in tertiary education rose more than three times, as Education Statistics Annual Abstract in Vietnam, 2019/2020. Over the period elapsing between 2009 and 2013, nearly half of general government expenditure on education to finance tertiary education (UNESCO, 2019). In the same way, there is also observed expansion in tertiary education institutions. Look at the number of universities and colleges. There are 295 universities and colleges in the country in 2009, and it currently is 460 (Nguyen Duc Hanh, 2020). In a nutshell, all these facts indicate that higher education has been given due attention in Vietnam.

Have some of the different ways higher education can contribute to a country's economic growth, and these are increased productivity and income, increased capability, and institutional improvements. Endogenous growth theories since the 1990s have emerged with a theoretical explanation for the contribution of higher education to economic growth. They argued that highly skilled personnel are required for technology adaptation and transfer and, at the same time, increase

efficiency and productivity of the economy (Lucas, 1988). Endogenous growth theories also stress non-market private benefits like improved health and reduced family size as a component of the capability approach to growth resulting from higher education. Moreover, higher education results also in non-market social benefits like democratic institutions and political stability. As to the World Bank Group (2017), higher education can reduce poverty and encourage shared property.

However, it is impossible to recommend a particular country engage in expansion of higher education to bring about economic growth in light of the above arguments because there is empirical evidence that shows the absence of a significant relationship between education and economic development (Temple, 1999), (Bils and Klenow, 2000), (Pritchett, 2000), (Hadushek, Woessmann, 2007), and (Horii et al., 2008). Despite the need to investigate whether endogenous growth theory fits in Vietnam, however so far, still no prior studies above problems were undertaken in Vietnam. Therefore, this study is to determine whether there is a causal relationship between economic growth and higher education in Vietnam. Thus, the study hypothesizes the following (1) There is a long-run relationship between higher education and Vietnam's economic growth. (2) There is no dynamic causality running from higher education to the economic development of Vietnam.

2. Contents

2.1 Material and Method

To serve research purposes, a time series data spanning from 2010 to 2019 collected from available sources on four variables such as real GDP, enrollment in higher education, working-age population, and gross capital formation. Real GDP used as a proxy for the economic growth of the country (World Bank Group, 2019; World Bank Group, 2019; GDP-World Development Indicators: Structure of output, 2019). Enrollment in higher education (number) used to representation higher education. A few data values were missing in the period, but they are filled by the interpolation method. The working-age population used to delegation labor, and gross capital formation is used to proxy physical capital. The available literature supports the choice of the variables and the corresponding representations used. Real GDP, labor, and enrollment in higher education were accessed from the World Bank indicator, while gross capital formation was obtained from the Vietnam Ministry of Finance. This work has used EViews version 9 for estimation and tests in calculation and data analysis.

2.2 The Model

This study used the neoclassical growth model developed by Solow (1956) and extended by endogenous growth models Romer (1989) and Lucas (1988). According to the model, relying on Coup Douglas production function, the national income is the function of factors of productions like physical capital and labor as introduced initially and human capital as latter incorporated. Keeping the former two inputs in place, we replace the human capital variable with the enrollment higher education variable.

$$Y = TH^\gamma P^\alpha L^\beta. \quad (1)$$

Where Y is real GDP, T is technological progress, P is physical capital, L is labor, and H is a human capital variable, and γ , α , and β are parameters. Following proxies for the variables indicated above, equation (1) can be written as

$$Y = TE\gamma S^\alpha (L^f)^\beta. \quad (2)$$

In equation (2), E is Enrollment in Higher Education (EHE), S is Gross Capital Formation (GCF), L^f is labor force.

Taking natural logarithm to both sides of the equations (1), (2), we received

$$\ln Y = \ln T + \gamma \ln E + \alpha \ln S + \beta \ln L^f. \quad (3)$$

Then the time series econometric model representation of the equation (3) is

$$\ln Y_t = \ln T + \gamma \ln E_t + \alpha \ln S_t + \beta \ln L_t^f + \varepsilon_t. \quad (4)$$

With t is the time period, and ε_t is the disturbance term.

In case variables considered are integrated of a different order but not integrated of order two $I(2)$ and more, there are no competing models than ARDL (Pesaran and Shin, 1996). The model was initially developed by Pesaran et al. (2001) and got popularity over other alternative models because: (1) It can be applied even though variables are integrated into a different order. That is some integrated of order zero, and some integrated of order one; (2) It can be used for small sample size; (3) It guarantees no worry about serial correlation (Nkoro and Uko, 2016). The estimation of ARDL usually involves three steps: Firstly, a unit root test should be applied to ascertain that none of the variables is $I(2)$ or more. Then co-integration test drawing on the bound test should be used to check for long-run relationships. Finally, we analyze the causality between extending higher education and economic growth.

2.3 Unit Root Test

To avoid spurious regression, we should be care taken of when dealing with time-series data. Spurious regression leads to results not suitable as the dependent variable regressed over a set of explanatory variables lacking constant means and variance. To overcome, we need to test data on the variables for unit root and, once detected, take appropriate measures, and the most often used remedy is differencing. There are alternative techniques for testing unit root and Augmented Dickey Fuller, which was developed by Dickey and Fuller (1979), utilized for this study and given as follows

$$\Delta Y_t = \beta_1 + \beta_2 t + \delta Y_{t-1} + \sum_{i=1}^m \alpha_i \Delta Y_{t-i} + \varepsilon_i. \quad (5)$$

Where, Δ is difference operator, m is the appropriate lag length and ε_i is a white noise disturbance term Y , is a variable that is to be tested for unit root and t is the time index.

2.4 Co-Integration Test

Once the order of integration is tested, the next step in the ARDL estimation framework is the test of co-integration. The current study employs a bound test approach developed by Pesaran et al. (2001) to examine the variables' long-run association. To this end, the Unrestricted Vector Error Correction Model (UVECM) upon which the test technique depend is specified below as

$$\begin{aligned} \Delta \ln E_t = & \alpha_0 + \sum_{i=1}^p \alpha_i \Delta \ln E_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln Y_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln S_{t-i} + \\ & + \sum_{i=1}^p \alpha_i \Delta \ln L_{t-i}^f + \alpha_1 \ln E_{t-1} + \alpha_1 \ln Y_{t-1} + \alpha_1 \ln S_{t-1} + \alpha_1 \ln L_{t-1}^f + \varepsilon_{1t} \end{aligned} \quad (6)$$

$$\begin{aligned} \Delta \ln S_t = & \alpha_0 + \sum_{i=1}^p \alpha_i \Delta \ln S_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln E_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln Y_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln L_{t-i}^f + \\ & + \alpha_1 \ln S_{t-1} + \alpha_1 \ln E_{t-1} + \alpha_1 \ln Y_{t-1} + \alpha_1 \ln L_{t-1}^f + \varepsilon_{1t} \end{aligned} \quad (7)$$

$$\begin{aligned} \Delta \ln L_t^f = & \alpha_0 + \sum_{i=1}^p \alpha_i \Delta \ln L_{t-i}^f + \sum_{i=1}^p \alpha_i \Delta \ln E_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln S_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln Y_{t-i} + \\ & + \alpha_1 \ln L_{t-1}^f + \alpha_1 \ln E_{t-1} + \alpha_1 \ln S_{t-1} + \alpha_1 \ln Y_{t-1} + \varepsilon_{1t} \end{aligned} \quad (8)$$

$$\begin{aligned} \Delta \ln Y_t = & \alpha_0 + \sum_{i=1}^p \alpha_i \Delta \ln Y_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln E_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln S_{t-i} + \sum_{i=1}^p \alpha_i \Delta \ln L_{t-i}^f + \\ & + \alpha_1 \ln Y_{t-1} + \alpha_1 \ln E_{t-1} + \alpha_1 \ln S_{t-1} + \alpha_1 \ln L_{t-1}^f + \varepsilon_{1t}. \end{aligned} \quad (9)$$

Where p is the maximum lag length suggested by information criteria, and they are not necessarily the same for all of the variables and other symbols are as defined before.

2.5 Granger Causality

Granger causality test is the third step in the ARDL estimation framework. The test is applied when we have evidence that all of our variables are co-integrated. Furthermore, we should go for this test because the co-integration test provides information about whether there is a logarithm run relationship but not the direction of causality. The foundation for Granger causality is the assumption that a particular variable's past values can influence the other's future value (s). As given in the following vector of the equation, if coefficients of lagged values of independent variables separately are jointly significant, we say our independent variable of interest Granger causes the dependent variable. We should proceed with the test if we are about to argue vice-versa.

$$\begin{bmatrix} \Delta \ln E_t \\ \Delta \ln S_t \\ \Delta \ln L_t^f \\ \Delta \ln Y_t \end{bmatrix} = \begin{bmatrix} \theta_1 \\ \theta_2 \\ \theta_3 \\ \theta_4 \end{bmatrix} + \sum_{i=1}^p \begin{bmatrix} \varphi_{11} \varphi_{12} \varphi_{13} \varphi_{14} \\ \varphi_{21} \varphi_{22} \varphi_{23} \varphi_{24} \\ \varphi_{31} \varphi_{32} \varphi_{33} \varphi_{34} \\ \varphi_{41} \varphi_{42} \varphi_{43} \varphi_{44} \end{bmatrix} \begin{bmatrix} \Delta \ln E_{t-i} \\ \Delta \ln S_{t-i} \\ \Delta \ln L_{t-i}^f \\ \Delta \ln Y_{t-i} \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \varepsilon_3 \\ \varepsilon_4 \end{bmatrix} [ECT_{t-1}] + \begin{bmatrix} \mu_{1t} \\ \mu_{2t} \\ \mu_{3t} \\ \mu_{4t} \end{bmatrix}. \quad (10)$$

Where, ECT_{t-1} is the lagged Error Correction Term derived from the long run relationship, μ_{1t} , μ_{2t} , μ_{3t} , and μ_{4t} are serially uncorrelated disturbance terms.

3. Results and Discussions

3.1 Unit Root Test

Table 1 shows that the two-unit root test techniques show that all variables are not stationary at the level. Still, when converted into the first difference, all of them are stationary. So, our variables are integrated of order one or $I(1)$. Thus the ARDL model is estimated with $I(1)$.

The first difference of higher education and labor is checked at the intercept, and also, for the former, lag length three (3) is used in the ADF case.

Table 1. Unit root test

Variable	Augmented Dicky Fuller test				Phillip Perron test			
	Level		First Difference		Level		First Difference	
	Test statistics	Critical value	Test statistics	Critical value	Test statistics	Critical value	Test statistics	Critical value
LnRGDP	-0.442	-3.552	-3.796	-3.754	0.1005	-4.262	-5.824	-4.103
LnE	-1.588	-3.557	-3.439	-2.957	-1.317	-3.552	-3.460	-2.957
lnS	-2.045	-3.552	-7.736	-3.557	-1.940	-3.552	-14.12	-3.557
lnL ^f	-2.206	-3.587	-3.007	-2.957	-1.910	-3.552	-3.021	-2.957

3.2 Co-Integration Test

Because the result of the unit root test given in table one shows none of the model's variables is not integrated into order 2, it is possible to run the ARDL model because of its aforementioned merits. However, it needs to select the optimal lag length before running the model. For that matter, five selection criteria can guide us to choose the optimal lag length. As has provided in Table 2, three of such selection criteria suggest lag length three. With any maximum lag length imputed, EViews automatically selects the appropriate lag order for each variable. Accordingly, as a result, is given in Figure (1), the stated statistical software has set an ARDL model with specification (2, 3, 1, 0) based on Akaike Information Criteria (AIC). This information criterion used because it is a widely used criterion in ARDL estimation.

Table 2. Lags selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	19.52589	NA	4.32e-06	-1.001671	-0.816640	-0.941355
1	248.6317	384.3066	4.67e-12	-14.75043	-13.82528*	-14.44886
2	273.2729	34.97461*	2.83e-12	-15.30793	-13.64266	-14.76509
3	293.3795	23.34954	2.53e-12*	-15.57287*	-13.16747	-14.78877*

* indicates lag order selected by the criterion

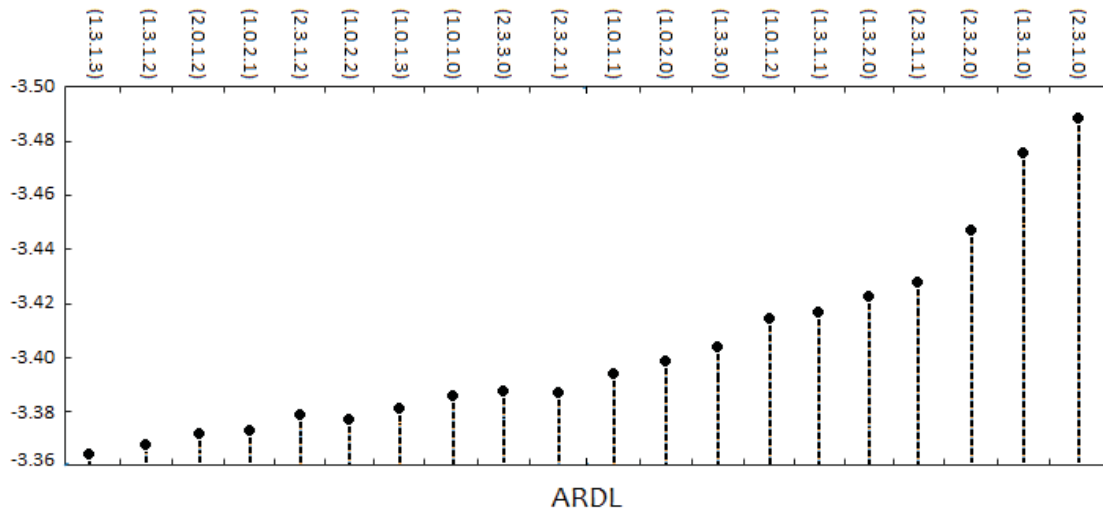


Figure 1. Akaike selection criteria

Using the lag selection criteria, the co-integration test result is shown in Table 3. The name of the test is known as the

bounds test in the ARDL framework. The test provides F-statistics and upper bound and lower bound critical values at 1%, 2.5%, 5%, and 10%. According to the test, three cases should consider to accept or reject the null hypothesis that 'estates' no long-run relationship exists'. The first case is where F-statistic is less than the lower bound critical value, and if this result happens, the null hypothesis should be accepted. The second case is where the F-statistics is above the upper critical bounds, and in this situation, the null hypothesis should be rejected. As to another possibility, if the F-statistics are found in between the lower and upper bound critical values, the test result is inconclusive. In this study, as shown in Table 3, the null hypothesis should be rejected, meaning that the model's variables move together in the long run.

Table 3. Co-integration test

Test Statistic	Value	k
F-statistic	11.79662	3
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.37	3.2
5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Once the co-integration exists among the variables, the next step is to examine the error correction term. The error correction term should be negative in sign, between zero and one in the absolute period, and statistically significant. Accordingly, all these requirements met in our model, and the error correction term is -0.5344, which is statistically significant at a 1% significance level. The implication is that about 53% of disequilibrium that occurred in the previous year corrected in the current year.

$$Cointeq = \lnRGDP - (0.2453*\ln E + 0.4294*\ln S - 0.2109*\ln L^f F + 13.7593). \quad (11)$$

Table 4. Error correction and diagnostic checking

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(lnRGDP(-1))	0.175386	0.138775	1.263810	0.2201
D(lnE)	0.046018	0.072794	0.632161	0.5341
D(lnE(-1))	0.210177	0.115043	1.826937	0.0820
D(lnE(-2))	-0.208796	0.074151	-2.815814	0.0104
D(lnS)	0.048382	0.040065	1.207567	0.2406
D(lnL ^f F)	-0.112697	0.093914	-1.199997	0.2435
CointEq(-1)	-0.534466	0.095662	-5.587007	0.0000
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
lnE	0.245281	0.053843	4.555522	0.0002
lnS	0.429397	0.082003	5.236364	0.0000
lnL ^f F	-0.210858	0.169470	-1.244225	0.2271
C	13.759264	2.670071	5.153146	0.0000

As in Table 4, higher education and gross capital formation significantly affect economic growth at 1%. As higher education expansion increased by 1%, real GDP increases by 24%, and a 1% increase in gross capital formation has an effect of increasing real GDP by 43%.

3.3 Diagnostic Checking

As the test result depicted in Table 5, the model estimated is free from the serial correlation of residuals and is homoscedastic and has a normal distribution. Besides, the model is well specified as guaranteed by the Ramsey RESET Test. The fitted model is also stable as it confirmed by CUSUM and CUSUMQ (Figures 2a, b).

Table 5. Diagnostic checking in CUSUM and CUSUMQ test, solong as the fitted line lies within 5% critical values, the fitted model is said to be stable.

Diagnostic test	Test technique applied	F- statistics	P-value
Normality of residuals	Jarque-Bera	0.71	0.7
Serial cirrelation	Breusch-Godfrey Serial Correlation LM Test:	0.56	0.57
Heteroscedasticity	Breusch-Pagan-Godfrey	0.82	0.6
Functional form	Ramsey RESET Test	0.007	0.92

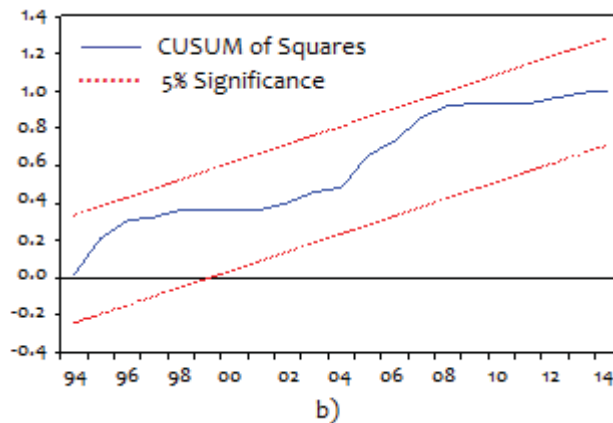
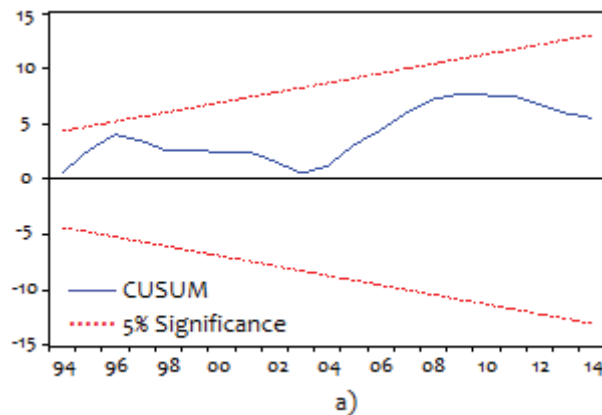


Figure 2. Stability test

3.4 Granger Causality

In Granger causality, the null hypothesis states there is no causality. Therefore, if the probability value is greater than 0.05, we cannot reject the null hypothesis and conclude no causality between variables. If the probability value is less than 0.05, we cannot accept the null hypothesis and conclude that there is causality. As indicated in Table 6, there is a unidirectional causality running from higher education to economic growth, and bidirectional causality between gross capital formation and economic growth. This result disproves the prior hypothesis, which states there is no reciprocal causality between higher education and economic growth.

Table 6. Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
lnE does not Granger Cause lnRGDP lnRGDP does not Granger Cause lnE	31	3.50358 1.14430	0.0308 0.3513
lnS does not Granger Cause lnRGDP lnRGDP does not Granger Cause lnS	31	9.51563 5.52528	0.0003 0.0050
lnL ^f F does not Granger Cause lnRGDP lnRGDP does not Granger Cause lnL ^f F	31	1.25629 1.56488	0.3116 0.2238
lnS does not Granger Cause lnE lnE does not Granger Cause lnS	31	1.77094 2.72766	0.1796 0.0663
lnL ^f F does not Granger Cause lnE lnE does not Granger Cause lnL ^f F	31	1.95497 4.95731	0.1477 0.0081
lnL ^f F does not Granger Cause lnS lnS does not Granger Cause lnL ^f F	31	2.73733 0.74105	0.0657 0.5380

4. Conclusion and Recommendation

Vietnam government has paid great attention to higher education expansion, and hence, it has been a national policy issue of the country. While doing this, the sector's expectation on the part of the government is that it will help achieve the country's development dream. However, some empirical evidence from across the world asserts the nonexistence of the causal relationship between higher education and economic growth. If the same holds for Vietnam, it means that the government's investment in higher education expansion is simply wastage and out to be diverted to other productive investments. Thus, the aim of the current study was an assessment of the causal relationship between them. To this end, the time-series data period 2010 - 2019 collected on four variables: real GDP, enrollment in higher education, gross capital formation, and labor. Appropriate methodological procedures in light of available literature applied to the analysis of the data. Accordingly, the ARDL model's estimation justified based on unit root test results and the superiority of the model over other competing models. The bounds test approach associated with ARDL run to investigate the long-run relationship between the four variables. From the test result, it observed that those variables have a long-run relationship. The Granger causality test was employed to examine the causal relationship between higher education and economic growth, and it confirmed unidirectional causality running from higher education to economic growth. Therefore, based on the study's output, the author recommends that the government continue higher education's energetic effort.

Acknowledgement

The authors thank VNU University of Education, the University of Tan Trao for support and have heartfelt gratitude to all data sources.

Conflict of interest

The author, declare that there is no conflict of interest with regards to this manuscript.

Reference

- Becker, G. S. (2009). *Human capital: A theoretical and empirical analysis, with special reference to education*. University of Chicago press.
- Behroozni, A., Shafizadeh, R., Laalbar, A., & Karsalari, A. R. (2016). Human Capital and Economic Growth in Asian Countries. *International Journal of Academic Research in Accounting, Finance and Management Sciences*, 6(1), 1. <https://doi.org/10.6007/IJARAFMS/v6-i1/1930>
- Bergheim, S. (2005). Current Issues: Global Growth Centre. (Ed. Stefan Schneider). *Deutsche Bank Research*, 1-32. <https://doi.org/10.2139/ssrn.698141>
- Bils, M., & Klenow, P. J. (1998). *Does schooling cause growth or the other way around?* (No. w6393). National Bureau of Economic Research. <https://doi.org/10.3386/w6393>
- Dang, D. A. (2019). Vietnam's economic prospects for the period 2021-2025: Opportunities and challenges from

- new-generation free trade agreements. *Annual International Scientific Conference 2019*, Hanoi, Vietnam.
- Devadas, U. (2015). Comprehensive Literature Review on Human Capital Investments Theory: What's in it?. *Kelaniya Journal of Human Resource Management*, 10(1-2). <https://doi.org/10.4038/kjhrm.v10i1-2.19>
- Dickey, D. A., & Fuller, W. A. (1979). Distribution of the estimators for autoregressive time series with unit root. *Journal of the American Statistical Association*, 74, 427-431. <https://doi.org/10.2307/2286348>
- GDP - *World Development Indicators: Structure of output (2019)*. Retrieved from: <http://wdi.worldbank.org/table/4.2>.
- Hanushek, A. E., & Woessmann, L. (2007). Education Quality and Economic Growth. *The World Bank, Washington, DC*, 27p. <https://doi.org/10.1596/1813-9450-4122>
- Horii, R. A., Kitagawa, A., & Futagami, K. (2007). Availability of Higher Education and Long-Term Economic Growth. *The Japanese Economic Review (OnlineEarly Articles)*, 2, 156-177. <https://doi.org/10.1111/j.1468-5876.2007.00403.x>
- Lucas, R. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics*, 22(1), 3-42. [https://doi.org/10.1016/0304-3932\(88\)90168-7](https://doi.org/10.1016/0304-3932(88)90168-7)
- Nguyen, D. H. (2020) A review of issues of quality assurance and quality accreditation for higher education institutions and the situation in Vietnam. *Accreditation and Quality Assurance*, 25, 273-279. <https://doi.org/10.1007/s00769-020-01439-3>
- Nkoro, E., & Uko, K. A. (2016). Autoregressive Distributed Lag (ARDL), co-integration technique: application and interpretation. *Journal of Statistical and Econometric Methods*, 5(4), 63-91.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (1996). Testing for the' Existence of a Long-run Relationship. *Faculty of Economics, University of Cambridge*.
- Pesaran, M. H., Shin, Y., & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of Applied Econometrics*, 16(3) 289-326. <https://doi.org/10.1002/jae.616>
- Pritchett, L. (2001). Where all education has gone. *The World Bank Economic Review*, 15(3), 367-391. <https://doi.org/10.1093/wber/15.3.367>
- Romer P. M. (1988) Capital accumulation in the theory of long run growth. Barro, R. J. (ed.) *Harvard University Press*. 51-127.
- Rusli, N. A. M., & Hamid, Z. (2014). Human capital and economic growth: Empirical evidence from Malaysia. Lumban Gaol et al. (Eds). *Recent Trends in Social and Behaviour Sciences* 6, eBook ISBN9780429227387.
- Solow, R. M. (1956). A contribution to the theory of economic growth. *Quarterly Journal of Economics*, 70, 65-94. <https://doi.org/10.2307/1884513>
- Temple, J. (1999). *The New Growth Evidence*. J. Econ. Lit., 1, 112-156. <https://doi.org/10.1257/jel.37.1.112>
- Thuy, L. (2017). How is the 1979 training plan different from the current new program? *Giaoduc.net*. Retrieved from <https://giaoduc.net.vn/giao-duc-24h/ke-hoach-dao-tao-nam-1979-khac-gi-voi-chuong-trinh-moi-hien-tai-post179165.gd>
- UNESCO. (2019). Enrolment Numbers And Gross Enrolment Ratio at Tertiary Level by Country And Gender. *UNESCO Institute for Statistics*.
- World Bank Group. (2017). Higher Education for Development An Evaluation of the World Bank Group's Support. *1818 H Street NW Washington, DC 20433*.
- World Bank Group (2019). <https://data.worldbank.org/indicator/NY.GDP.MKTP.CD>.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

The Innovative Semi-Analytical Screen Survey Tool and Intermittent Screen Review Sampling Method Used Amid COVID-19 Pandemic

Sada Hussain Shah

Correspondence: Ph.D. in Sociology (Mixed Methods Research) University of Sindh, Pakistan

Received: March 13, 2021 Accepted: April 6, 2021 Online Published: May 12, 2021

doi:10.5539/res.v13n2p91

URL: <https://doi.org/10.5539/res.v13n2p91>

Abstract

Hence the social life is changing and social interaction is amplified by technology. Therefore, social research would change its approach/es concomitantly. We are living in the age of technology where many people are interacting through social media generally referred to as a screen. Therefore, it is creating the need for innovative screen research methods to study and give meaning to screen interaction. Due to lock-down and restrictions on physical interaction during the COVID-19 pandemic, the screen interaction is intensified. Particularly the community-based organizations, businesses, and academia were observed prone towards using screen interaction approaches. Similarly an International Non-Governmental Organization hereinafter (INGO) in Erbil, Iraq. Started a Facebook page to interact with its beneficiaries to listen to their urgent needs and feedback to project activities. Based on that monitoring and evaluation unit observed a need to monitor screen interaction between organization and community. Hence, the innovative approaches of screen survey and screen sampling were identified. To conduct an intermittent screen survey it was important to select a relevant sampling method. In general, there are two schools of sampling in social sciences. Probability sampling and non-probability sampling. Under probability sampling, each individual has the right to be selected as a participant in a study. Under non-probability sampling, participants are selected based on certain criteria that are relevant to the domain of study. Both schools of sampling have many types and sub-types selected as per the specifications of a study. Therefore, the Intermittent Screen Review Sampling (ISRS) method was developed based on precedent theoretical work. The screen survey refers to the collection and analysis of responses of viewers of any specific social media page. Where respondents are not asked to participate or share their feelings or thoughts. Respondents voluntarily appear on the screen and interact with any post and reflect their thoughts. Henceforth, the surveyors collect these displayed thoughts intermittently, do some analytical work, and produce meaning out of these emojis, shares, memes, and comments. Quantitative and qualitative analyses were conducted within the context of the post/s shared by authorized person/s on a social media official page. Thereafter, the results were presented in quantities and narrations. This research paper is developed to communicate these innovative approaches of semi-analytical screen survey and intermittent screen review sampling at a wider level. This research would pave a way for further screen studies and innovations that are the needs of our screen generation.

Keywords: screen survey, screen sampling, social media, operational research

1. Literature Review

Studying online is more easy and economical. Millions of students around the world access online literature every day. Hence, the electronic use of knowledge is increasing. Therefore, new methods of structuring the knowledge are needed to be introduced. Increasing the use of electronic text requires some important changes to make it comfortable for users. The most frequent issue with electronic text is its frequently moving nature (Kreutzer and Kircz, 2013). Hence, we are in a transitory phase of moving towards screen generation. There are some pieces of evidence to show that young students in universities still prefer the printed books. Because they feel that these books are more detailed and easy to read as compared to screen literature. (Walsh, 2016) the universities that want to equip their students with critical thinking are required to develop libraries with printed books because long textbooks are detailed and in-depth. There was another study published in the same year that is contrary to discussed evidence that has supported the printed books. (Nicholas, 2016) published a research paper that suggests that there is no difference in learning by reading the literature in printed form or on screen. Albeit, it is not only about screen reading. Screen interaction is also increased among the young generation. Referring to the work of (DeWeese, 2014), students have their cell phones with them always and keep texting for many hours. Among the cell phone users, 93% of students respond to texts swiftly. The majority of students who were users of Facebook feel disconnected in their social circle. Hence, the use of the screen and social media is increasing everywhere but there is some evidence showing negative impacts of screen usage on the mental and physical health of

children and youth. For children 2 to 5 years it is important to limit the use of the screen and should avoid using it one hour before going to bed (Canadian Pediatric Society, 2017). The use of cell phones and the internet is not restricted by family income. Middle-class families are also frequent users of the screen and social media. A study was conducted by an American organization (Campaign for Commercial Free Childhood, n.d.), the study says that the youth of middle-class families are frequent users of cellular phones. Due to the increased number of users, social media became the most powerful tool to communicate with the masses. It is being realized by business and academia. (Eskandari and Sharifabadi, 2021) universities need to promote communication on social media to reach out to students around the world. There are many studies to support evidence-based suggestions for academia to communicate through social media. The use of the screen and the internet is not only getting popularity in studying, communicating and amusement. The concepts of online research and survey are also increasing. Hence, it is an easy, economical, and safe way to access information remotely. Internet devices have made it easy to interact globally within seconds. Young people around the world are active to use the internet and internet devices. These young users of the internet are agile and comfortable to respond to screen surveys. (Callegaro, 2010) while designing an online survey we need to make it completable for mobile devices. Hence the majority of respondents would prefer to use cellular phones to respond to the survey. Albeit, web surveys require special skills in developing data collection tools. The study suggests that putting fewer and specific options increases the number of respondents and quality of responses (Toepoel et al, 2009). Albeit, the screen interaction still to fuse with the existing culture and personality development. Real-self, self-perception, and self-disclosure in the age of social media are frequently under-debate topics. Referring to the work of (Edwards et al, 2021) people often interact with more than one person at a time on social media sites. With remote interaction based on likes and dislikes of different persons as they share on social media has changed the scope of self-disclosure. Before remote interaction through social media sites, self-disclosure occurred within small communities. Hence, the changing means of communication has consecutively changed the means of interaction and cultural perception. Though the COVID-19 pandemic has a variety of diverse effects on health, socio-psychological life, and economic activities. At the same time, it has added in remote communication and the use of screens around the world. Many institutions have not only started work on developing remote marketing but remote research of products is also increased. (Skedsmo and Huber, 2020) universities have started online remote assessment of students. Hence, it is a new approach therefore universities are facing many challenges to organize online assessments of students. A tool of self-assessment could serve a better purpose in the online evaluation. Albeit, designing the tools for web-based surveys is still a challenging task for social researchers. Referring to the work of (Gonzalez-Banales and Rodenes, 2007), for a surveyor, it is important to know the characteristics of respondents before developing a semi-structured online questionnaire. Apart from developing the questionnaire, the consideration of research ethics while the online survey is also an important task. (Nonnecke and Pearce, 2003) while conducting a screen survey researcher may violate privacy policies set by the online communities. Hence, this study was focused on the review of expressions of viewers to the Facebook post of an organization. Therefore, strong consideration was paid in designing the data collection tool. The innovative semi-analytical screen survey tool was developed. The responses were not collected from the individuals. However, the expressions of viewers on-screen were recorded. Those were already given to the Facebook post therefore informed consent was not applicable. To consider confidentiality individual names were not recorded. To avoid focusing on individuals an innovative intermittent screen-review sampling method was used. Details of designing these innovative tools and appropriate use thereof are outlined in the following chapters of this research paper.

2. Field Experiment

The experiment was conducted using a survey research approached. (Frank, 2007) the survey is the most often used approach of social research to empirically describe the social and psychological characteristics. Hence, the experimented survey tool was not only quantitative rather it was a mixture of qualitative and quantitative data. However, under survey research, it is not necessary to focus on quantities only. Referring to the work of (Anilkumar, 2014), the surveys are conducted to describe, record, analyze, and interpret the information provided by respondents. Therefore, the survey could be quantitative, qualitative, or a mixture of both types of data. Hence, the survey was conducted on-screen, and recorded data were related to expressions of viewers in comments and emojis. Therefore, the data collection tool was semi-structured to provide room for data collectors to record all possible expressions of viewers against the post. Most often the survey tools are semi-structured with possible questions and options against each question. Hence, for the surveyor, it is important to have precedent knowledge of respondents and the topic under study (Nicolas, 2000).

Sampling design;

Intermittent Screen Review Sampling hereinafter (ISRS) is theoretically related to the Experience Sampling Method (ESM). Referring to the work of (Reed and Mihaly, 2014), an experience sampling method is asking people to provide their self-reports at random occasions during the waking hours. Albeit, the ISRS is different from ESM in the domain of focus. Under ISRS we study the self-reports of the individual as they share voluntarily on-screen/social media. Albeit,

under ISRS we don't focus on individuals, the domain of our study is the social media page/screen at a specific period. Hence, we don't refer to ISRS as random sampling rather we used the term intermittent that refers the randomness as per time scale. Under ISRS we study a defined official social media page intermittently during a week or a day for 15 to 30 minutes per period and study all the responses as a cluster. Under ISRS after collecting all responses during a period we analyze them in averages, percentages, and numbers. To develop an ISRS sampling grid we don't use the number of individuals rather we use the number of monitoring periods. Theoretically, the ISRS has somehow relevance with purposive sampling. Referring to the work of (Plays, 2008), purposive sampling is used when respondents are pre-defined. Hence, under the screen survey, our respondents were the user of our services. Albeit, if social media post is open for everyone and random people also interact with the post. Those are not the users of the project's services then these would be considered random. Hence in that case sampling would not be falling under the theory of purposive sampling. Therefore considering the rare cases, we may say that ISRS is a semi-purposive sampling method. Like purposive sampling, ISRS is also used in the field of operational research. Referring to the work of (Kulej, 2011), the operational research approach is used to study a project or operation in its context.

ISRS Sampling Grid;

Name of screen/social media page	Specific period of the survey	Number of surveys	The overall period of all surveys
Facebook	15-30	4	One week
LinkedIn	15-30	2	One week
Twitter	15-30	3	One week
Instagram	15-30	2	One week

Development of Screen Survey Tool;

Section-1 Introduction.

Semi-Analytical Screen Survey Tool for Remote Monitoring of Official Social Media Page/s			
	Date (DD/MM/YY)	Time (00:00hrs)	Name of surveyor
	Designation	Location/Office	
Name of Social site	(Facebook, LinkedIn, Twitter, Instagram, etc)		
Name of Page	(Full name of the official page)		
Link	(http://example.com)		

Section-1 covers the basic information about the organization's official social media page and the name of the social media site. The information about the surveyor, date and time of the survey, and office of the surveyor, and the link for the social media page. This information is not to be reported. This would be used as evidence of survey activity. Hence, the people voluntarily post their responses on social media. Therefore, it is not important to ask for consent. Albeit, the survey report would not disclose the names of reviewers along with their reaction to the post being surveyed. The survey report will focus on quantities and narrations of screen expressions rather than denoting these as individual responses.

Section-2 Relevance with the project.

Project name	(The project responsible/ authorized for posting official contain.)
Indicator	(Specific indicator related to that post.)
Content of post	(Copy original post, if the post is a video or photo then given narration.)

Section-2 of the screen-survey tool covers the specific information about the project and the indicator against which the

information was posted on social site/s. This information would be part of the survey report. Hence, for any operational study, it is important to display the results against indicators of operation or project. Albeit, in this research paper analysis of section-2, is not presented because it is the official property of INGO for which the survey was being conducted.

Section-3 Viewers’ Interaction.

# of likes	(Total number of likes at the moment when the post was surveyed.)									
# dislikes	(Total number of dislikes at the moment when the post was surveyed.)									
Explain the types and number of emojis										
Emoji										
Number										
Emoji										
Number										
# Comments	(Total number of positive, negative, and interrogative comments, at the moment when the post was surveyed.)									

Section-3 contains the quantitative data in numbers that would be analyzed in percentage or average. This section is designed to collect data regarding likes, dislikes, comments, and emojis expressed to the specific post under study. Some emojis are default at each social site but the people are using smartphones and they often post different emojis in comments. Hence, it is important to collect all emojis including those posted in comments.

Section-4 Semi-analysis of comments.

# of supportive comments	(Total number of supportive comments at the moment when the post was surveyed.)
# of comments against the post	(Total number of discouraging comments at the moment when the post was surveyed.)
# of query	(Total number of questions asked to explain the post, at the moment when the post was surveyed.)
Explain key supportive comments	(Please do not use copy-paste considering the ethics of social research. Narrate in your own words and summarize what was the focus of supportive comments.)
Explain key comments against the content of the post	(Please do not use copy-paste considering the ethics of social research. Narrate in your own words and summarize what was the focus of negative comments.)
Explain key questions raised	(Please do not use copy-paste considering the ethics of social research. Narrate in your own words and summarize what was the focus of interrogative comments.)

Section-4 is a semi-analysis of comments expressed by reviewers. This semi-analysis would be further put into analysis to produce contextual meaning against the post. These narrations would be used to write the discussion chapter of the survey report. Albeit, these comments are not narrated and analyzed in this research paper considering the organization’s communication policy.

3. Data Analysis

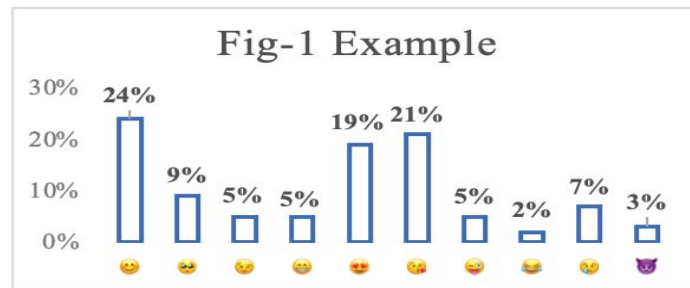


Figure-1 depicts the bigger piler for smiley emoji and smaller pilar for laughter emoji expressed on screen. After smiley, the most frequent emojis expressed to the post were loving and kiss. The overall analysis of emojis in figure-1 is showing the supportive screen-interaction of viewers to the specific post understudy at the official Facebook page of the organization.

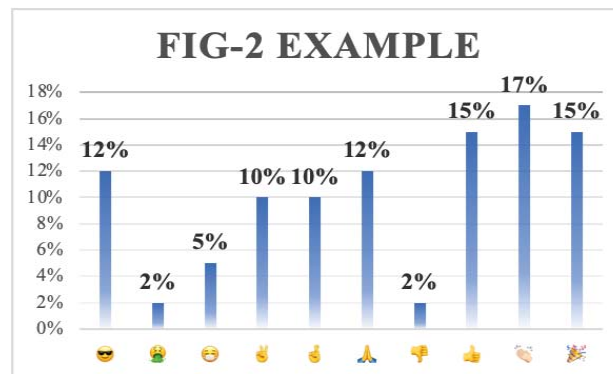


Figure-2 display the variety of less expressed emojis. As per figure-2, 17% of expressed emojis were clapping to the post that was the highest percentage as surveyed at a specific period. Albeit, 2% of expressed emojis were vomiting and thumb-down. The overall analysis of emojis postulated that screen-contentment was higher as surveyed at a specific unit of time using the ISRS method. The middle ranged emojis were victory and fingers-crossed. That means nearly half of screen-viewers are anticipating for better future against the shared post on the official Facebook page of the organization.

4. Conclusion

Under this study, the data were not solicited from individuals however the data were already expressed by individuals. The surveyor has gathered and analyzed the shared data. Gathered data were specifically reported as screen expressions. Experimented semi-analytical screen survey tool was proved good enough to study screen-interaction among post and viewers. Social media has created a novel medium of live interaction among people. Hence, social media has developed a reflexive form of interpersonal interaction. Therefore, a screen survey approach was applied using the intermittent screen review sampling approach. Where responses/expressions of viewers were analyzed in cluster and primary focused unit of study was a unit of time. Albeit, the authenticity and/or reliability of expressions by viewers was as fragile as the realness of social media or the screen itself. In this particular study, the screen survey and screen sampling were used in replacement of hotline numbers to communicate with project users. This approach would undergo further adaptations with frequent utilization by different researchers across the world. Albeit, this would be denoted as the commencement of somehow novel screen survey and screen sampling methods for screen studies henceforth.

References

- Anilkumar, P. D. (2014). Survey Method. Department of PG Studies and Research in Library and Information Science Gulbarga University, Kalaburagi.
- Callegaro, M. (2010). Do You Know Which Device Your Respondent Has Used to Take Your Online Survey?. *Survey Practice*, 3(6), 01-16. <https://doi.org/10.29115/SP-2010-0028>
- Campaign for Commercial-Free Childhood. (n.d.). Retrieved from <https://time.com/wp-content/uploads/2015/01/screentimefs.pdf>
- Canadian Paediatric Society. (2017). Screen time and young children: Promoting health and development in a digital

- world. *Paediatrics & Child Health*, 22(8), 46-468. <https://doi.org/10.1093/pch/pxx123>
- DeWeese, B. K. (2014). Screen Time, How Much is Too Much? The Social and Emotional Costs of Technology on the Adolescent Brain Katherine Lynn DeWeese. Thesis Master of Science in Education School of Education and Counseling Psychology Dominican University of California San Rafael, Retrieved from <https://files.eric.ed.gov/fulltext/ED546474.pdf>
- Frank, A. (2007). On the value of survey-based research in finance. *Alternation*, 14(1), 243-261.
- Gonzalez-Banalies, D. L., & Rodenes, M. (2007). WEB SURVEY DESIGN AND IMPLEMENTATION: BEST PRACTICES FOR EMPIRICAL RESEARCH. Proceedings of European and Mediterranean Conference on Information Systems 2007 (EMCIS2007). Polytechnic University of Valencia, Spain. Retrieved from http://emcis.eu/Emcis_archive/EMCIS/EMCIS2007/emcis07cd/EMCIS07-PDFs/676.pdf
- Kreutzer, S., & Kircz, J. (2013). Reading and learning from screens versus print: a study in changing habits. *New Library World*, 114 (9/10), 371-383. <https://doi.org/10.1108/NLW-04-2013-0034>
- Kulej, M. (2011). *Operations Research*. Wroclaw: Wroclaw University of Technology, 2011.
- Larson, R., & Csikszentmihalyi, M. (2014). The Experience Sampling Method. In: Flow and the Foundations of Positive Psychology. Springer, Dordrecht. https://doi.org/10.1007/978-94-017-9088-8_2
- Nichols, M. (2016). Reading and studying on the screen: An overview of literature toward good learning design practice. *Journal of Open, Flexible and Distance Learning*, 20(1), 33–43.
- Nicolas, P. (2000). *Social Survey Methods: A Field-guide of Development Workers*. Oxfam GB: London. <https://doi.org/10.3362/9780855988531>
- Nonnecke, B., & Preece, J. (2003). Conducting Research on the Internet: Online Survey Design, Development and Implementation Guidelines. *International Journal of Human-Computer Interaction*, 6(2), 185-210. https://doi.org/10.1207/S15327590IJHC1602_04
- Palys, T. (2008). Purposive sampling. *The Sage Encyclopedia of Qualitative Research Methods*, 2, 697-698.
- Skedsmo, G., & Huber, S. G. (2020). Unintended effects of accountability policies and the quality of assessment and evaluation formats. *Educational Assessment, Evaluation, and Accountability*, 32, 427–429. <https://doi.org/10.1007/s11092-020-09347-3>
- Toepoel, V., Das, M., & Soes, A. V. (2009). Design of Web Questionnaires: The Effects of the Number of Items per Screen. *Field Methods*, 21(2), 200-213. <https://doi.org/10.1177/1525822X08330261>
- Walsh, G. (2016). Screen and Paper Reading Research – A Literature Review. *Australian Academic & Research Libraries*, 47(3), 160-173. <https://doi.org/10.1080/00048623.2016.1227661>
- Edwards, M. A., Howcroft, J. G., & Lambert, T. (2021). Young Adult’s Perceptions of Online Self-Disclosure. *Review of European Studies*, 13(1), 26-42. <https://doi.org/10.5539/res.v13n1p26>
- Eskandari, S., & Sharifabadi, S. R. (2021). A Sociology Study of the Form and Content Produced in the Social Media of the International First Rank Universities. *Review of European Studies*, 13(1), 43-54. <https://doi.org/10.5539/res.v13n1p43>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Some Considerations on the Issue of Economic and Social Sustainability

Giovanni Antonio COSSIGA

Correspondence: ex Presidente Collegio sindaci Policlinico Umberto 1, Università Sapienza – ROMA

Received: March 10, 2021 Accepted: April 30, 2021 Online Published: May 12, 2021

doi:10.5539/res.v13n2p97

URL: <https://doi.org/10.5539/res.v13n2p97>

Abstract

To be implemented and analyzed, according to the good rules of relationship with nature, sustainability must be equipped with a theoretical scheme able of helping to understand the dynamics of this relationship together with the opportunities offered to improve the development of the economic system. Essentially, it's about acknowledging that, just like physics, also the economy is subject to some general and abstract laws. This is the case of the core inflation value, defined by Central Banks as a value close to 2%. So, if the economy moves along the track indicated by this value, we have confirmation that growth is regularly developing. This core inflation value is implicitly defined without a clear specification. We can therefore admit that it's an ideal value like the great universal constants, which reports about an economic system that develops according to the rules of natural compatibility. According to this point of view, the core inflation close to 2% is essentially a utopia, because it can only be achieved if the global economic growth moves in full accordance with the nature around us. It follows that even if we can verify on field the realization of a base value close to 2%, actually we are not in the best conditions, especially if the global economy is suffering from deflation as today. The deflation, that is the tendency of prices to fall, is part of the complex messages sent by the nature and economic systems to signal that the economy is not doing well and has become unstable. Both inflation and deflation are messages that never contribute to the economic development course, but they are born and evolving in parallel with the appearance of the economic cycle in daily activity. In summary, a mechanism that has the responsibility, by imposing pauses on the system, to reduce the instability of the systems and to facilitate the return to the natural development condition. A correction system based on the economic conjuncture that obviously distinguishes the stability by the way that the economy grows and develops in a linear and constant inclination depending on differentials.

Keywords: economic system instability, inflation, deflation, conjuncture cycle, balance with nature

1. Introduction

1.1 *The Instability of the Economy and Its Messages to the Community*

The sustainability in economics must be understood as the relationship between humanity with its economic and social activities, and the nature around us. According to this evaluation parameter of economic and social relations, we should admit that the relationship with nature may sometimes not be optimal. But it's in some way undermined, indeed, by the pressure exerted by human beings in the non-rational use of natural resources. If this relationship with nature is deviated, the economy has lost the path of compatibility with nature and is thrown into an instability sub-world.

We can certainly say that a large part of the global economy today is into this condition of economic instability. But with what consequences at the level of everyday life? The first and decisive exception is the presence inside the economic systems of a non-linear but sinusoidal conjuncture development. In other words, the economic growth follows the ups and downs of the conjuncture cycle. A recovery phase in any case is followed by a recession or reduction phase in gross product. Not only that: if the instability continues; the pace of the economy changes for the worse in the sense that the recovery phase is increasingly reduced when the equilibrium relationship with nature is worsening. In the meantime, the declining trend in Domestic Product (GDP) is extended over time and the economy contracts, then causing serious social and economic effects.

Therefore, the economic instability is very costly and to return to the stability and compatibility phase it's often necessary to support the natural process of correction. It follows that the normal operations of fiscal and monetary policy to boost the weak economy can give appreciable results if they do not oppose frontally to the natural work of correcting the unstable economy. Now, it's true that in the post-2008 financial crisis the use of extraordinary amounts of deficit spending avoided the worst damage of an uncovered financial crisis. However, we must say that this effect - certainly positive - was obtained because the financial policy on that occasion played a concomitant role in the natural process of rebalancing the economic systems. And particularly, the fiscal policy seems called upon to limit the consequences of a very unbalanced distribution of wealth to the detriment of that part of community less favored or even at a poverty level. Thus, the fiscal

policy seems called upon to play a significant role in order to return to the least favored and poor part of the community a part (at least) of the wealth, which otherwise would flow (as usual) towards the wealthiest top part of society.

Obviously, there are some hidden sides of the maneuver. The first and directly observable, is the undue growth of public debt, which in turn means weakness for the most fragile systems, therefore more exposed to the recession wind. And unfortunately, this isn't the only dark side. The fact remains that fiscal policy is called upon to play an essential role which at least partially will compensate for the serious imbalances caused by the concentration of wealth in a few hands and the parallel spread of poverty.

Nevertheless, also the abnormal process dragging wealth upwards and then depressing the most disadvantaged population groups is another symptomatic effect of the imbalance of economic systems in their relationship with nature. Now, how can we say that an economic system is running in accordance with the natural compatibility? How can we say that we are on a correct path with the evolution of the planet which is feeding us?

Well, the first element to be observed is precisely the development trend: if it's growing correctly and constantly, or instead according to a sinusoid that changes sign and direction. So, if there is instability, then we will have the conjuncture cycle pace as a companion, together with a series of events such as anomalous wealth distribution and damage to the most disadvantaged classes. Unlikely, in the case of stability, understood as a long and compatible relationship with nature, the development of the economic system tends to rise slightly and steadily over time.

In other words, if the development path is compatible, we will have an economic growth that follows, without interruptions, a path slightly upward and constant over time. As saying that the advantages offered by the natural path of development compatibility are those sought by every good government really interested in social welfare. The problem is that once the path of imbalance and incompatibility has been taken, the suggestion is always to resort to the usual monetary and financial policy maneuvers, which are anyway unable to bring the deviated system back on the path of a correct relationship with nature.

The real problem is that the issue of sustainability and relationship with nature is often ignored. A relationship relying on the axiom of the use of natural resources. The resources offered by the nature should be used rather than exploited. The ultimate goal of human beings should be to preserve the natural resources for future generations. An irrevocable rule that finds its most direct expression in the stability of economic systems. Systems that, in the compatibility context, can grow at a steady, slightly upward pace. As saying that an orderly and constant development is possible, if we preserve the natural resources for future generations.

Therefore, to preserve the natural resources without exploiting or wasting them is an issue of respect for the rule that sees the future generations as those who have the task of following the path of knowledge of mother nature. In other words, humankind would always have the transcendent task of interpreting and understanding the universe around us: starting with the Egyptians and passing through the Maya who deified the sun, to finally get to a growing group of researchers seeking today the rules that allowed the construction of the universe and that are governing the solar system. Moreover, the entire community will be interested by the repercussions that the efforts of study and research can bring in terms of social and economic prosperity.

1.2 The Instability Symptoms Globally Pervading the Economy

In case of instability, the economic systems are subject to the conjuncture cycle, that is a corrective mechanism introducing the recession into the scenario. The recession is essentially a corrective mechanism which, when left to act, can allow the reduction of the anomaly and therefore the gradual return to stability and compatibility with nature. The correction mechanism *par excellence* is therefore the recession, although in the instability world other phenomena with different purposes take shape and evidence, such as the monetary anomalies.

As I have already explained in previous works (*Cossiga, 2019*), monetary anomalies such as inflation or deflation, are not active parts of the economic mechanism; that is, they do not participate in the economic development. They are instead messengers of an altered and unbalanced economic system, designed to signal at the community level that the economic system has left the path of balance with nature. From this point of view, they cannot be subject of reaction and opposition because they are just 'ghosts' created by the instability. While it's necessary, instead, to correct the reasons that led the economic system to diverge from the right path. On the other hand, the path indicated by the correct relationship with nature is certainly attractive. In fact, if it is followed without deviations, it will allow us to count on a constant and slightly rising economic growth.

A picture that we can define in terms of the "tomorrow as today" expectations, precisely because in the stability world the conjuncture cycle anomalies are excluded, in order to avoid periodic and recurring recessions or financial crises. The rupture of the relationship with nature, on the other hand, entails the appearance of the conjuncture with its erratic rhythms in the scenario. Then, the symmetry of a constant growth is dissolved to set in motion a risky path with efficiency loss and

reduction of development capacity, which finally stops or anyway declines. (Geithner, 1914)

The intrinsic rule of the conjuncture cycle is exactly to curb the drive for constant development when the diverted economy risks compromising the self-correcting ability of nature. So, remain opaque all the attempts to solve anomalies in the economy with the usual remedies of fiscal and monetary policy, if the goal is the return to the stability steady growth. It would remain an unlikely goal, without correcting the instability underlying reasons or without correction of the *status quo*.

On the other hand, are far from irrelevant those monetary phenomena, such as inflation or deflation, which do not participate in the economic action, and are instead real messages informing the community that economic things are bad. These messages come from the market in explicit form, through the price trends (inflation or deflation) or in implicit form, as widespread sensations on the favorable or unfavorable economic condition.

Messages that are directed to the community, to favor the adaptation of its behavior to the changed conditions of the economic context, and above all to make evident a growing critical position towards the leaderships governing the economy. We must in fact remember that the community is the terminal point of the relationship between humanity and nature. In the sense that the community is the most sensitive to every change in economic conditions.

How to explain, on the other hand, the peculiar ability of the common man or our neighbor to summarize at a glance the economic situation; in order to agree with the action carried out by the economy management; or to show a critical attitude so to be able to understand, in a simplified and synthetic way, what to do to get out of the wrong path and return to the compatibility balance.

In other words, it could be said that the community decides, following the explicit or implicit messages coming from the economic system, what scenario the economy will develop in the future. A demonstration that the relationship between humanity and nature is strongly linked and that everything happens because of the shared will of the whole community.

According to this pattern of reflections, we can try to interpret the long story that has fueled a growing inflation at a global level since the 1970s, which was only apparently solved in the 1990s and then has turned into deflation, also widespread at a global level. Now, it seems evident that between the two realities, the world in inflation and the current one in deflation, there isn't a great discontinuity but instead a sort of continuity. In the sense that the world in inflation has somehow adapted to the world in deflation of the current scenario. But apart from the reasons for this transformation of monetary messages from the economic system, it is worth considering that since the seventies the economy at a global level is running in conditions of imbalance and incompatibility.

In other words, the monetary messages are changing to inform the community that things are going wrong in the economy but doesn't change the underlying problem about the general instability of economic systems. The long fight against inflation, previously held under a cautious control, did find its turning point for the initiative of the Fed president Volcker and the US president during the late 1970s. The Fed decided to make the interest rates surge until 21.5%. Under the strong tightening of monetary policy, the North American economy fell into recession in the years 1980-81. Inflation which, at the end of seventies, was running at 15%, then was tamed and contracted to 5% to finally decline to 2% for the whole of the nineties.¹

Inflation was tamed and the entire global economy followed the US road to eradicate inflation. However, thrown out the door, it came back in the form of deflation during the 2000s. We could assume that when the world learned to eradicate inflation and to block the reappearance of the nominal price run, then logic and modality of the message to community

¹ President Jimmy Carter nominated Paul Volcker to serve as chairman of the Board of Governors of the Federal Reserve System on July 25, 1979. He was confirmed by the U.S. Senate on August 2, 1979, and took office on August 6, 1979. President Ronald Reagan re-nominated Volcker to a second term in 1983.

Inflation emerged as an economic and political challenge in the United States during the 1970s. The monetary policies of the Federal Reserve board, led by Volcker, were widely credited by curbing the rate of inflation and expectations that inflation would continue. US inflation, which peaked at 14.8 percent in March 1980, fell below 3 percent by 1983. The Federal Reserve board led by Volcker raised the federal funds rate, which had averaged 11.2% in 1979, to a peak of 20% in June 1981. The prime rate rose to 21.5% in 1981 as well, which helped lead to the 1980–1982 recession, in which the national unemployment rate rose to over 10%. Volcker's Federal Reserve board elicited the strongest political attacks and most widespread protests in the history of the Federal Reserve (unlike any protests experienced since 1922), due to the effects of high interest rates on the construction, farming, and industrial sectors, culminating in indebted farmers driving their tractors onto C Street NW in Washington, D.C. and blockading of Eccles Building. The US monetary policy eased in 1982, helping lead to a resumption of economic growth.

was changed. Because we're anyway talking about message: a message that is suggesting to the community that things in the economy are going bad. When the deflation appeared, soon globally spread, starting from those countries most fragile from a financial point of view.

1.3 Inflation or Deflation Are Just Messages, Images and They Cannot Be Adjusted by Direct Actions

The fight against high inflation rates was done with the maneuvering of interest rates, through the monetary policy. An indirect action that works through interest rates, raising them in sequence, according to the inflation movements. The high interest rates discourage many economic activities due to the rising cost of money, then causing a cyclical reversal and the falling of economic system into recession. The recession of the economy produces the effect - somehow unavoidable - of contracting the run of nominal prices. If monetary tightening is maintained, at the same time the recession increases, and a parallel reduction is produced in the inflation rate.

In some way, therefore, the action of monetary policy moves in symmetry with the natural correction, which - through the conjuncture cycle - aims to correct the imbalance of the economy. Let us not forget that the conjuncture cycle introduces into the economic system the periodic recession phase, which is aimed to reduce the economic instability. In other words, it's about pausing the development mechanism to allow the reduction of the instability in the economic systems.

Now, it's certainly not so easy trying to understand why the deflation message came after inflation had been eradicated. We can imagine that the hard fight against the raising of nominal price increase, has put in place the deflation mechanism as a replacement. However, I would not insist on this aspect, because both deflation and inflation are messages, mere images of reality that do not participate in any way in the development of economic events. Moreover, they are images of reality even stronger when the instability of economic systems is widespread.

Apart from the hypotheses on the reason for the replacement messages, it must be said that what really matters is not so much the type of message, but rather what inflation or deflation indicate to the community. That is, the persistent global instability of economic systems. From the point of view of the defenses that monetary policy may have to protect the economic development, there is no lack of technical resources to be deployed. With quite different consequences, however, in the case of inflation or deflation.

It has already been said that monetary policy uses the monetary tightening to fight the inflation and, therefore, to induce the recession. The monetary policy in this case moves in accordance with the trend of economic inversion in the event of economic instability. Otherwise, in the case of deflation, the monetary policy is not helped by the reduction of interest rates, so reaching the zero point, due to the simultaneous decline in nominal prices. In some ways, the rate reduction until zeroing is a supine adaptation to the condition of falling prices. In other words, it cannot make any contrast action to push up the falling prices.

However, left to act under the grip of falling prices, the economy can turn towards recession, also in this case according to the market trend to rebalance, with a pause, the distorted development of the economic system. The monetary policy, however, in concert with fiscal policy, aims to avoid the fall into recession, to contain the social and economic damage due to the unemployment increase and the income contraction, especially for disadvantaged families at risk of poverty.

Obviously, we can certainly agree on the social objective. However, the question remains of the effectiveness of joint interventions committed to keep interest rates low over time and, at the same time, to inject liquidity into the market to an unprecedented extent. The declared goal of the Central Banks is to support with the new liquidity the recovery of the economy, otherwise in decline. All that, assuming that the resilience of the economic situation represents a valid support for the recovery also of nominal prices. Basically, if we manage to give some strength to the economy, the prices will consequently escape the deflation grip as well.

A hypothesis to be verified of course, which leaves behind a potential dangerous tail. In fact, the support to the economic conjuncture requires that fiscal and monetary policies play a role of mutual collaboration. However, there is no lack of adverse legacies. Public deficit spending has reached an unprecedented dimension in most States to mitigate the blows of the serious financial crisis of 2008-2009. Again, under the adverse conditions created by the pandemic, East and West are once again in agreement to widen the deficit disbursement of public budget. Well, there is no doubt that the intervention of economic policy made it possible to avoid a serious deterioration of economies during the last decade, especially by alleviating the social damage due to the unemployment abnormal increase and the rising poverty. And don't forget the negative legacy of public debt increase, with implications that still need to be examined and evaluated. (Cardoso, 1992)

In addition, the debt issue becomes a minefield for the concurrent action of the monetary policy, which seems to play a role in supporting the fiscal policy, while its action should be to act according to a long-term perspective. In fact, Central Banks are not subject like governments to the evaluation of voters and to the requests of social representation. Actually, by

relying on the objectives of their action to defend the employment ², the Central Banks end up moving in the wake of the fiscal interventions, with the credit promotion and largely providing new liquidity. Well, we cannot ignore that during the bad storm of the financial crisis, the promotion measures of the Central Banks are essential to allow an attenuation first and then a recovery of the economic cycle.

Even in this case, however, is not lacking the hidden negative aspect, which is added to that already observed for the public debt increase. In fact, the liquidity unlimited increase and the dropped to zero interest rates fuel the prospect of loans at a zero or almost zero cost, which encourages the debt of companies and households. In other words, the system gets into debt beyond any real probability of repaying the borrowed sums. Moreover, is activated in this way a speculative credit that can push the capitalization of stock exchanges and assets far beyond the correct market value.³ (Raines, 2008)

Therefore, there could be some unexpected implications of intervention policies, which however are not advising against their strategic use in the event of a serious crisis, as also in the case of a weak economic situation. Well, some doubt is advisable about the hypothesis that the upturn could be a remedy for deflation. Actually, there appears to be no relationship between economic recovery and declining deflation. Also because the trend towards deflation affecting today the global economies, means in summary that the trend towards the global recession is spreading. In fact, the message sent through deflation basically means that the economy is far from the compatibility path; moreover, means that the correction through the recession is a necessary pause in order to regain the growth stability.

Therefore, it would make no sense to say that the rising economy disarms deflation. Now, on a practical level it's clear that forcing the economy while in deflationary conditions means going against the natural order, which proposes a pause to rebalance the economic system, with ambiguous results, anyway. In the USA, President Trump attempted to force the weak cycle at the beginning of his term through a tax legislation that reduced taxation for the three-year period 2019-2021, mainly benefiting the richest taxpayers. After a cycle rebound during the first year of its implementation, the global economy then met the pandemic, and the widespread lockdown for some months has generalized everywhere an increase in unemployment and recession. On the other hand, even the rising economy recorded over the two-year period 2018-2019 was rather an advance of the economic conjuncture than a lasting and effective recovery of the US economy.

1.4 Some Considerations on the Inflation in the Case of Economy Tending to Deflation

About a possible rising inflation (anyway low) in the case of a positive cycle, the experience shows that a modest inflation rise may occur during the economic recovery. In this case, we can see that inflation is approaching 2%, that is the base

² The Federal Reserve's Dual Mandate. The monetary policy goals of the Federal Reserve are to foster economic conditions that achieve both stable prices and maximum sustainable employment.

³ We have also made important changes with regard to the price-stability side of our mandate. Our longer-run goal continues to be an inflation rate of 2 percent. Our statement emphasizes that our actions to achieve both sides of our dual mandate will be most effective if longer-term inflation expectations remain well anchored at 2 percent. However, if inflation runs below 2 percent following economic downturns but never moves above 2 percent even when the economy is strong, then, over time, inflation will average less than 2 percent. Households and businesses will come to expect this result, meaning that inflation expectations would tend to move below our inflation goal and pull realized inflation down. To prevent this outcome and the adverse dynamics that could ensue, our new statement indicates that we will seek to achieve inflation that averages 2 percent over time. Therefore, following periods when inflation has been running below 2 percent, appropriate monetary policy will likely aim to achieve inflation moderately above 2 percent for some time.

In seeking to achieve inflation that averages 2 percent over time, we are not tying ourselves to a particular mathematical formula that defines the average. Thus, our approach could be viewed as a flexible form of average inflation targeting. Our decisions about appropriate monetary policy will continue to reflect a broad array of considerations and will not be dictated by any formula. Of course, if excessive inflationary pressures were to build or inflation expectations were to ratchet above levels consistent with our goal, we would not hesitate to act.

The revisions to our statement add up to a robust updating of our monetary policy framework. To an extent, these revisions reflect the way we have been conducting policy in recent years. At the same time, however, there are some important new features. Overall, our new Statement on Longer-Run Goals and Monetary Policy Strategy conveys our continued strong commitment to achieving our goals, given the difficult challenges presented by the proximity of interest rates to the effective lower bound. In conducting monetary policy, we will remain highly focused on fostering as strong a labor market as possible for the benefit of all Americans. And we will steadfastly seek to achieve a 2 percent inflation rate over time. *New Economic Challenges and the Fed's Monetary Policy Review – Speech Chair FED Jerome H. Powell*

value indicated by Central Banks as a signal for a healthy and balanced economy. Now, it appears quite evident that in a world struggling with widespread deflation and therefore with economies generally unstable and in search of compatibility, the possible position of inflation near the base value is only an algebraic fact, which in no way represents a symptom of a balanced economic state.

Actually, we must remember that a base inflation close to 2% is just an ideal value, which postulates an economic system for a long time balanced and which develops in a compatible way with the nature embracing all of us. Therefore, the base inflation close to 2% can be configured as an absolute value, like all the other great constants of physics and mathematics. Given this characteristic of absolute constant, the base inflation is close to 2% but doesn't come close to zero in the case of a stable economy, because the prices are the messengers of the economy. Therefore, the small difference of base inflation from zero is just the symptom of a sort of "background noise" produced by the economic activity when moving in full balance with nature. Background noise that is reflected on stable and balanced prices through a small alteration, which on the theoretical level has been set close to 2%.

Therefore, assuming that the base value of inflation cannot be zero, it isn't equally clear and obvious how and why the base value could be set close to 2%. That is, why having reached this state of stable and long-lasting prices, we could reasonably say that the economy reached the level of balance and compatibility with the development of nature. The condition to be respected in order to affirm that we have actually reached the balance point of the economic system, is linked not only to the real achievement of the basic objective but also to the economy firmly linked to that balance point.

Alternatively, having only briefly touched the base value of inflation close to 2% isn't at all a confirmation of the good administration of economy. Rather, it can be a symptom that the economy is unstable and then subject to deflation, which is pushing values down: we take note that deflation is a continuous and constant correction of values downwards. Therefore, the constant trend of increasing inflation according to an acceleration that depends on the instability degree of the economic system, is continuously narrowed by the parallel action of deflation. In other words, the economic system inflation is somewhat cut and reduced by deflation, which pushes the price wave towards minimum or even negative levels in relation to the instability degree of the economic system.

Therefore, the base value close to 2% of the baseline inflation of a stable and compatible economy depends only on the background noise of the economic system, which is assumed to be equal or close to 2%. The real inflation created by the stable and compatible economic system is therefore zero. It follows that the baseline inflation close to 2% is an ideal value, anyway difficult to be found in the normal economic events, which cannot be defined with an algebraic criterion. We can consider it as a sort of constant that ideally represents the point of maximum consistency between the human adventure in the economic field and the planet evolution together with the nature embracing us. A value universal and hypothetical, without any evidence in the real life that must be related to the constants of physics. The economic mechanism does not transmit any impulse to prices, in the sense that the compatible economic activity does not generate any signal for the price formation.

Experience seems to show that the inflationary motion generated by the unstable economic system is a continuous process that has a background acceleration depending on the unstable condition of the economy. This background acceleration therefore undergoes an alteration in relation to the state of economic instability. Thus, we can see variations in the nominal run of increasing or decreasing prices according to the degree of the economic system instability that worsens or tends to recover.

Moreover, the conjuncture cycle motion affects this mechanism, in the sense that the background noise generated by economic activity on prices can be changed by virtue of the cycle direction. Not surprisingly, the background noise can be variable: this happens in the case of an unstable economy and is one of the anomalies of the instability sub-world. Again, not surprisingly: because the constant level of background noise is a specific prerogative of the long-lasting economic compatibility and is placed, as already said, at the level indicated by Central Banks close to 2%.

The phenomenon is obviously relevant especially in the case of an economy with a tendency to deflation. As already mentioned, deflation acts in subtraction from the underlying motion of *current* inflation; therefore, usually the economy suffering from a tendency to deflation shows a rate close to 1%, which becomes negative when the economic system instability grows. The economic conjuncture, where the conditions exist for a cycle recovery, can alter the inflation rate, which therefore undergoes a modest increase under the pressure of the new rising tensions in the economy. It is therefore a simple algebraic motion of prices that may therefore undergo a slight increase (e.g. up to 2-2.5%), which could just be an expression of the variation in the background noise. With the cycle reversal, the inflation rate tends to fall into the previous position close to zero.

Central Banks connect the success of economic support to a better price climate, which would thus tend to climb the deflation slope in the presence of a robust economy. As we have said, a solid economic growth has an impact on prices tending towards deflation, which therefore show a modest rise. However, as we said, the evident factor acting in this case

on prices is the background noise, which can increase its intensity to touch or even exceed the inflation base value close to 2%. In the case of an unstable economy, such as one struggling with deflation, the background noise of the economy possibly overlapping the value of base inflation close to 2% is nothing more than a confirmation that the economic system remains in deflation. This is excluding any hypothesis that touching the value of the price constant, could be a positive signal on the way towards economic compatibility.

It's obvious that the call into question of a potential (low) inflation rise by many Central Banks, under the impulses of the recovering economy, does not mean that the slightly rising price index could somehow prelude to a passage into a world free from deflation. When reporting this possible modest result of the economic downturn on weak prices - which anyway occurred - no interpretation of the phenomenon is given in any way, which is then presented just as an objective fact: in the secret hope that a continuation of the phenomenon could over time get us out of the trouble. Unfortunately, this is not true, for the simple reason that the deflated system naturally tends to go into recession in order to overcome the consequences on economy, caused by the deviation from the compatibility path.

2. Method

2.1 *The Economic Cycle Is a Sign that the Economy Deviated From the Stability Path*

We have already said that, in the case of instability, the background noise assumes a variable value depending on the economic strength, increasing with the recovery and decreasing with the recession. This anomaly clearly distinguishes, also for its consequences, the world of stability from the sub-world of instability. In fact, in the stable world the background noise tends to a base value fixed and constant over time close to 2% without any possible alteration, providing the guarantee that the economy is moving within compatibility.

Well, this dystonia appearing in the unstable world is the symptom and the source of the most complex motion involving the economy: the conjuncture cycle. Therefore, having left the path of a constant and balanced growth, defined by a potential for constant and moderate growth, the instability sub-world develops according to a sinusoidal motion of ups and downs, recoveries and recessions. As already mentioned, this procedure opens the doors to the recession, which over time is somewhat able to contain imbalances and to bring the altered system back to stability.

It's the interruption of the background noise constant that defines the new levels, increasing or decreasing, assumed by the economic situations over time: a variable value which regulate or give the signal for the formation of the basic inflation that, being altered, characterizes the systems according to their instability state. So, we can argue that with the increase in the background noise of the economy, the economic system tends to accelerate the current inflation motion. A process that expands according to an acceleration that is independent from the economic situation, but nevertheless is correlated to the instability degree.

In the case of deflation, we must assume that the tension produced by the background noise of the economic system gradually decreases, so imposing to the nominal prices a downward path. The inflation underlying motion is therefore tending to contract and gradually pushes the price nominal values towards a minimum. It could be considered somewhat slow the work of the normal acceleration process, for the progressive decrease of inflation from the peak reached. Therefore, we can see an intermediate period between the inflation wave and the deflation stagnation during which the inflation can drop to lows of 5% or even less.

At this point, experience seems to confirm that inflation was defeated and therefore we moved back to a price run under control. This more or less long period of relative stability, however, tends to end with the further decline of inflation base rate below the base value close to 2%. As saying that even with a long or very long parenthesis we passed from the phase of increasing inflation to the phase of deflation.

Basically, the prices passed from the inflation of sixties and seventies to the stagnation of nineties and to the start of a pronounced trend towards deflation: their long adventure seems to describe quite well the price course during the last fifty years, at least in the industrialized West and in the USA. It could therefore be assumed that during this half century we have only been able to record a change in the presentation model of monetary anomaly, from inflation to deflation.

As saying that the long battle undertaken by the monetary policy to correct the variability of nominal prices, in short, was unsuccessful. Or rather that the long battle started since the seventies by the global economy to bring the accelerated wave of nominal prices back to controlled values, did finally manage to calm the impetus of rising prices, though with mixed results. But this apparent success seems to be rather the cause that shifted the run direction of nominal prices from acceleration to deceleration.

As already mentioned, deflation and inflation are messages that the system, altered and out of compatibility path, sends to inform the community that things in the economy are going bad. Not only are they just messages but, as such, they do not participate in the economic events. They are therefore not directly attacked because they are just ghosts, a sort of mirrors in which the economic state is reflected, and their image doesn't participate in any way in the system motion.

It could also be said that the transition period from the inflated to the deflated world, which lasted about twenty years, may have been a period of relative calm in the relationship with nature. This interpretation seems to be supported also by the clear improvement of the global economic framework, by the step forward towards a global redistribution of resources between continents, with China and India in evidence, by the development acceleration in the USA with the Reagan presidency and in the nineties during the Clinton presidency, and last but not least by the strong presence in international trade of Germany, together with China and Southeast Asia.

Even on the basis of this interpretation of the final twenty years of the twentieth century, we can say that since the beginning of the twenty-first century a new and more pressing instability, which is the origin of the formation of the worldwide real estate speculative bubble, replaces the compatibility acquired in the previous period. This bubble burst in America at the end of 2007 and then showed its full potential the following year in Europe, Latin America, and part of Asia. Essentially, the formation of the speculative bubble and the subsequent financial crisis, not lower than that of 1929 in terms of impact on the economic motion, must be understood as the failed attempt to continue the happy season of the previous twenty years. A season that instead was over and a period of pause would be therefore needed.

Basically, when monetary and fiscal policies learned to contain the inflation outbreak, which was troubling the industrialized West for over twenty years, the monetary message changed its sign: from an accelerated price motion to a decelerated price motion. It's difficult therefore not to connect the two phenomena of acceleration turning into a price deflation trend, though it remains unclear the underlying reason that could justify the economic situation passing to slowly falling prices.

Nevertheless, in any case both monetary messages, inflation or deflation, are the precursors and companions of the economic cycle. Both are precursors of a development cycle that is weakening and is then introducing the periodic recession of the economic system on the development path. Instead of a constant and slightly rising growth, which is the salient feature of the economy when is stable and compatible with nature, the basically growing development line begins to twist, so losing its strength. The logic governing the change is aimed to introduce into the development path a pause, a recession, which would limit the economy strength. A pause that, also on a logical and simply intuitive level, implies the opportunity to limit those development forms that are partly in opposition to the compatibility path.

We can define the compatibility relationship between humanity and nature around us as a model involving the nature preservation for future generations, rather than the exploitation and destruction of natural resources. Assuming that natural resources are the source of life, the preservation logic should be interpreted as the endless chain of life from generation to generation. Not for its own sake, but as the intergenerational journey of mankind in its search for the secrets guarded by the nature around us. In some way, the life is protected by the nature embracing us: in this way, we have the possibility to continue our research in the scientific and cultural fields.

If the compatibility relationship is flawed, it does not mean that the economic system will automatically show the instability signs typical of the instability sub-world. Because there is certainly a sort of elasticity in the balance of the man-nature relationship, which allows not to stop the development and progress of science and culture, despite that flaw. It must be added that this continuity in the science and knowledge evolution is indispensable, on the assumption that the civilization degree is affecting also the relationship with nature. In the sense that a greater degree of culture and civilization should mean that we are moving on a development line that is increasingly consistent with our basic obligation to respect the nature.

Thus, we must admit that the development line of the economy is marked and also limited by the obligations imposed by compatibility. But this limitation does not affect instead the push towards research and knowledge that wouldn't be stopped by some troubles in the relationship between humanity and nature. As saying that, having reached a certain stage of civilization, a constant acceleration of research can be observed over time together with its effects on the economic world.

In the sense that the science and culture development is the essential prodrome to gradually extend the paradigm of respect for nature to the whole humankind. Now, since the scenario of the global economy shows some diversity in the development and participation degree of the scientific progress, it's clear that the natural tension is moving towards a gradual rebalancing of the differences in the civilization level between the continents. This is the key to read the great run that since the last century has marked the Asian continent development, in particular China and India. An unprecedented development profile of the economy, culture and civilization level that has no equal and that finds its deep motivation in the natural tendency towards rebalancing the potential of culture and scientific research between the continents.

It must be added that the rebalancing process between continents is far from completed. While reached in fact an unexpected height in some Asian countries that are today protagonists of the world development, it's still in progress for many African countries, for Latin America and for the Near East. Since the progressive rebalancing of the development potentials of the economy and culture is an irreversible natural process, it's easy to believe that it will continue according

to times that we cannot imagine; nevertheless, that process will gradually be implemented according to the times of nature, which do not correspond to our human times.

2.2 The Economic Cycle as Rebalancing Asset, Rather Than Negative

The relationship between humanity and nature is currently unbalanced. However, the life relationship seems to offer some flexibility that could somewhat mitigate the consequences due to the cracking of the compatibility relationship. In the sense that experience shows that abrupt interruptions or at least the sharp slowdown in development can start a period of relative tranquility and increasing economic development. So, after the Second World War, the reconstruction and recovery phase after the catastrophe was long and lasted until the 1960s. The same happened after the long season of the inflated world that continued until the mid-1980s. From the relative disappearance of inflation and accelerated nominal prices, began a season that lasted until the beginning of 2000 with a relative economic calm and a sustained development.

These brief considerations give us the occasion to consider the recession phenomenon in economic systems as a natural tool to correct the instability and as a mechanism to regain the compatibility of altered economic systems. In other words, the economic system experiencing difficulties in the compatibility field seems to use the recession pause as a weapon to regain the balance. According to this point of view, the economy that entered the instability sub-world, would immediately show a degradation of development potential and the tendency of economic systems to recession. Therefore, between the periods marked by greater balance and the periods marked by instability, a big difference will result from the different ability level of the economy to follow a growth path.

This diversity is measured by the presence or absence of the economic cycle, considering that the recurring economic cycle puts the recession on the growth path of the economy: that is, the periodic pause with a variable frequency which is imposed in order to clear away all the waste that is causing instability. The economic cycle is not characterized by a constant progression of recovery and reversal phases, but rather by a great variability in its behavior. For the simple reason that the shape and acceleration of the cyclical phases are governed by the instability degree of the economic system. In the sense that it is a sort of drug given in different doses according to the deviation degree recorded by the economy in relation to the compatibility path.

It is therefore inevitable that to expect a constant development of cycles is an optical illusion, due to the experience we maybe had during the initial phases of instability. Thus, in the 1960s, the Western world emerged from a long season of sustained and constant growth, which was extended since the end of the Second World War. That season was over, and inflation was beginning to appear into the world economy. A modest inflation under control, at the time was the signal that the economy could not afford the previous growth rates. The world, after the reconstruction phase, was entering again the instability sub-world. During this initial phase, the inflation remains under control and the economic cycle seems to follow a constant behavior, with rhythmic phases of peaks and reversals. In other words, in the initial phase of instability, the losses in efficiency and growth rate are somewhat contained.

However, since the early seventies the inflation was in acceleration, a sign that the untreated system instability was increasing. The acceleration of inflation caused by the first oil crisis could have had a temporary impact, in the case of an almost stable economic system. But in the context of that time marked by a widespread instability, the boost offered by the unexpected and massive increase in oil price triggered the high inflation, also due to the attempts to contain the damage deriving from the unexpected oil increase with the use of public spending. With the result of accentuating the instability degree of economic systems. Thus, the unexpected oil increase has become a factor causing an accelerating inflation. Therefore, a temporary factor of rising prices due to the oil cost had become an engine of the nominal inflation acceleration, now difficult to keep under control.

Therefore, the economic earthquake imposed by the dramatic oil increase wasn't the engine of inflation, but just a strengthening factor of the phenomenon, due to the attempt to hide the real effects caused by the cost of raw materials on the economy. Actually, even a massive increase such as the one that caused the first oil crisis should have imposed a generalized price increase that would led to a new, once again stable price structure. However, in an unstable reality and with an accelerating inflation due to the misguided attempt to maintain high the level of a weakened economic growth, the oil cost increase was a shock, which we tried unsuccessfully to calm down by containing its impact on the economy. In short, the cure was worse than the disease, so that the pressure on development and the attempts to mitigate the impact of oil crisis on the economy have instead widened the instability of economic systems. That was the real reason for the inflationary pressure increase on prices, which then continued for a period of twenty years at a global level.

Inevitable therefore, throughout the inflation period, the fall of the economic potentials and the trend towards recession, with some peaks at the outbreak of oil crises, in the mid-seventies and at the end of the decade. We must therefore admit that the falls into recession are accompanied by unexpected or anyway different conditions that modify the current framework, so becoming an opportunity for a corrective reorganization of the economy.

It's therefore difficult to try to escape from the natural correction mechanism, which uses the economic cycle and the recessions to contain the deviation from the compatibility path. As in the seventies and more recently on the occasion of the serious financial crisis in the first decade of the 2000s, the conditions will be created - also due to instability - that will make even a hard recession, required for the correction.

On the other hand, precisely because of this need to clean up the altered system, the size and power of the recessions will be of varying strength, therefore more or less intense in the elimination of virtual excess of forced development. Based on these brief considerations, we can expect that the exit from the pandemic, which now has a global dimension, may be different in the various economic systems. According to this theoretical view, the weaker countries are financially the harder they will be hit. As saying that the term "weak finance" is addressed to those countries showing a more marked tendency to deflation. In other words, the 'deflation thermometer' can reveal, in summary, the instability degree and therefore the correction level needed to restore compatibility.

The fact that the economic cycle is not constant and repetitive over time but is a sinusoid with a dimension variable and controlled by the instability of systems, obviously brings some value to the thesis that the conjuncture cycle is a cure. That is, not just a typical factor of economic life but a superstructure that comes into action only in the case of a deviation from the compatibility path. Of course, the presence of a sub-world in which the economy enters to be purified through quarantine would mean however that economic life, just like the matter and its forces, is subject to inflexible rules of natural order; rules that are the necessary prerequisite for the human survival on this planet.

All this, to say that some natural rules and behaviors concerning economic and social life cannot be explained according to our deductive reasoning, precisely because is lacking a source to which we can refer as engine of the economic mechanism. On the other hand, according to this point of view, it's really meaningful that the events, starting from the economic cycle and the messages to the community on the economic state (inflation and deflation), are repeated over time with different intensity, but according to a highly repetitive scheme and without any apparent direction.

A repetition that is never constant but undergoes variations over time, as we have seen at the time of great inflation in the seventies. In those years, the change in the inflation rate was simultaneous with the change in the economic cycle, which obviously was at its maximum coinciding with the two oil crises. A coincidence of the cycle negative peak with the unexpected increases of the oil price, which wasn't due to the emphasis of nominal prices, but to the greater economic instability, which was also linked to the unexpected rise of the oil price.



Figure 1. Oil price trend 1950 - 2020 corrected with inflation

Source : <https://www.quotidianomotori.com/>

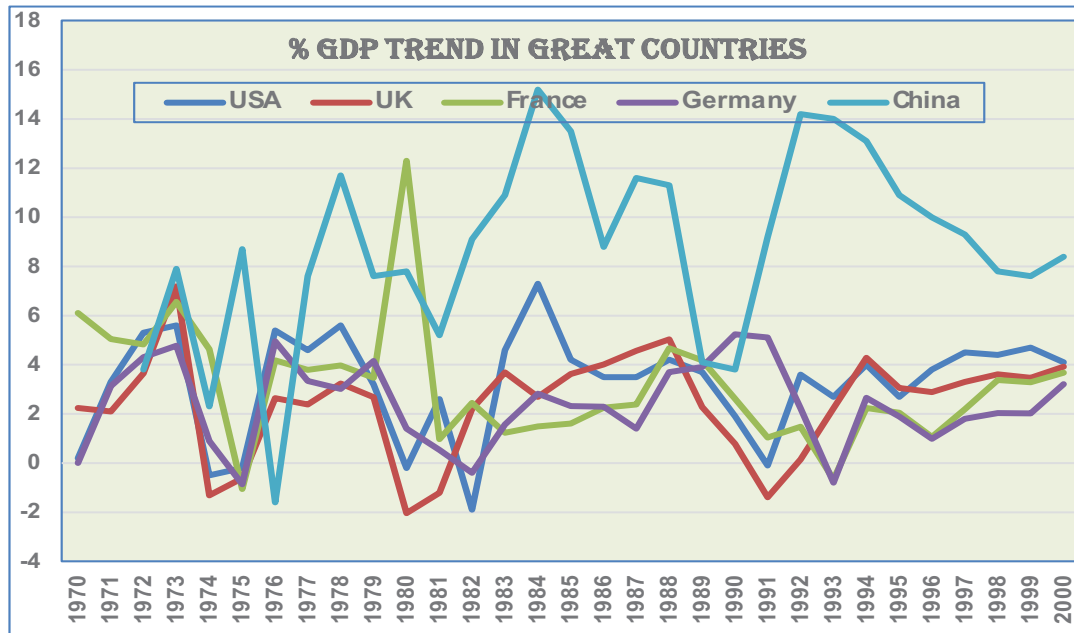


Figure 2. GDP trend in great countries 1970 - 2000 (in percent)

Source: Elaboration on OECD data

2.3 Natural Stability and Economic Control Policies

Since the base price value is altered, inflation or deflation are the messages informing the community that the economy is out of the right path. In any case, therefore, the economic systems show a current inflation depending on the level of the economic instability. In the case of deflation - which concerns us closely - this current inflation is low or extremely low and can even drop below zero in the case of severe financial instability. Well, in the case of speculative excitement of the economic cycle, in a context of low inflation or tending to deflation, the underlying current inflation may undergo a modest upward push, so that inflation (e.g. at 1%) under this modest impulse can get around 2%: therefore, we are quite near to a base inflation close to 2% although there is no way to express a compatible balanced value. We are rather facing a mere algebraic result that is certainly unable to give any answer to the search for balance and compatibility in the economy. Nor, on the other hand, can this represent a relief for Central Banks struggling in the search for a stable and real escape from the deflation grip. (Shilling, 2001)

Deflation is not directly attackable because it's just a message about the troubled economic system. Therefore, the problem of deflation becomes an unsolved problem if it's not understood that the negativity is not lying into deflation, but rather in the instability of systems. Moreover, we should understand that to solve the problem, the common remedies based on fiscal and monetary policies may not be able not only to solve, but even to mitigate the complicate issue of frozen prices. In other words, trying the classic way of monetary policy measures to reduce the money cost to zero and making new liquidity available, can be a good aid to avoid or contain the damage of an economic depression. However, this kind of actions wouldn't be able to solve the deflation problem.

We should consider that deflation is a signal that the economy has become unstable. If we let the natural correction unfold its action, the pause or the recession can over time mitigate the unstable state of economic systems. In fact, the unstable system undergoes a deep modification: instead of the constant and slightly rising growth, typical of the natural development in balanced systems, it's subject to the conjuncture cycle, which introduces the recession into the scenario, intended as a natural mechanism to correct the instability. The deflation trend can therefore be interpreted as a signal that the economic system tends to recession, to have a pause in the economic growth process.

Well, forcing economic systems to avoid the recession may be contrary to the natural trend and therefore this could mean to extend the unbalanced state over time. According to this point of view, only apparently drastic, the therapies based on fiscal policy interventions to support the economic situation cannot be rejected too strongly: even at a first rapid analysis, a contrary over-reaction should be avoided.

In fact, we are moving into a reality that is focused on the belief that the economy grows according to an alternating motion. Therefore, it seems correct to try to stimulate development and "redress" the economic cycle in order to make it grow according to a midline, so avoiding as much as possible the recession negative wave. Following this approach, the

recession would not be the price to pay for the deviation from stability path, but rather an accident on the development path, almost a disease, to be treated by any means. Well, according to this perspective, the fiscal policy becomes the essential tool to keep the uncertain trend of the economy under control.

Therefore, when the economic situation abruptly collapses under the unexpected blows of a financial crisis, as happened in the years 2008-2009, it becomes essential to face the impending decline with its serious social effects. The theoretical discussion on the reasons that blocked the economic development, at that point are sidelined. Although we must note that is precisely this indestructible desire of the communities that the government of the economy may guarantee a "tomorrow no different from today", which after all pushes to activate any possible intervention to control the fall of the economy into the crisis. (Krugman, 2008)

This scheme of controlled economy seems, therefore, inspired by a remarkable rationality, though we should consider that the economic waves, especially those deriving from speculative processes, are actually created by the intervention policies. Nevertheless, those interventions with the aim of reducing the troubles of the economics are actually blocking the natural correction and thus impose a scenario of cyclical alternations, faced with a natural economic landscape which is following a constant and linear development.

It would be precisely this deep and ancestral common wish for the economy smoothly evolving and for a "tomorrow no different from today" that confirms the real meaning of this aspiration. In all living beings there would therefore be the innate notion of constant and linear economic growth, so confirming that the compatible economy does not need any director or economic guides, but can follow a stability path over time, if the environment compatibility is respected.

Confirming the thesis that the economic conjuncture is a modality of the instability sub-world, there is also the peculiar skill we can observe in our neighbor as also in the common man. Well, our neighbor is not an active protagonist in economic matters and yet he shows to have a summary and concise knowledge, but anyway adequate, of the economic state in a particular country. He can take the same information that everyone has through the prices of their daily purchases and through the implicit sensations becoming more real and sensitive as the economy turns towards instability. Therefore, the primary information comes from the monetary messages (inflation or deflation) continuously sent by the system when the stability path in the economy is lost.

On the other hand, if we investigate more deeply, we will be able to observe that our neighbor, even if not involved in the work of economy management, is able to formulate, though in general and synthetic terms, a sort of program to return to stability and compatibility in economics. It's actually only for these innate abilities to perceive the economic condition, that we can justify the basic idea of participatory democracy which entrusts the community with the role to choose the leadership entrusted with the economic governance. It's through these community skills about the economic state, that the collective thinking expressed by a community is used to conduct the economic surveys on production and consumption.

All this seems to be based on the ability of a community to foreshadow the difference between the ideal condition of linearity and constancy in development and the present state with the alternations of the economic conjuncture. A present situation that is outlined according also to messages not explicit but based on feelings somewhat generalized inside the community. Well, this singular ability essentially makes the community the terminal of the relationship between humanity and nature; terminal that obviously collects the signals on the divergences of the economy from the natural state, as a synthesis of the feelings developed by all the members within the community.

Well, we must admit that the economic activity moves according to physical laws: these rules are the limits that monitor the consistency of the economic course with the goal of preserving natural resources for the survival and subsistence of future generations. Are obviously included the rules that avoid the degradation of the natural system, by modifying the otherwise constant linear path of development, with the introduction of the conjuncture cycle. (Cossiga, 2018)

How else to explain the corrective behavior of the economic system moving with the simplicity of a motion that from uniform becomes alternate and, in this way, inserts a periodic pause in the development mechanism to relieve the economic system from the waste produced by incompatibility. Not only that, because the introduction of alternating recoveries and recessions varies over time according to the degree of economic instability. The correction therefore relies on a sort of internal clock that modifies and possibly extends the recession times, according to the level of instability degree defined by the natural instrument.

We should consider that the simplicity of the corrective system has no other aids to perform its function. In fact, everything moving around the mechanism, which makes the growth process of economic systems vary from linear to alternate, does not perform any cooperative work. It's only a representation of the no longer linear motion of the economy, in order to provide a generally noticeable message about the anomalies of the process. They are only representations, therefore, just like mirrors in which the economic motion is reflected without any possible participation.

Therefore, the system elaborates a series of mirror functions that are responsible for providing synthetic information, even

with some advance, about the state of the economy, through the price engine, which measures - like a thermometer - the state of malaise of the system. Certainly not for its own sake, but to inform the common man that the economy derailed from the stability path. And again the purpose is well defined: to provide all the community members with advanced information on the quality of the economy governance, to move when necessary the protest and to dissent from the policy implemented by the leadership.

So, we have an intervention with two levels that are not overlapping because they are only the representation of each other. This second collateral tool doesn't participate in the correction, but has obviously the purpose of inducing a change in the economy governance, when it's damaged the general rule set in the DNA of every living being, which postulates a linear and constant growth of the economy.

3. Result

3.1 *The Policies to Control the Conjuncture Cycle and the Concomitant Actions of Natural Correction*

As we said, when the deflation message appears, the community has a first report that things in the economy are going bad and that instability must be treated. Without interventions by the action policies to support the conjuncture cycle, the economic system would slowly tend towards recession to have a sort of purification pause which would allow the recovery of compatibility and balance. The economic cycle would not in fact be a curse taking away the opportunities for a linear and constant development. It's instead a safeguard mechanism which, if left to act, can allow to recover the linear and constant growth path that we have lost. It's a bitter medicine but can become even worse if we act in contrast to the natural mechanism. Anyway, it's painful on a social level because increases poverty and mainly affects work. And thus, the result is the accentuation of inequality in income and wealth within the community.

For these reasons, the intervention and support policies for the economic situation have the aim of mitigating the cycle especially when it's violent and profound, in an attempt to skip this phase, that actually we know to be curative, and thus starting a mere imitation of the linear and steady growth of the balanced economy. Now, it's evident that the defense against the deep crisis becomes inevitable to avoid the social and economic damage that would push back development motion. On the other hand, in the midst of a negative economic trouble, such as the one we experienced in the 2008-2009 financial crisis, the defense implemented by fiscal policy, with the unparalleled expansion of deficit public spending, has shown a great effectiveness in fighting the cycle collapse. Moreover, in perspective it has given some breath to the economy, so allowing a recovery in activity, though at moderate levels, anyway lower than in the previous decade.

However, a question remains about the possible dark side of the continuous and increasing use of economic support policies, because it's clear that the support measures are basically opposed to the natural corrective action. This means that if we do not let the conjuncture take its course, the economic system will not be cleansed from the instability waste. Therefore, sooner or later the correction mechanism will come back again, maybe with a greater strength. But in the meantime, we will certainly see a general trend towards deflation. As saying that the economic system is warning the community that the emergency is not over and that the instability burden didn't decrease.

Therefore, it's evident that under the crisis blows the only thing that can be done is to try to repair what is possible, even if in this way the natural correction would be hindered. We should note that in the case of a sharp decline in the economic situation, as during the financial crisis of the last decade, it may be assumed that the rapid economic decline is only partially due to the action of instability correction. There is in fact the danger of a cascade fall of production activities, that would be originated in sequence due to the market progressively dried up and to cash problems as well. (Roubini, 2011)

For these reasons, we can believe that the policy supporting the cycle, in the event of a serious financial crisis, plays the role of reducing the risk of a serious economic fall, though the natural corrective function is left to partially play its role. Corrective function that is at least partially achieved through the recession, which is anyway doing some work and then is affecting the economic system despite the intervention of support policies.

In other words, it could be assumed that a fiscal policy supporting the falling cycle could play a double role. First, it could be enabled a controlled recession that should somehow cooperate to correct the growth path. In addition, it could be developed a function mitigating the excess fall of the cycle, through interventions aimed at saving and preserving companies and activities still efficient but on the edge of closure due to the sudden lack of cash and the wide market fall. We can add that the good resilience after the sharp fall may be partially due to the correction work that the controlled recession guaranteed in any case.

On the other hand, the declining efficiency of economic systems after the 2008-2009 financial crisis was probably caused by the residual unsolved instability. In the same way, this parameter of the lower efficiency of post-crisis economic systems, can be related to the various degrees of residual instability inside the various economic systems at a global level.

As we said, in the case of a deep involution of the economic system, the support policy manages to limit the damage, but cannot avoid a recession. Therefore, a natural correction process is initiated, though partial. It follows that the attempts -

often partially successful - to keep the system in balance, thus avoiding the natural involution of the cycle, are intended just to imitate the natural condition of compatibility. In the assumption, therefore, that we are able to have the control of economic growth in order to follow the natural path. Now it's quite evident that, by operating in this way, the unstable system is condemned to a *virtual* development, but this improper surplus will be subject to a progressive elimination through an increased number and intensity of the cycles.

The supporting policies can therefore move in opposition to the natural cycle correcting the system that had left the compatibility path. In other words, the unstable economic system periodically requires some pauses to process the anomalies of incompatible development. In this way, the treatment progressively applied allows the unstable system to continue on the development path, although attenuated. The problems will become more relevant if the cycle control policies manage to give essentially the apparent feeling that we can bypass the economic cycle: in this way, the economy would achieve the objective of a relative calm in its path.

Now, it's quite clear that there is no way to reactivate the growth without cycles if the economy has been unstable for a long time and the instability degree is reflected by the price deflation. It follows that the choice of a continuous support to the economy, though with some appreciable results, doesn't lack a negative legacy, which sooner or later we will have to pay. It can be summarized in this way: the refusal of the recession can be compared to the refusal of a medicine, therefore without remedies the economic system remains unbalanced and with a tendency to get worse. As already said, the cycle appears if the economy leaves the natural development path; thus, the sequence of the economic cycle is introduced and in particular the recession which imposes a pause on the development mechanism. This pause is equivalent to a cure that can allow, if left to act, the instability reduction and the return to a constant and linear progression.

3.2 The Anomaly of Current Scenario and the Role of Support Policy During the COVID-19 Spread

The global economy is now struggling with this problem, which is causing many troubles. The deflationary trend pushes growth down, so cooling the prospects; the communities perceive the feeling of malaise raised by this general situation and as a result has grown the mistrust towards the governments that cannot find a way to resolve the economic instability. This feeling of malaise is somewhat mitigated by the prevailing concern about the pandemic problem that is currently worldwide spread. The pandemic, on the other hand, is then leading to a mandatory pause all the economic systems: so it seems that it can play the role to pause the economic systems, which is usually a role delegated to the conjuncture cycle.

This is not only a pause for the economy, but also for the governments who find, in the search for recipes and requirements for a healthy behavior during the pandemic, an advantageous way to hide the problems troubling the economy for its weak performance. Moreover, the modification of the economic outlook with increased unemployment and economic malaise offers to the supporting economic policy a role, somewhat original though common in periods of serious crisis.

The recent lockdown and the new fears for next future have created an unexpected poverty increase due to job losses and reduced activities. Economic policy was therefore called to play a substitution role, so the income cut by the pandemic would be replaced with an alternative form of social income. I consider this an essential function on the social level, which however creates an increase in public debt, committed to maintaining the social peace to contain a further and serious increase of income and wealth inequalities.

An unexpected condition, to the benefit of governments in office who saw their consensus declining due to low growth and deflation tendency; but today they find an increasing consensus for the actions being taken against the pandemic and in favor of social peace. In fact, we should consider that the social spending implemented through the increase of public deficit spending, does not meet with great criticism because it deals with an essential issue, such as providing an income to families now poor because without work.

Moreover, the rising social spending also plays the role of supporting the rapidly declining economic situation, thus mitigating those basic reasons that were causing the consensus drop of current government. It's a paradoxical situation or nearly so, that modifies the short-term political but also social perspectives. As saying that the pandemic represents a sort of plugging of the political situation, obviously as long as there is a danger to public health. It should not be surprising this political pause, because every criticism towards the excessive economic support policies disappeared and at the same time the serious decline of economic situation is justified by the general framework, which in no case is attributable to the government currently in office.

Of course, we are referring to the hypotheses of fight against the pandemic, which is carried out perhaps successfully but at least with commitment. Thus, the government is basically evaluated for the results achieved in the fight against the pandemic and no longer for the actions more relevant to the government activity, that is the success or failure of the actions relating to economic development and employment trends. Also, this asymmetry is quite consistent with the natural process of the economic system requalification. Because the natural system for the instability correction, essentially becomes the mechanism that takes over the management of deviated economic system.

In fact, we should remember that the natural system lets the economic situation follow its fate in order to correct the instability. This means that the natural mechanism at the end agrees with the lockdown and the activity reduction produced by the pandemic. Because the activity decreases or rather its contraction produced by the pandemic is essentially forcing globally the economic systems into an anomalous recession, that is unexpected and unpredictable but dependent on natural factors outside the correction mechanism. We are therefore in the middle of a strange situation in which the conditions are being created for a natural deployment of the anomalous economic trends, which are in line with the corrective needs of unstable systems.

This leads us to believe that after the pandemic, there should be a global generalized decline in gross product, essentially in line with the natural process of correcting altered systems. We should therefore believe that, after this unpredictable but natural economic decline, we can expect a global efficiency recovery of economic systems. This means that in the coming years, when the pandemic will be over, we could count on the efficiency qualitative improvement of the economic systems. That is, we'll be able to count on a period of sustained economic growth that could be somehow compared to the 80s and 90s of the past century, in terms of duration and continuity.

A sustained growth in the near future, then: but what is this hypothesis based on? The basic idea is that if we let the natural correction system work, as a result we should have a reduction in the imbalance of economic systems. An unwanted but obligatory correction is underway at a global level which, however, strengthens the hope to recover in the future the economic and social losses and disadvantages produced by the pandemic.

The first symptom of the economic improvement should be seen already during 2021 through the price system that should relieve the deflation negative burden. In other words, as the rising deflation warns that the economic system has become more fragile and tends to recession, in the same way by mitigating the deflation we should see an improvement in the economic situation. On the other hand, the price decline observed in recent years, when the phenomenon of deflation acquired a global dimension, is a clear signal of the weakness and fragility of an economic system. As saying that, where the phenomenon of development degradation has been greater according to a greater deflation, we can equally believe that the expected deflation reduction may well be a good means of development revival.

4. Discussion

In our walk through the previous pages we talked according to a relationship between humanity and nature for the safeguarding of natural resources for the future generations. In the sense that the economic development must respect and safeguard the nature, since the natural evolution of natural system perfectly complies with the preservation of resources offered by the planet. It follows therefore that also humanity should possess the necessary qualities for this basic rule to be respected. There would be then a mutual interest between the humankind that wants to continue living in its future generations and the nature that ensures that this wish is realized. I mean, there must be a mutual interest and thus a safeguard power working both at humanity and natural level.

A complex relationship is therefore outlined with reciprocal messaging actions between nature and mankind, warning that the system has gone out of its natural path and has taken the unbalanced way. A reciprocal messaging then, where prices are the means to warn about the anomaly in the economic system behavior. On the other hand, the human communities are a sensitive terminal of the relationship with nature, so that individuals and groups are informed both explicitly and implicitly that the economy has derailed from the development path. The community is therefore invested with the responsibility of calling the leading groups to direct the economy in a way increasingly coordinated with the natural compatibility goal.

Nevertheless, it is singular that the messages sent by the nature to the community are of a monetary nature, even if these manifestations in any way participate in the economic activity. Both inflation and deflation are connection instruments between humankind and nature: they are messages informing about the status of relative relationships.

In summary, the nature provides us with a series of messages about the state of the economy, when the economic system has lost the compatibility correct path. These are direct messages such as price trends, deflation, inflation or, otherwise, implicit messages: like a sort of sensations that everyone is receiving, then processed to help us understand whether the economy has entered the instability sub-world. These are therefore messages perceived by the common man, by the man next door, by our neighbor, who – though far from the economic matters - appear fully able to give a valid opinion on the government conduct and on the public management of the economy.

The community, which is continuously experiencing the market problems, appears therefore to be able to provide as a whole a judgment on the economic management and to offer or not its consent to the government in charge about the management of economy and social sector. Thus, the nature offers a series of messages to the communities of each country, which in turn should use these messages to roughly define the most useful project in order to bring the economy back to its natural stability. A project obviously embryonic, that may or may not be in accordance with the electoral

programs of various coalitions in the running for next electoral deadline. It will therefore be the task of the coalitions competing for the renewal of institutional offices, to give the right shape and content to their programs to make them as close as possible to the wishes of community.

Thus, strength is given to the principle asking rulers to look further for the community welfare, without fragmenting their action in short-term interventions that are useless even to consolidate the consensus to the current leadership.

The complex of relations between mankind and nature, made of reciprocal exchanges, is a fiduciary trust given to the community as ultimate holder of this relationship: essentially, it is a linear mechanism that seems paradoxically quite complex in theory. On the practical level of relationship implementation, however, the problem lies in the terminal (i.e. the community), which may not respond with sobriety and timeliness to the indications coming explicitly and implicitly from the economic system. This happens because the implementation of the mechanism requires a time even long, which is derived from the synchrony established in the relationships and sensations coming from nature and from the way they are received by the community organism. During this sometimes-long period of synchronization, the system stability can further deteriorate.

The emergence of new figures coming from the instability world can therefore be related to this problematic balance in the relationship with nature, because the natural corrective system cannot stop to wait the continuous recomposition of the balance between nature and humanity. Due to an extended instability, we can believe that some alarming phenomena such as speculative events, which were common in the previous century and appeared also in the current one, are becoming an operational reality unexpected and brutal. The imbalance between the reception of messages and their implementation, can compromise the ability of communities to express, during the electoral consultations, the candidates suitable to fully understand in the best way the natural message received through the generic and synthetic indications of the community.

As saying that the difficulties, when they do not allow the community to express itself fully and in the established times, can become a factor producing unexpected new 'monsters', quite worrying though often even little noticed. This is the case of the widening unequal gap in wealth and income distribution among the population. An unfair and devious mechanism that is felt only by perceiving the continuous poverty increase, a sad reality despite the increase in some cases of wealth and overall incomes. Thus, a general social malaise is growing, which in some way must be corrected, but which is obviously the result of a persistent instability within economic systems, when the relationship between humankind and nature for some reason is interrupted, withered, diluted over time.

References

- Ben, S. B. (2000). *Essays on the Great Depression*.
- Cardoso, E. (1992). *Inflation and poverty* (No. w4006). National Bureau of Economic Research. <https://doi.org/10.3386/w4006>
- Cossiga, G. A. (2017). Stability and Instability of an Economic System: Considerations. *Rev. Eur. Stud.*, 9, 8. <https://doi.org/10.5539/res.v9n3p8>
- Cossiga, G. A. (2018). The Search for Inflation on a Constant Basis at 2%. *Social Sciences*, 7(4), 165-181. <https://doi.org/10.11648/j.ss.20180704.13>
- Cossiga, G. A. (2019). The Economy of Sustainability: Some Consequences on the Economic Theory. *Theoretical Economics Letters*, 9(8), 3034-3064. <https://doi.org/10.4236/tel.2019.98187>
- Cossiga, G. A. (2020). According to the sustainability theory, the natural rebalance of resources and wealth may continue in global scenario. *Advances in Social Sciences Research Journal*, 7(7), 927-957. <https://doi.org/10.14738/assrj.77.8761>
- Geithner, T. F. (2014). *Stress test: Reflections on financial crises*. Crown Publishing Group (NY).
- Krugman, P. R. (2009). *The return of depression economics and the crisis 2008*. W.W. Norton & Company, Inc. New York.
- Nouriel, R., & Mihm, S. (2011). *Crisis Economics: A crash course in the future of finance*. Penguin Press. <https://doi.org/10.1515/9781400831722>
- Raines, J. P., & Leathers, C. G. (2008). *Debt, innovations, and deflation: the theories of Veblen, Fisher, Schumpeter, and Minsky*. Edward Elgar Publishing.
- Reinhart, C. M., & Rogoff, K. S. (2009). *This time is different: Eight centuries of financial folly*. Princeton university press.
- Shilling, A. G. (2001). *Deflation. How survive and thrive in coming wave of deflation*.

Roach, S. S. (2009). *The next Asia - Opportunities and challenges for a new globalization* – John Wiley & Sons Inc.

OECD - OECD Stat Database, various years.

IMF - *International Financial Statistics* - Database, various years.

IMF - *World Economic Outlook Update*, July 2018.

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Staroverstvo - the Old Religion - the Slovene Pre-Christian Religion

Anton Perdih

Correspondence: Faculty of Chemistry and Chemical Technology, University of Ljubljana, SI-1000 Slovenia (retired)

Received: April 12, 2021 Accepted: May 14, 2021 Online Published: May 18, 2021

doi:10.5539/res.v13n2p114

URL: <https://doi.org/10.5539/res.v13n2p114>

Abstract

The data about *staroverstvo*, i.e. about the pre-Christian religion in three regions in Slovenia are reviewed. The most archaic of them is the *Posoško staroverstvo* - the Old Religion around the upper Soča River valley. For it is characteristic the single, female god, the Great Mother, a number of spirits, importance of triangular features, rocks, caves, stone and wood, way of life in peace, reincarnation of souls. The *Kraško staroverstvo* - the Old Religion in the Karst region is intermediate between it and the East Slavic pre-Christian religion. The influence of the arrival of agriculture about 7,500 years ago is indicated in it. The *Dolenjsko staroverstvo* - the Old Religion in Western Lower Carniola reflects the Iron Age situation. Characteristic for it is the revering of waters as well as the bird-hills close to hill-forts. The hill-forts started to be erected on the intrusion from east of the Y chromosome haplogroup R1b people about 6,500 years ago. The bird-hills served the birds, which would carry the soul of the deceased into the other world, possibly onto the other side of the moon. All these Old Religions indicate that the ancestors of Slovenes did not arrive in the 6th Century AD from east of the Carpathian Mountains but were aboriginal in Slovenia.

Keywords: bird-hills, goddess, Great Mother, hill-forts, reincarnation, spirit, stone age, triangular features

1. Introduction

The state Slovenia is in Europe, "between Venice and Vienna". The Slovenes have a rich and diverse folk tradition. This speaks among others about the male beings (*divji mož, ajd, velikan, škrat, povodni mož, pasjeglavec, volkodlak*, etc.) [Engl. translation: wild man, heathen, giant, dwarf, water sprite, dog-head human, werewolf, wolfman, etc.], the female beings (*divja baba, baba Pehtra, krivopeta, Torka, vesna, vila, žalik žena, rojenica* etc.) [Engl. translation: wild hag, hag Pehtra, bandyheel, Torka, Vesna, villa, nymph, the Fates etc.], the games of tag, and dancing games that would have originated in the Paleolithic; as well as about the tools and accessories from a time before the Roman occupation, etc., (Baš, 2004).

The Slovene folk tradition speaks about the "wild men" who lived at higher altitudes, i.e. on a hill or a mountain; see e.g. Šavli (2008a,b). It appears that these "wild men" were hunters/gatherers, while the "wild hags" were gatherers, and they spoke a language, which was similar to that spoken by the agriculturists in the valleys. According to the Slovene folk tradition, they were able to communicate about very detailed things.

In addition to this diverse folk tradition there are becoming known also the local versions of the old, i.e. the pre-Christian Slovene religion.

2. *Dolenjsko staroverstvo* [The Pre-Christian Religion in the Region of *Dolenjska*] - Bird-Hills Close to Hill-Forts

Sever (2003, 2004, 2008, 2009, 2013, 2017) presented the remnants of the pre-Christian way of life and religion in the region of *Dolenjska* [Lower Carniola], i.e. in the central and southeastern Slovenia - the yellow part on the Map 1. During his over 30 years lasting field research in the region of *Zahodna Dolenjska* [Western Lower Carniola], contacting over 5000 inhabitants of the region, he collected the traces of the pre-Christian religion, which survived there the World War II and were gradually disappearing.

One of the characteristics of this pre-Christian religion was the revering of waters, i.e. the sources *Trmožnik* [Three-men-source]. The people were using the healing abilities of the holy waters well into the 20th Century AD. Another characteristic was the believing that the birds, especially the cranes, carry the souls of the deceased into the sky, for example onto the other side of the moon. In this respect there is characteristic the often appearance of pairs of hills, i.e. of *gradišča* [hill-forts] and nearby *tičnice* [bird-hills].

There are known in Slovenia more than 200 hill-forts (*gradišče*) and more than 200 bird-hills (*Tičnica, Tičn'ca, Tičistan, Tičerca, Tičnik, Tičevo, Na tičnici, Tičjak, Tičjek, Križ na tičnici, Ptičjek, Za tičnico*, etc). The currently known ones are on the Map 1 (Sever, 2013). A number of them are also on the map of Slovenia (1:25,000). Some of them are in old cadasters, as well.

The creation of the world proceeded as follows: Sometimes in the timeless time lived *Nikrmana* in the non-world, where shined many stars, moons and suns. The life was there rich and diverse. Because there was not enough room, *Nikrmana* planned to move part of that somewhere else. She recalled to her mind the Earth, where the darkness dominated and she sent there few stars. To know the effect she sent there the golden eagle. Upon return, the golden eagle reported that part of the Earth is still too dark. She sent there an additional moon. After the next visit the golden eagle reported that the moon is unsure since there shines sometimes only a half of it, next time the whole, the third time the moon is not there since it throws light to other parts of the Earth. To solve the lighting of that part of the Earth *Nikrmana* sent there the sun. Then the eagle reported that there is plenty of light. During the next days, *Nikrmana* sent big, heavy clouds full of water. They circulated for weeks above that part of the Earth and wetted it so that there appeared the rivers *Soča*, *Idrija*, *Bača* and other ones, as well as many brooks and springs. The thunderbolts brought there the fire. When there was enough water, *Nikrmana* sent there many white clouds full of seeds of diverse plants and trees. In order that the sowing would be successful there came to help the *vetrni duh* [wind spirit]. Soon the Earth became green and overgrown. It was the time for the migration of all kinds of animals from the non-world. There were formed tens of rainbows of all sizes, which helped the animals to drop slowly onto meadows, forests, brooks and rivers. There were lacking only the people, therefore *Nikrmana* sent two young pairs on a big red cloud, which slowly let off to the Earth. When the cloud arrived close to the present village *Vogrinski*, both pairs prepared to get out the cloud. As one pair got out, a strong wind started to blow and pushed the cloud east, beyond the village *Trebuša*. There the cloud touched the Earth and the second pair could exit. After the offspring of the two pairs met and mixed, there were formed the present inhabitants at the rivers *Trebušica*, *Idrija*, *Bača* and *Soča*.

There were given feminine names to the rivers and masculine names to the brooks flowing into them. Their confluences were considered to have special healing properties.

For prevention from iddle natural and spiritual influences served in this region a number of features named *tročan* (a triangular feature, especially a rectangular triangle), where in the corners of the highest-level *tročan* there were the holy hilltops, holy precipisses, or holy caves. In the corners of a lower level *tročan* there were also holy trees (*vrhini*), holy rocks, especially those called *matjar* (pron. ma:tyá:r), as well as other holy stones. The *matjars* had their own names.

There were several levels of the *tročan* features, from the regional ones to the local ones, e.g. of each building, and a lower level *tročan* was placed in accordance to the higher-level ones. The buildings were oriented in accordance to the higher-level *tročan*.

For the same reason served *kačje glave* i.e. special stones in form of the snake-head into which the holes for the eyes were drilled and filled with one or another special material.

The most important materials in this *staroverstvo* were stone and wood.

There were worshipped also some holy snakes, especially *bele kače* [white snakes]. Nonpoisonous snakes, especially the grass snake, served as home pets, which in the dwelling places, larders and around them were catching mice, cockroaches, poisonous snakes and other unwanted small animals, but did not eat or spoil the stored foodstuffs and were not harmful to people and domestic animals. The oral tradition does not link them to the arrival of agriculture, so it seems that the use of them was a necessity already at the time of hunters/gatherers.

They believed into higher powers and higher worlds. Especially important were the third power and the fifth power as well as the third world and the fifth world.

They believed in reincarnation. Those who lived in accordance with the rules of *staroverstvo* could decide by themselves into which being goes his/her *zduhec* [the soul] after their death. The choice was often a bird, especially an eagle, a bat, a butterfly, a dragonfly, etc. There was also possible to go to the third or finely to the fifth world. In the fifth world there always shines the sun and there is eternal spring. However, it was not possible to go out the fifth world to other worlds. This indicates some similarity with the Indic *nirvana*.

After the *zduhec* left it, the body of the deceased was no more important. After its burial, the grave was possibly marked with a stone, rarely visited and not adorned.

The people used to respect the seven commands:

- Respect yourself and equally all the people.
- Do not take what belongs to the others unless you are in danger of life, but take only enough to survive.
- Kill only when you and your people are attacked.
- Work so much that you live decently. Help generously those who cannot do this.
- Honesty is the greatest virtue of a man. Lie is the strongest poison that kills.

- Without love, there is no life.
- Respect your own language and the habits of your ancestors.

The faithful persons, especially those of higher rank, were obliged to visit holy places each year. For males that was a holy mountain, e.g. the *Jelenk*. For females there served this purpose some holy caves. Everyone should bring from time to time his gift to one or another holy place in his vicinity.

They had their own regional organizations, the borders of which were defined by natural features, which were not easy to cross, e.g. deep valleys, high mountains. The regional leader was *dehnar*. He was first of all a spiritual leader, helping or advising the people, suggesting a solution in the case of conflict.

Dehnar was helped by the three *zapriseženi* [the sworn in]. He selected two of them, whereas the community elected the third one. Before he died, *dehnar* decided who of the *zapriseženi* is the most appropriate to become the next *dehnar*. He was protected by the *črna vahta* [black guard]. The *dehnarji* (*dehnars* of the neighboring communities) gathered from time to time on a holy mountain to solve the problems appearing within their communities or between them.

This Old Religion was tolerant to the Christianity. However, since the Christians persecuted them for centuries, they were living in a deep illegal situation and *dehnar* was mainly helping and advising the people.

4. *Kraško staroverstvo* - The Pre-Christian Religion in the Karst Region

Kras - the Karst region is in the southwest part of Slovenia near the city Trieste (on the Map 1 it is the light blue area below the mark GO in the yellow ellipse). About the pre-Christian religion in that region reported Čok (2012, 2016). Hrobat Virloget (2016) discussed it in view of the East Slavic pre-Christian religion.

There were mentioned the deities (*Triglav*, *Deva*, *Devač*, *Kres*, *Svarožič*, *Dajbog* (*Dajbugec*), *Makurška*, and *Mora*), the beings (*Intava*, *Vedomec*, *Besi*, *Vilež*, *Štrige*, *Šembilja*, and *Krvavo stegno*), the important toponyms (*Triglavca*, *Trhlovca* (*Terglouca*, *Triglouca*), *Čuopa*, *Gluhi du*, *Uruče*, *Kres*, *Črne bukve*, *Trebenski kamen*, *Sodna jama*), several rituals, spells, bewitchments and dewitchments, fairy tales, etc.

5. Discussion

The characteristics of the *Posoško staroverstvo* [the Old (pre-Christian) religion around the Soča River valley] were for example the single female god vs. male spirits, female rivers vs. male brooks, the basic importance of rocks and trees, of stone and wood, the religion knowledge and practice of females separate from that of males. They indicate a very old origin of it, in the times of matriarchate and Paleolithic. The choice of stones indicates the continuity of the Stone Age tradition since there were revered and used such stones as they were observed in finds from the Stone Age.

In view of the independent novel observations as put together by Perdih (2013, 2016, 2018, 2019, 2021) it is indicated that the roots of the *Posoško staroverstvo* derive from more than 70,000 years ago in this and surrounding regions. The independent novel observations are i.a.

- The cosmogenic mega-tsunami of 71,000 to 57,000 years ago, most probably about 68,000 years ago, coincident with MIS 4 (Yurkovets, 2015, Yurkovets & Vasilenko, 2017), which devastated most of the continents but leaved in Europe intact the area from the Alps till the Carpathian mountains including the three regions of present Slovenia mentioned above, cf. Perdih (2018, p. 20, Map 2);

- The observation in old skeletons across Europe of the Y chromosome haplogroups (in parentheses the approx. time of their formation (YFull), years ago): BT (130,700), CT (88,000), C (65,900), F (65,900), HIJK (48,500), IJK (48,500) as well as IJ (47,200), I (42,900) reported by Fu et al. (2016), Mathieson et al. (2017), Lipson et al. (2017), Olalde et al. (2018).

These authors reported in aDNA in Europe the observation of the Y chromosome haplogroups of the almost whole series from BT to I, i.e.. BT > CT >> F >> HIJK > IJK > IJ > I.

On the other hand, individuals having the haplogroup BT lived in Europe still about 5,000 years ago, those having the haplogroup CT still about 4,000 years ago, and those having the haplogroup IJ still about 7,000 years ago (Mathieson et al. 2017).

Slovenia was populated in Paleolithic and later (Laharnar, 2018). There have been observed in Slovenia also the Mesolithic tools even high in the mountains.

During the Last Glacial Maximum the snow-line in Slovenia was at the height of about 1,700 m above the sea level with glaciers in the shady valleys, whereas the lowlands of Slovenia were part of the Adriatic refuge resp. the Balkan refuge.

The oldest archaeological finds were observed in Slovenia in the *Divje babe* [Wild Hags] cave in western Slovenia, exactly in the region of the *Posoško staroverstvo*. There was excavated *i.a.* an about 60,000 years old flute made of a bear bone. Dimkaroski (2014) was able to display using it a scale of 37 semitones. Due to the tools accompanying the flute, Brodar (1999) ascribed it to be made by modern humans, who according to Yurkovets and Vasilenko (2017) would have survived in this region the cosmogenic mega-tsunami of about 68,000 years ago. This sophisticated flute made of bone indicates that simpler flutes made of bark, wood and similar perishable materials were in use by humans already much earlier.

The old religion *Posoško staroverstvo* was practiced in the region, where there existed the oral tradition about the Slovene queen Vida, who together with her troops survived in the *Landarska jama* [the Cave of Landar] the attacks of the warriors of Attila the Hun. This happened around 450 AD, *i.e.* a century before the alleged arrival of Slavs there. In addition, in the Slovene dialect of this region Kurkina (1996) noticed very archaic Slavic characteristics.

Kraško staroverstvo - the Karst old religion has besides some characteristics of the *Posoško staroverstvo* also several eastern Slavic pre-Christian religious characteristics. Since the agriculture arrived Slovenia first into the Karst region about 7,500 years ago (Velušček, 2014), there is the question whether the eastern Slavic pre-Christian religious characteristics arrived into the Karst region as well as into the Eastern Europe with agriculture from the Near East. Archaeological data (Turk, 2018) indicate that many hill-forts in this region started to be built about 4,500 years ago. This is coincident with the advance of the Bell Beaker culture and the Y chromosome haplogroup R1b-L23-L151 people into the Western Europe. The Slovene oral tradition of *Kralj Matjaž* [King Mathias], who fought the enemies intruding Slovene territories from west (Stele, 2005) is coincident as well.

Regarding the *Dolenjsko staroverstvo* [the pre-Christian religion in the region of Lower Carniola] and the hill-fort - bird-hill pairs observed there, Sever (2003, 2004, 2008, 2009, 2013, 2017) supposed that it lasted continuously from the Iron Age on, when the region was rich due to the iron production. However, there were erected several hill-forts already about 6,500 years ago (Turk, 2018). This was contemporary with the destructions on the territory of present Bulgaria (Ivanova, 2006). In *Dolenjska* [Lower Carniola], there existed also the oral tradition about the very dangerous dog-head warriors and werewolves endangering the inhabitants (Jurčič, 1865). The small amount of the Y chromosome haplogroup R1b* in this region only (Zupan, Vrabc, & Glavač, 2013) indicates the intrusions and robbing of the Y chromosome haplogroup R1b people living in the regions between the Volga river and the Black Sea, where later the Yamna culture was developed by their descendants having the haplogroup R1b-L23-Z2103. In the western Slovenia, *i.e.* in the region of *Posočje* and *Kras*, the inhabitants erected the hill-forts later, after about 4,500 years ago (Turk, 2018). There are observed among others the now west-European haplogroups R1b-L23-L151-U152 resp. R1b-L23-L151-U108 (Zupan et al. 2013), deriving from south of the Alps resp. north of the Alps, comparable to Zieger and Utz (2020) for the situation in Switzerland. These haplogroups were formed after the arrival of the Y chromosome haplogroup R1b-L23-L151 people across the northern Africa into the western Europe about 4,800 years ago (Klyosov, 2016-2019).

The remnants of the old pre-Christian religion in different parts of Slovenia are different from the eastern Slavic pre-Christian religion. Like the other data (Perdih, 2018) they indicate that there was no arrival of Slavs into the territory of the present Slovenia in the 6th/7th Century AD but that the Slovenes were the aboriginal population in Slovenia and elsewhere in Europe as well.

The available data allow presenting the following course of events in Slovenia:

- Survival about 68,000 years ago of people having the Y chromosome haplogroups BT, CT, CF and the mitochondrial haplogroup U.
- Formation of the Y chromosome haplogroup I about 43,000 years ago.
- About 20,000 ago the formation of the Y chromosome haplogroups R1a and R1b in Central Asia.
- Survival of the Last Glacial Maximum and subsequent spread of the Y chromosome haplogroup I people across the rest of Europe.
- Movement of people having the Y chromosome haplogroup R1b from Central Asia west till the middle Volga River in present Russia about 13,000 years ago and sending the spies as far as Western Europe. Development of the pre-Kurgan and Kurgan cultures.
- Movement of people having the Y chromosome haplogroup R1a from Central Asia west till the Near East. Their appearance in the northern part of the Central Europe as the bearers of the Corded Ware culture. Their bovine pastoral way of life (Skulj, Sharda, Narale & Sonina, 2006) is indicated up to that time and later also elsewhere.
- After about 8,000 to 6,000 years ago, arrival of agriculture into Central Europe. The bearers were mainly males having the Y chromosome haplogroup G2a and females having several mt-haplogroups observed now. Development of

metallurgy there.

- In some areas mixing with previous inhabitants and development of new cultures.
- About 6,500 to 5,900 intrusions of the Y chromosome haplogroup R1b people from the Eastern Europe into the territory of present Bulgaria, including to the eastern Slovenia. Destruction of the lowland settlements, eradication of most of the Y chromosome haplogroup G2a people, and moving part of them, especially the miners and metallurgists to the east of the Black Sea. As the defense against them, the erection of hill-forts in eastern and central Slovenia.
- Subsequent expansion of the Y chromosome haplogroup R1b people from the Eastern Europe south as far as Egypt and Central Africa, and across the northern Africa west, arriving the Iberia about 4,800 years ago forming there the Bell Beakers culture.
- About 4,500 to 3,500 years ago their expansion north across the Western Europe and intrusions into the Central Europe including the western Slovenia and the Pannonian Plane. Eradication of previous males wherever possible.
- About 4,100 years ago arrival into Slovenia of the Y chromosome haplogroup R1a people, the bearers of the Corded Ware culture from the north-central Europe.
- About 3,000 years ago the Iron Age and the growth of the Slovene population.
- Between 2,200 and 1,900 years ago the Roman conquest of Slovenia and the Balkans. Gradual flights of parts of the inhabitants north and east across the Carpathian Mountains. Decrease of the previous population.
- Towards the end of the 5th Century AD the retreat of the Roman population into Italy. After 530 AD arrival of Langobards as the Byzantine federati.
- After the departure of Langobards into present Italy in 568 AD, the Slovenes got free. However, their organization was only local without a central government. They were so depopulated that they could not resist for long the occupation by Avars, Franks, Hungarians, and Venetians.
- Subsequently, the population growth including some influx of the Y chromosome haplogroup R1b and other people.
- No arrival of Slavs from the east, except a small militarily organized part of ancestors of present Croats and Serbs around 630 AD who imposed subsequently their own identity to the previous inhabitants.
- In 1991 AD, Slovenia liberated forming an independent state.

6. Conclusions

Presented are the known details of the *staroverstvo*, i.e. about the Old Religion, the pre-Christian religion in three regions in Slovenia. *Staroverstvo* was practiced in secret till recently and some traces of it are still perceived and researched. The most archaic of them is the *Posoško staroverstvo* - the Old Religion around the upper Soča River valley. For it is characteristic the single, female god, the Great Mother, a number of spirits, the importance of triangular features, rocks, caves, stone and wood, of way of life in peace, of reincarnation of souls. The *Kraško staroverstvo* - the Old Religion in the Karst region is intermediate between it and the East Slavic pre-Christian religion. In it is indicated the influence of the arrival of agriculture about 7,500 years ago. The *Dolenjsko staroverstvo* - the Old Religion in Western Lower Carniola reflects the Iron Age situation. Characteristic for it is the revering of waters as well as the bird-hills near the hill-forts. The hill-forts started to be erected on the intrusions from east of the Y chromosome haplogroup R1b* people about 6,500 years ago. The bird-hills served the birds, which would carry the soul of the deceased into the other world, possibly onto the other side of the moon.

These three types of *staroverstvo* in Slovenia indicate that the Slovenes are the descendants of the aboriginal population of Slovenia. In Slovenia are present the males having the aboriginal European Y chromosome haplogroup I. The Y chromosome haplogroup R1a people arrived Slovenia about 4,100 years ago as the bearers of the Corded Ware culture. The Y chromosome haplogroup R1b people arrived Slovenia in several waves. The Y chromosome haplogroup R1b* people arrived about 6,500 years ago from east. The Y chromosome haplogroup R1b-U152 people were arriving after about 4,500 years ago up to recently from west and the Y chromosome haplogroup R1b-U108 people from north. These data are in line with the indication of the *staroverstvo* that there is no trace of the migration of Slavs into Slovenia in the 6th/7th Century AD from east of the Carpathian Mountains. Thus, the ancestors of Slovenes were aboriginal in Slovenia.

Acknowledgement

Devoted to the memory of the late Leopold Sever and Pavel Medvešček - Klančar.

References

- Baš, A. (2004). *Slovenski etnološki leksikon [The Slovene ethnologic lexicon]*, Ljubljana: Mladinska knjiga.
- Brodar, M. (1999). Die Kultur aus der Höhle Divje babe 1. *Arheološki vestnik*, 50, 9-57;

<http://av.zrc-sazu.si/Si/50/Brodar50.html>

- Čok, B. (2012, 2016). *V siju mesečine [In the moonshine]*, Ljubljana: Založba ZRC (Studia mythologica Slavica - Supplementa, Supplementum 5, Kropelj Telban, M., Pleterski, A., & Nartnik, V., Eds.),
- Dimkaroski, L. (2014). Glasbena raziskovanja piščali. Od domneve do sodobnega glasbila [Musical research of the flute. From presumption to the modern musical instrument]. In I. Turk (Ed.), *Divje babe I, 2. del* (pp. 205-222). Ljubljana: Opera Institutu Archaeologici Sloveniae 29. <https://doi.org/10.3986/9789610503446>
- Fu, Q., Posth, C., Hajdinjak, M., Petr, M., Mallick, S., Fernandes, D., ... Reich, D. (2016). The genetic history of Ice Age Europe. *Nature*, 534, 200–205. <https://doi.org/10.1038/nature17993>
- Hrobat, V. K. (2016). Outlines of the mythic characters in the villages of Lokev and Prelože in the context of Slavic mythology. In B. Čok (2016), *V siju mesečine [In the moonshine]* (pp. 173-182). Ljubljana: Založba ZRC (Studia mythologica Slavica - Supplementa, Supplementum 5, Kropelj Telban M, Pleterski A, & Nartnik V, Eds.).
- Ivanova, M. (2006). Tells, Invasion Theories and Warfare in Fifth Millennium B.C. North-Eastern Bulgaria, *Journal of Conflict Archaeology*, 2, 33-48, <https://doi.org/10.1163/157407706778942277>
- Jurčič, J. (1865). Deklica in psoglavci [The girl and the dog-head warriors], *Slovenski glasnik*, 239. As well as: Jurčič, J. (1947). *Zbrano delo I* (M. Rupel, Ed.), (pp. 16-18; 52). Ljubljana: Državna založba Slovenije.
- Klyosov, A. A. (2016). *ДНК-генеалогия от А до Т [DNA Genealogy from A to T]*. Москва: Книжный мир.
- Klyosov, A. A. (2017). *История ариев и эрбинов. Европейский Запад против европейского Востока [History of Aryans and Arbins. European West against European East]*. Москва: Концептуал.
- Klyosov, A. A. (2018). *DNA Genealogy*. Scientific Research.Publishing
- Klyosov, A. A. (2019). *ДНК-генеалогия славян: происхождение и история [DNA-genealogy of Slavs: origin and history]*. СПб.: Питер.
- Kurkina, L. V. (1996). O лексических архаизмах Толминского диалекта [On the lexical archaisms in the dialect of Tolmin], *Razprave II. razreda*, Ljubljana: Slovenska akademija znanosti in umetnosti (*Dissertationes classis II*, Academia scientiarum et artium Slovenica), 15, 35-46.
- Lipson, M., Szécsényi-Nagy, A., Mallick, S., Pósa, A., Stégmár, B., Keerl V., ... Reich, D. (2017). Parallel palaeogenomic transects reveal complex genetic history of early European farmers. *Nature*, 551, 368-372. <https://doi.org/10.1038/nature24476>
- Laharnar, B. (2018). Gradišča med Nanosom in Snežnikom [Hill-forts between Nanos and Snežnik]. In: D. Vončina (Ed.), *Gradišča v osrednji in zahodni Sloveniji [Hill-forts in central and western Slovenia]* (pp. 27-47). Gorjansko: Zavod Krasen Kras.
- Mathieson, I., Lazaridis, I., Rohland, N., Mallick, S., Patterson, N., Roodenberg, S. A., ... Reich, D. (2015). Eight thousand years of natural selection in Europe. *Nature*, 528, 499–503. <https://doi.org/10.1038/nature16152>
- Medvešček, P., & Podobnik, R. (2006). *Let v lunino senco [The flight into the Moon's shadow]*, Nova Gorica: Taura.
- Medvešček, P., & Skrt, D. (2014). *Staroverstvo in staroverci: Katalog etnološke zbirke Pavla Medveščka [Old religion and its adherents: Catalogue of the ethnologic collection by Pavel Medvešček]*. Nova Gorica: Goriški muzej Kromberk.
- Medvešček - Klančar, P. (2015). *Iz nevidne strani neba: razkrite skrivnosti staroverstva [From the invisible side of the sky: The secrets of the Old Religion uncovered]*. Ljubljana: Založba ZRC (Studia mythologica Slavica - Supplementa, Supplementum 12, M. Kropelj Telban, A. Pleterski, & V. Nartnik, Eds.). <https://doi.org/10.3986/9789612548490>
- Medvešček, P., & Skrt, D. (2016). *Staroverstvo in staroverci: Katalog etnološke zbirke Pavla Medveščka 2 [Old religion and its adherents: Catalogue of the ethnologic collection by Pavel Medvešček 2]*. Nova Gorica: Goriški muzej Kromberk.
- Olalde, I., Brace, S., Allentoft, M. E., Armit, I., Kristiansen, K., Rohland, N., ... Reich, D. (2017). The Beaker Phenomenon and the Genomic Transformation of Northwest Europe. *Nature*, 555, 190–196. <https://doi.org/10.1038/nature25738>
- Perdih, A. (2013). *Izvor Slovencev in drugih Evropejcev [Origin of Slovenes and other Europeans]*. Ljubljana: Založništvo Jutro, www.jutro.si
- Perdih, A. (2016). *Izvor Slovencev in drugih Evropejcev [Origin of Slovenes and other Europeans]* (2nd, revised ed.).

Ljubljana: Založništvo Jutro, www.jutro.si

- Perdih, A. (2018). Continuity of European Languages from the Point of View of DNA Genealogy. *International Journal of Social Science Studies*, 6, 18-32. <https://doi.org/10.11114/ijsss.v6i1.2809>
- Perdih, A. (2019). Past events on the territory of present Slovenia. *Вестник Академии ДНК-генеалогии [Proceedings of the Academy of DNA Genealogy]*, 12, 1785-1794.
- Perdih, A. (2021). *Izvor Slovencev in drugih Evropejcev [Origin of Slovenes and other Europeans]* (3rd, revised ed.). Ljubljana: Založništvo Jutro, www.jutro.si
- Sever, L. (2003). *Iskal sem prednamce [I Looked for Our Forefathers]*. Turjak.
- Sever, L. (2004). *Pozabljene vode [Forgotten Waters]*. Ivančna Gorica: Turistično društvo.
- Sever, L. (2008). O imenih našega vodovja [The Names of Our Waters]. *Zbornik občin Grosuplje, Ivančna Gorica. Dobrepolje*, 25, 129-139.
- Sever, L. (2009). *Prazgodovinski svatje in mi [Prehistoric Wedding Guests and Us]*. Ivančna Gorica: Turistično društvo.
- Sever, L. (2013). *Tičnice iz naravoverja: zanesljivi kažipoti v slovensko prazgodovino [Bird-hills from Natural Religion: Reliable Waymarks of Slovene Prehistory]*. Male Lipljene.
- Sever, L. (2017). *Male Lipljene: vas ki je ravno prav [Male Lipljene: the Just Right Village]*. Male Lipljene.
- Skulj, J., Sharda, J. C., Narale, R., & Sonina, S. (2006). 'Lexical Self –Dating' Evidence for a Common Agro-Pastoral Origin of Sanskrit 'Gopati', 'Gospati' and Slavic 'Gospod', 'Gospodin' Meaning *Lord/Master/Gentleman* more than 8,000 Years Ago. *Vedic Science*, 8, 5-24; as well as: *Zbornik četrte mednarodne konference Evropski staroselci*, Jutro, Ljubljana, 40-58; <http://www.korenine.si/zborniki/zbornik06>
- Stele, F. (2005). *Slovenija z dlani*. Komenda.
- Šavli, J. (2008a). *Zlata ptica: Bajeslovje Slovencev, duhovna dediščina Karantanije [Golden Bird: Mythology of Slovenes, the spiritual heritage of Carantania]*. Bilje: Studio RO - Humar
- Šavli, J. (2008b). *Zlati cvet: Bajeslovje Slovencev, duhovna dediščina Karantanije [Golden Blossom: Mythology of Slovenes, the spiritual heritage of Carantania]*. Bilje: Studio RO - Humar
- Turk, P. (2018). Neolitska gradišča v osrednji Sloveniji [Neolithic hill-forts in central Slovenia]. In: D. Vončina (Ed.), *Gradišča v osrednji in zahodni Sloveniji [Hill-forts in central and western Slovenia]* (pp. 13-25). Gorjansko: Zavod Krasen Kras.
- Velušček, A. (2014). Absolutna kronologija slovenskega neo- in eneolitika - prispevek za razpravo [Absolute Chronology of the Slovenian Neo- and Eneolithic - Contribution to the Discussion]. In B. Teržan & M. Črešnar (Eds.), *Absolutno datiranje bronaste in železne dobe na Slovenskem [Absolute Dating of the Bronze and Iron Ages in Slovenia]* (629-644). Ljubljana: Narodni muzej Slovenije, Filozofska fakulteta Univerze v Ljubljani.
- YFull, <http://www.yfull.com/tree/>
- Yurkovets, V. P. (2015). Климатическая катастрофа гаплогруппы «Бета» [Climatic catastrophe of the haplogroup «Beta»]. *Вестник Академии ДНК-генеалогии [Proceedings of the Academy of DNA Genealogy]*, 8, 376-432.
- Yurkovets, V. P., & Vasilenko, S. I. (2017). ДНК-генеалогия, палеоклимат и геоморфология. Гидродинамический карст [DNA Genealogy, Paleoclimate and Geomorphology. Hydrodynamic Karst]. *Вестник Академии ДНК-генеалогии [Proceedings of the Academy of DNA Genealogy]*, 10, 1412-1442.
- Zieger, M., & Utz, S. (2020). The Y-chromosomal haplotype and haplogroup distribution of modern Switzerland still reflects the alpine divide as ageographical barrier for human migration. *Forensic Science International: Genetics*, 48, 102345. <https://doi.org/10.1016/j.fsigen.2020.102345>
- Zupan, A., Vrabec, K., & Glavač, D. (2013). The paternal perspective of the Slovenian population and its relationship with other populations. *Ann Hum Biol*, 40, 515–526. <https://doi.org/10.3109/03014460.2013.813584>

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Investigating the Effects of Sociodemographic Characteristics on Psychological Factors That Impact on Educational Process of Adult Learners in Second Chance Schools in Greece

Georgia Karakitsiou,¹ Anna Tsiakiri¹ & Katerina Kedraka^{1,2}

¹Democritus University of Thrace, Thrace, Greece

²Hellenic Open University, Patra, Greece

Correspondence: Karakitsiou Georgia, Democritus University of Thrace, Thrace, Greece.

Received: April 20, 2021 Accepted: May 13, 2021 Online Published: May 18, 2021

doi:10.5539/res.v13n2p122

URL: <https://doi.org/10.5539/res.v13n2p122>

Abstract

The present study deals with the influence of various psychological factors faced by adults during the educational process at Second Chance Schools in Greece. We studied how the feelings of shame, anxiety and depression were associated with the demographic characteristics of the adult learners of these schools. Ninety-five trainees took part in the research whose results indicated that socio-demographic characteristics have an impact on psychological factors that can contribute to the educational process of adult learners.

Sex and marital status were related to the feeling of shame (especially the body shame) and this may be an inhibitory factor to initial integration in or continuation with the studies in SCSs. Single and employed individuals were less vulnerable to development of depression and anxiety disorders, which has been found to have a negative effect on academic achievement. Based on such aspects, counseling approaches and interventions could be designed and implemented by Counselors Psychologists to improve the counseling services provided by the SCSs.

Keywords: adult learners, Second Chance Schools (SCSs), shame, anxiety, depression, educational process

1. Introduction

The operating framework of Second Chance Schools in Greece and globally

Second Chance Schools were set up following a proposal by the European Commission for Education and Training. They aim to reduce the social and educational exclusion of disadvantaged young people (European Commission, 1996). In Greece, Second Chance Schools were enacted by Law 2525/97 (Government Gazette 188/1997); they aim to enroll young people aged above 18 years and have not completed the Compulsory Nine-Year Education.

Second Chance Schools (SCS) in Greece are governed by three basic operating principles: flexibility in the use of the teaching aids, support provided to trainees in general and being run by staff who have undergone in-depth scientific training. In these schools, their educational process encourages cooperation with and joint actions with other bodies, cultivation of social skills, emphasis on the acquisition of new knowledge and development of a flexible curriculum. Second Chance Schools attain these principles by focusing on the individual profile of each trainee (Government Gazette 1861/2014).

Second Chance Schools are located throughout the European Union. France was the first country to establish and operate SCSs in 1997 which then served as a model for the establishment of many SCSs throughout Europe. However, these schools' frameworks are not identical in all countries, several factors (political, economic, social) influence the operation of these schools (Arico & Lasselle, 2010).

Many countries then implemented Second Chance School pilot programs. By 2000, the number of SCSs in the European Union exceeded 300. Among the EU countries that established such schools are England, Spain, Germany and Italy. Outside the European Union, countries such as Algeria, Argentina, Brazil, Australia, Romania and Tunisia also established SCSs (Stoilescu & Carapanait, 2011; Ross & Gray, 2005).

In countries where the specific school frameworks have been established, they operate differently. They are tailored to different target groups and use different educational practices in each case, all of them move under a main axis. Second Chance Schools, all over the world move under a main axis. They are used as levers to integrate marginalized people into mainstream society (Margara & Anagnou, 2008).

In all Second Chance Schools worldwide, their initial goal is to reconnect with educational systems while their ultimate goal is to combat unemployment and marginalization (European Commission, 2001). Many studies conducted in the literature show that to a large extent, the primary goal of Second Chance Schools has been largely achieved (Smyth & Hattam, 2004; Wyn, Stokes, & Tyler, 2004; TeRiele, 2000).

Second Chance Schools are also seen as an additional opportunity for people who due to having experienced school failure, face social and emotional isolation and exclusion (Munns & McFadden, 2000). Numerous studies show that SCS structures significantly contribute to strengthening of "social capital" (Ross & Gray, 2005).

In Greece, the basic principles of Adult Education have been applied in Second Chance Schools (Kokkos, 2005). Additionally, transformative learning is employed to address the dysfunctional and stereotypical perceptions in which a person is trapped in during his lifetime (Kokkos, 2017; Mezirow et al., 2007). Another very crucial innovation in SCS structures is that they are transformed from places of "knowledge transfer" to places of "knowledge production" (Vergidis, 2003). This transformative process is attained by the use of an open and flexible curriculum (Vergidou, Vergidis, & Ifanti, 2018).

The in-depth study of issues related to lifelong education is extremely important to all societies. This is especially so where research addresses the impact of education among vulnerable groups and how to facilitate educational process for such groups. Lifelong learning aids in completion of the basic compulsory education, the reconnection of its trainees to educational systems, participants' social and economic development, enhancing participants self-esteem and the improvement of their position in the workplace (Asimaki, Kiriazopoulou, & Vergidis, 2016; Vergidis et al., 2007; Vergidis & Prokou, 2005). By completing their education, the trainees are expected to significantly improve their cooperation, problem-solving ability, initiative and synthetic skills (Marmarinos, Sakellari, & Tzoumaka, 2008; Glaroudi & Katsani, 2008). An investigation into the factors that interfere or facilitate educational process in specific educational contexts will provide knowledge that can improve SCS and the social and economical status of the adult learners.

Theoretical perspectives

Empowerment through the educational process

Adult Education, as a scientific field, can serve as a starting point for human development worldwide (Kasworm, Rose, & Ross-Gordon, 2010). The process of Adult Education develops active citizens in the society who are informed about a variety of issues as shown by the Hamburg Declaration. In Greece, basic education is defined as the successful completion of kindergarten, primary and secondary school. Basic education should be an inalienable right for all citizens globally regardless of age, gender, origin, and nationality. Therefore, Adult Education should be given as much attention as that given to the education of minors (Unesco, 1997).

Among persons who have not completed basic education, empowerment can be attained through undergoing Adult Education (Leve, 2001). Learners are empowered by the acquiring basic skills, undergoing training, by using the transformative theory of learning and promoting critical thinking (Papaioannou & Gravani, 2018). Through education, adult learners undergo fundamental structural changes and significantly expand their horizons, so that they can successfully cope with everyday challenges (Merizow, 1991).

Specifically, empowerment occurs when education is provided to marginalized populations (Apple, 2004). In the sector of Adult Education, it is found that adult learners feel more empowered on an interpersonal and personal level after completing educational programs (Prins, 2008). Thus, education can be used as a tool to address the social exclusion of socially vulnerable groups (Kump & Krasovec, 2007; Bowman & Burden, 2002).

The experience of shame

The concept of shame refers to an individual's acceptance of the existence of a "defective self" (Tangney & Dearing, 2002). According to Lewis, the person who is ashamed has the need to hide from his environment, feels angry, uncomfortable, worthlessness and inadequate finally completely personifies these thoughts such that he loses his ability to think and act in a healthy manner. (Lewis, 2003). Generally, shame is a painful emotion and the person experiencing shame feels like he has committed an immoral, dishonest or inadmissible act (Lewis, 1971).

Shame is fundamental in self and the social development of the individual as it largely impacts on his or her psychological adaptation to various conditions (Mills, 2005). There appears to be a correlation between shame and psychopathology, however, the exact interaction between the two factors has not been clarified to date (Andrews et al., 2002). Furthermore, high levels of shame can negatively affect not only an individual's mental development but also his or her physical development (Kemeny, Gruenewald, & Dickerson, 2004). A study by Bosma and his colleagues found a positive correlation between low educational attainment and feelings of social inadequacy and shame. People who had attained at lower levels of educational reported more intense feelings of shame when compared to people with higher levels of education (Bosma et al., 2014).

Depression

Depression is a mood disorder that significantly affects the functionality of the individual in many areas of everyday life (American Psychological Association, 2013). According to the World Health Organization, depression is a contributor to dysfunction worldwide: two hundred and sixty-four million people of all ages around the world suffer from depression. Women are more likely have depression when compared to men and severe form of this disease can lead to suicide (World Health Organization, 2020). Depression can significantly affect the psychosocial dimension of human existence, especially if it is not detected and treated in a timely manner (Lecrubier, 2001).

The degree and direction of the relationship between education and depression has already been established and investigated for decades (Dohrenwend et al., 1992; Holzer et al., 1986; Adler et al., 1994). Research that has taken place clearly shows a positive correlation between low educational attainment and depression in adulthood (Miech & Shanahan, 2000).

Anxiety

Anxiety is a feeling that most people experience or have experienced especially in this day. In many cases, this feeling, depending on its intensity, may be a driving force for an immense serious decrease in an individual's functionality (Horwitz, 2013; Atif et al., 2016).

The transition from simple stress to the onset of an anxiety disorder occurs when the subjective feeling experienced is intense and disproportionate its cause and it impact a person's daily functionality. Anxiety disorders are the most common mental illnesses (Kessler et al., 2005 & Quilty et al., 2003).

The exact relationship between a low level of education and anxiety has not been established (Bjellant et al., 2008). However, research data shows strong evidence that people without a completed basic education experience higher levels of anxiety when compared to those with a higher level of education (Miech et al., 1999; Andrews et al., 2001).

The main research questions include:

- Do the trainees of Second Change Schools in Greece experience feelings of shame based on to their socio-demographic characteristics?
- Do the trainees of Second Change Schools in Greece experience feelings of depression based on to their socio-demographic characteristics?
- Do the trainees of Second Change Schools in Greece experience anxiety disorders based on to their socio-demographic characteristics?

2. Method

A request to conduct of the research submitted by the research team was approved by the Ministry of Education, General Secretariat for Lifelong Learning, Directorate for Lifelong Learning, and the Department of Curriculum and Study Programs. Consent was also sought from the Directors of both SCSs before informing potential participants about the research purposes and processes.

The participants were all SCSs trainees selected based on the following eligibility criteria: a) aged > 18 years, b) an ability to speak and understand the Greek language and c) voluntary participation in the study.

Data collection was done using four different data collection tools:

Demographic data questionnaire: this collected information about age, gender, religious beliefs, marital and occupational status.

Experience of Shame Scale-ESS (Andrews B., Qian M., Valentine J. D., 2002).

The ESS is a self-reported questionnaire derived from a semi-structured interview. It enquires whether an interviewee has felt ashamed of his or her specific personal characteristics and behavior (Andrews & Hunter, 1997). It measures a person's tendency to feel ashamed and not to feel guilty. It evaluates shame as a dispositional characteristic and not as a response to specific situations. It consists of 25 items which are rated in a 4-point scale. The items are divided into three subscales: characterological shame, behavioral shame and bodily shame which are scored separately. The scores for each sub scale are then summed up to a total score: higher scores indicate more frequent and/or more intense experiences of shame.

Patient Health Questionnaire - 9 (PHQ-9).

PHQ, a self-administered questionnaire developed on the basis of the clinician-administered Primary Care Evaluation of Mental Disorders (PRIME-MD) (Spitzer, 1994), was translated to the Greek language by Karekla et al. (2012). The PHQ-9 is a 9-item depression module adapted from the full PHQ that is used to diagnose major depression. Respondents

answered nine questions based on a four-point scale, and the sum of the scores can detect zero, mild, moderate or even major depressive disorder. It has been validated for use in primary care (Cameron et al., 2008) and can be used to make a tentative diagnosis of depression in at-risk populations. It will be necessary to emphasize that for reasons of securing the licensing in order to conduct the investigation and according to the instructions of the Ministry of Education it was necessary to modify the questions that investigated the suicidal tendencies of the participants, so as not to raise such personal and sensitive issues.

The State-Trait Anxiety Inventory (STAI) (Spielberger et al., 1983).

The STAI is a commonly used measure of trait and state anxiety. It is used in clinical settings to diagnose anxiety and to distinguish anxiety from depressive syndromes. It is often used in research as an indicator of caregiver distress (Greene et al., 2017, Ugalde et al., 2014). It consists of 20 items that assess trait anxiety and 20 items that assess state anxiety. All items are rated on a 4-point scale with higher scores indicating greater anxiety.

Printed questionnaires were administered to the SCSs trainees at the beginning of May 2019 who after obtaining written informed consent to participate in the research by the Counselor Psychologist at each SCS. Each individual session lasted 30-45 minutes.

There were no interventions used or experimental manipulations done.

Reliability of data collection tools

Reliability indicates stability between different successive measurements assessed using the same tool. The reliability of internal consistency or coherence assesses the degree to which a measuring instrument is homogeneous. This assessment was made using the Cronbach's index; values greater than 0.7 are considered satisfactory (Ouzouni & Nakakis, 2011). The Cronbach's Scale for the Experience of Shame scale was 0.808 on both the overall and individual scales of this questionnaire (Table 1).

Cronbach's score for the Spielberger State Trait Anxiety Inventory was 0.889 on both the overall and individual scales of this questionnaire (Table 2). Finally, Cronbach's Alpha in the Patient Health Questionnaire-9 (PHQ-9) was 0,853 (Table 3).

Data analysis

Research results were recorded in a worksheet in the SPSS statistical package for statistical analysis. We assessed for correlations between the factors gender, age, religion, marital and professional status and scores in both the individual scales and in the overall shame scores.

The existence or non-existence of an association between the scores of the PHQ-9 scale (Patient Health Questionnaire-9) and the factors gender, age, religion, marital and professional status was also assessed.

The correlations between the total and the individual stress scales in the Spielberger Stress Questionnaire and participants characteristics were also evaluated.

3. Results

Participant characteristics

The study sample was comprised of 95 SCSs trainees from two different districts in Northern Greece; 49 people were male and 46 were female. Among them, 37.9% (46) were aged 18-34 years, 49.5% (47) were aged 35-50 years, while the rest 12.6% (12 persons) were aged more than 50 years. Most of the participants were married with children (53.7%;51), 22.1% (21) were single, 12.6% (12) were divorced, 8.4% (8) were married without children and 3.2% (3) were widowed.

As regards their professional status, 42.1% (40) were unemployed, 37.9% (36) were employed in the private sector, 10.5% (10) were employed in the public sector, 6.3% (6) were retired and 3.2% (3) were unable to work as they had a disability certificate from Governmental Disability Certification Centers (Table 4).

The Experience of Shame Scale (ESS)

The table number 5 presents the range of values, the average, the standard deviation and the median value for the three different types of shame: characterological shame, behavioral shame, and bodily shame, and the total score of the Scale for the Experience of (Table 5).

A highly positive and statistically significant correlation was found at a significance level of 0.01 between the gender and physical shame ($r = 0.27$). Women felt higher levels of physical shame when compared to men. A participant's marital status was highly negatively correlated with the overall experience of shame ($r = -0.21$) and with the characteristic shame ($r = -0.21$); this was statistically significant. People who were divorced, unmarried or widowed experienced lower levels of shame (both characteristically and overall) when compared to married people with or without children. There was no correlation observed between other participant characteristics and shame (Table 6).

Depression as measured by the Patient Health Questionnaire-9 (PHQ-9) scale

Finally, the depression factor was assessed with the Patient Health Questionnaire-9 (PHQ-9) scale. The table number 7 presents the range of values, the average, the standard deviation and the median value for each of the 9 items measured on a 4-point scale separately and the total score (Table 7).

A highly negative and statistically significant correlation was found between marital status ($r = -0.24$) and occupational status ($r = -0.23$) and the depression score; this was at a significance level of 0.05. People with fewer family responsibilities had lower levels of depression compared to those with more family responsibilities. Moreover, workers had lower rates of depression when compared to participants who were unemployed (Table 8).

The Spielberger State Trait Anxiety Inventory

The table number 9 presents the range of values, the average, the standard deviation and the median value for firstly State Anxiety which refers to transient anxiety and secondly trait anxiety which refers to the stress experienced by the individual as a permanent condition and for the total score of the Scale for the Experience of Shame (Table 9).

Highly negative and statistically significant correlations were observed between both transient ($r = -0.26$) and permanent stress ($r = -0.26$) and marital status (at a significance level of 0.05). Furthermore, a highly negative and statistically significant correlation between the overall stress score and marital status ($r = -0.28$) was observed (in significance level 0.01). It appears that people with fewer family responsibilities experienced lower levels of stress (transient, permanent, and overall) when compared to people with more family responsibilities.

Furthermore, highly negative and statistically significant correlations were identified at a significance level of 0.05 between both permanent ($r = -0.25$) and total stress ($r = -0.23$) and occupational status. Analyzing the above, it seems that rehabilitated people experience lower levels of total and permanent stress compared to the unemployed (Table 10).

Age and religion were not correlated with any of the factors under investigation. More specifically, there were no correlations between age or religion and shame, depression or anxiety.

4. Discussion

This study illustrated the effect of socio-demographic characteristics on psychological factors which could contribute to educational process experienced adult learners. A participant's gender was related to the feeling of shame: this may be an obstacle to initial integration in or continuation with studies at an SCSs. Based on the typology of barriers to studying in Adult Education proposed by Cross (1981), these barriers are categorised into three groups: situational, institutional, and dispositional. The feeling of shame could be described as a dispositional obstacle, i.e., those related to the perceptions created in learners about their ability to complete the training. On the other hand, family burdens are a typical situational barrier that describes difficulties faced by an adult at a certain period of his life that affect his availability to participate in educational activities. This finding concurs with Rubenson and Desjardins (2009) who showed that situational barriers were more common in women. The participation of individuals in educational programs in the adult phase of their lives may be limited - among other things - by individual characteristics, such as e.g., their sex or age. These barriers, limit an adult's options for lifelong learning.

The effect of gender on body shame was a main finding from this study. The unattractiveness considered that produces shame and loss of interest and pride about our own bodies (Lewis, 2003). According to Gilbert (2005), factors that connect and enhance the feeling of shame include the stress of social interaction, a higher sense of inferiority, a perception of lower social power and a tendency to view oneself less favorably than others. Adult learners experience all these factors. A correlation has been found between marital status and characterological shame, where unmarried, divorced and widowed were more affected than single persons. This point vividly illustrates the impact of social context and environmental conditions on how we react with shame and separates it from the shame we feel due to our innate performance and personality. The study of Leeming and Boyle (2004) also points out this distinction between the effects personal and social factors on experiencing shame.

Our findings align with previous theory and research that has shown that single and employed individuals are less predisposed to development of depression when to married and unemployed persons (Crepet, 1993; Prince, 1999; Pugliesi, 2009; McLaughlin, 2010). Information on these relationships is critical to improving the learning process since depression can affect motivation for learning and an individual's problem-solving efficacy (Lazarus, 1991). Additionally, depression influences how a person manages previous failures and avoids new one failures (Andrews, 2009).

The results of this study also agree with existing published works regarding the anxiety experienced by unemployed and married adults (Bartley, 1994; Lahelma, 1992; Ross, 1995; Wishman, 1999; Scott, 2010). Extensive research has been done on the prevalence of anxiety in educational institutions where anxiety has been found to have a negative effect on academic achievement (Zeidner, 2014).

In Adult Education, learning processes are hampered by psychological barriers faced by adults due to their self-perception and possibly by their own doubts about the environment in which they live. Adults' motivations and aspirations change with time and such psychological barriers can make it difficult for them to participate in educational processes (European Commission, 2012). In the educational conceptual framework, detection of negative emotions is very important and thus it has been linked to learners' assessment, satisfaction and learning performance (Rowe, 2014; Pekrun, 2014). Comprehending such emotions can help develop theoretical and practical strategies to optimize educational processes (Rowe, 2018). Recognizing the diversity of obstacles faced by learners can help advance of appropriate educational methods that are not only adapted to individual needs but are also used to select appropriate training interventions. Any actions that can facilitate understanding of individual needs, characteristics and situations of lifelong learners can improve their access to learning opportunities throughout their lives.

The present study highlighted internal variables that could be related to adults' learning activities. There is a need to overcome barriers to Adult Education to make it feasible and sustainable for all learners regardless of their existent social needs.

Strengths and Limitations

The present study looked into the impact of psychological factors on educational process of vulnerable adult learners. The strengths of the research include the use of discreet and in-depth methods to obtain personal information that may affect one's decision to join a school, and his or her entire school attendance.

There were some limitations. The number of the participants was relatively small, and questionnaires were distributed in only 2 schools in Greece. It is possible the results of this study may not be generalizable to all the SCSs students in the Greek territory.

Acknowledgments

No external funding sources were used to complete this research.

References

- Adler, N. E., Thomas, B., Margaret, A. C., Sheldon, C., Susan, F., Robert, L. K., & Leonard, S. (1994). Socioeconomic Status and Health; The Challenge of the Gradient. *American Psychologist*, 49, 15-24. <https://doi.org/10.1037/0003-066X.49.1.15>
- American Psychiatric Association. (2013). *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.). DSM-5, American Psychiatric Publishing. <https://doi.org/10.1176/appi.books.9780890425596>
- Andrews, B., & Hunter, E. (1997). Shame, early abuse and course of depression in a clinical sample: A preliminary study. *Cognition and Emotion*, 11, 373-381. <https://doi.org/10.1080/026999397379845>
- Andrews, B., Qian, M., & Valentine, J. D. (2002). Predicting depressive symptoms with a new measure of shame: The experience of Shame Scale. *British Journal of Clinical Psychology*, 41(1), 29-42. <https://doi.org/10.1348/014466502163778>
- Andrews, G., Henderson, S., & Hall, W. (2001). Prevalence, comorbidity, disability and service utilization. Overview of the Australian National Mental Health Survey. *British Journal of Psychiatry*, 178, 145-153. <https://doi.org/10.1192/bjp.178.2.145>
- Andrews, P. W. & Thomson, J. A. (2009). The bright side of being blue: Depression as an adaptation for analyzing complex problems. *Psychological Review*, 116, 620-654. <https://doi.org/10.1037/a0016242>
- Apple, M. W. (2004). *Ideology and curriculum* (2nd ed.). New York, London: Routledge. <https://doi.org/10.4324/9780203487563>
- Arico, F., & Lasselle, L. (2010). Enhancing interns' aspirations towards the labour market through skill acquisition: The Second Chance Schools experience. *Sire Discussion Paper* (56). Scottish Institute for Research in Economics. Retrieved from <https://econpapers.repec.org/paper/ednsirdps/651.htm>
- Asimaki, A., Kiriazopoulou, E., & Vergidis, D. (2016). The contribution of Second Chance Schools to the symbolic capital of the trainees. *Hellenic Journal of Research in Education*, 5(1), 76-89.
- Atif, K., Khan, H. U., Ullah, M. Z., Shah, F. S., & Latif, A. (2016). Prevalence of Anxiety and Depression Among Doctors: The Undiagnosed Clientele in Lahore, Pakistan, *Pakistan Journal of Medical Sciences*, 32(2), 294-298.
- Bartley, M. J. (1994). Unemployment and ill health: understanding the relationship. *Journal of Epidemiology Community Health*, 48, 333-37. <https://doi.org/10.1136/jech.48.4.333>

- Bjelland, I., Krokstad, S., Mykletun, A., Dahl, A. A., Tell, G. S., & Tambs, K. (2008). Does a higher educational level protect against anxiety and depression? The HUNT study. *Social Science & Medicine*, 66(6), 1334–1345. <https://doi.org/10.1016/j.socscimed.2007.12.019>
- Bosma, H., Brandts, L., Simons, A., Groffen, D., & Akker, M. (2014). Low socioeconomic status and perceptions of social inadequacy and shame: findings from the Dutch SMILE study. *European Journal of Public Health*, 25(2), 311–313. <https://doi.org/10.1093/eurpub/cku212>
- Bowman, H., & Burden, T. (2002). Ageing, community adult education, and training. *Education and Ageing*, 2(3), 147–167. ISSN-1352-8580. Retrieved from <https://eric.ed.gov/?id=EJ678550>
- Cameron, I. M., Crawford, J. R., Lawton, K., et al (2008). Psychometric comparison of PHQ-9 and HADS for measuring depression severity in primary care. *British Journal of General Practice*, 58(546), 32–36. <https://doi.org/10.3399/bjgp08X263794>
- Crepet, P., Piazzzi, A., Vetrone, G., & Costa, M. (1993). Effects of occupational status on the mental health of young Italian men and women. A cross-sectional study. *International Journal of Social Psychiatry*, 39(4), 303–312. <https://doi.org/10.1177/002076409303900406>
- Cross, P. (1981). *Adults as learners: increasing participation and facilitating learning*. San Francisco: Jossey-Bass. Retrieved from <https://eric.ed.gov/?id=ED200099>
- Dohrenwend, B. P., Itzhak, L., Patrick, S., Sharon, S., Guedalia, N., Bruce, L., ... Ann, S. (1992). Socioeconomic Status and Psychiatric Disorders: The Causation-Selection Issue. *Science*, 255, 946–952. <https://doi.org/10.1126/science.1546291>
- European Commission. (1996). *White Paper on Education and Training, Teaching and Learning. Towards the knowledge society*. Luxembourg: Office for Official Publications of the European Communities. Retrieved from <https://op.europa.eu/el/publication-detail/-/publication/d0a8aa7a-5311-4eee-904c-98fa541108d8/language-en>
- European Commission. (2001). Second Chance Schools: The results of a European pilot project. Retrieved from http://www.e2oespana.org/wp-content/uploads/2016/06/Report_E2C-Schools_pilot_project.pdf
- Gilbert, P., Boxall, M., Cheung, M., & Irons, C. (2005). The relation of paranoid ideation and social anxiety in a mixed clinical population. *Clinical Psychology and Psychotherapy*, 12, 124–133. <https://doi.org/10.1002/cpp.438>
- Glaroudi, A., & Katsani, G. (2008). *The need to design a skills development model through the experience of Counseling Careers in Second Chance Schools*. Retrieved from <https://repository.edulll.gr/edulll/retrieve/782/138.pdf>
- Government Gazette 1861/2014.
- Government Gazette 188/1997.
- Greene, J., Cohen, D., Siskowski, C., & Toyinbo, P. (2017). The relationship between family caregiving and the mental health of emerging young adult caregivers. *The Journal of Behavioral Health Services & Research*, 44(4), 551–5663. <https://doi.org/10.1007/s11414-016-9526-7>
- Holzer, C. E., Brent M. S., Jeffrey W. S., Philip J. L., Jerome K. M., Linda, G., Myrna, W., & Phillip, B. (1986). The Increased Risk for Specific Psychiatric Disorders among Persons of Low Socioeconomic Status. *American Journal of Social Psychiatry*, 6, 259–671. Retrieved from <https://psycnet.apa.org/record/1988-07601-001>
- Horwitz, A. V. (2013). *Anxiety: A short history*. Baltimore: The Johns Hopkins University Press.
- Karekla, M., Pilipenko, N., Feldman, J. (2012). Patient Health Questionnaire: Greek language validation and subscale factor structure. *Comprehensive Psychiatry*, 53(8), 1217–1226. <https://doi.org/10.1016/j.comppsy.2012.05.008>
- Kasworm, C. E., Rose, A. D., & Ross-Gordon, J. M. (2010). *Handbook of adult and continuing education*. United Kingdom: Sage Publications.
- Kemeny, M. E., Gruenewald, T. L., & Dickerson, S. S. (2004). Shame as the emotional response to threat to the social self: Implications for behavior, physiology, and health. *Psychological Inquiry*, 15(2), 153–160. Retrieved from <https://psycnet.apa.org/record/2004-17286-007>
- Kessler, R. C., Chiu, W. T., Demler, O., Merikangas, K. R., & Walters, E. E. (2005). Prevalence Severity, and Comorbidity of 12-month DSM-IV Disorders in the National Comorbidity Survey Replication. *Archives of General Psychiatry*, 62, 617–27. <https://doi.org/10.1001/archpsyc.62.6.617>
- Kokkos, A. (2005). *Adult Education Methodology: Theoretical Framework and Learning Conditions*, volume A. Patra: HOU.

- Kokkos, A. (2017). Transformation of dysfunctional perceptions: Teaching method for school and adult education. Scientific Association of Adult Education. *Adult Education*, 39, 47-51.
- Kump, S., & Krasovec, S. J. (2007). Education: A possibility for empowering older adults. *International Journal of Lifelong Education*, 26(6), 635-649. <https://doi.org/10.1080/02601370701711331>
- Lahelma, E. (1992). Paid employment, unemployment and mental well-being. *Psychiatria Fennica*, 23, 131-44. Retrieved from <https://psycnet.apa.org/record/1993-23695-001>.
- Lazarus, R. S. (1991). *Emotion and Adaptation*. New York, UK: Oxford University Press.
- Lecrubier, Y. (2001). Improved Ability to Identify Symptoms of Major Depressive Disorder (MDD) in General Practice. *International Journal of Psychiatry Clinical Practice*, 5(1), 3-10. <https://doi.org/10.1080/13651500152048397>
- Leeming, D., & Boyle, M. (2004). Shame as a social phenomenon: A critical analysis of the concept of dispositional shame. *Psychology and Psychotherapy. Theory, Research and Practice*, 77, 375- 396. <https://doi.org/10.1348/1476083041839312>
- Leve, L. G. (2001). Between Jesse Helms and Ram Bahadur: Participation and empowerment in women's literacy programming in Nepal. *Political and Legal Anthropology Review*, 24(1), 108-28. <https://doi.org/10.1525/pol.2001.24.1.108>
- Lewis, M. (1971). *Shame and Guilt in Neurosis*. New York: International Universities Press.
- Lewis, M. (2003). The role of the self in shame. *Social Research*, 70(4), 1181-1204.
- Margara, T., & Anagnou, E. (2008). *Second Chance Schools in Adult Education: A Comparative Approach to Greece, Denmark, France*. Available at <https://repository.edulll.gr/edulll/retrieve/782/138.pdf>, Access in 2/10/2019.
- Marmarinos, I., Sakellari, M., & Tzoumaka, E. (2008). *Staff professional development team at the Second Chance School (SDE) of Peristeri*. Available at <https://repository.edulll.gr/edulll/retrieve/782/138.pdf>, Access in 2/10/2019.
- McLaughlin, D., Vagenas, D., Pachana, N.B., & Dobson, A. (2010). Gender differences in social network size and satisfaction in adults in their 70s. *Journal of Health Psychology*, 15, 671-679. <https://doi.org/10.1177/1359105310368177>
- Mezirow, J. (1991). *Transformative dimensions of adult learning*. San Francisco: Jossey-Bass.
- Miech, R. A., & Shanahan, M. J. (2000). Socioeconomic status and depression over the life course. *Journal of Health and Social Behavior*, 41(2), 162-176. <https://doi.org/10.2307/2676303>
- Miech, R. A., Caspi, A., Moffitt, T. E., Wright, B. R. E., & Silva, P. A. (1999). Low socioeconomic status and mental disorders: a longitudinal study of selection and causation during young adulthood. *The American Journal of Sociology*, 104, 1096-1131. <https://doi.org/10.1086/210137>
- Mills, R. S. L. (2005). Taking stock of the developmental literature on shame. *Developmental Review*, 25(1), 26-63. <https://doi.org/10.1016/j.dr.2004.08.001>
- Munns, G., & McFadden, M. (2000). First chance, second chance or last chance? Resistance and response to education, *British Journal of Sociology of Education*, 1(21), 59- 76. <https://doi.org/10.1080/01425690095162>
- Ouzouni, C., & Nakakis, K. (2011). The reliability and validity of measurement tools in quantitative studies. *Nursing*, 50(2), 231-239. Retrieved from https://www.researchgate.net/publication/289292707_Validity_and_Reliability_of_Measurement_Instruments_in_Quantitative_Studies.
- Papaioannou, E., & Gravani, M. N. (2018). Empowering vulnerable adults through second-change education: A case study from Cyprus. *International Journal of Lifelong Education*, 37(4), 435-450. <https://doi.org/10.1080/02601370.2018.1498140>
- Pekrun, R., Cusack, A., Murayama, K., Elliot, A. J., & Thomas, K. (2014). The power of anticipated feedback: Effects on students' achievement goals and achievement emotions. *Learning and Instruction*, 29, 115-124. <https://doi.org/10.1016/j.learninstruc.2013.09.002>
- Prince, M. J., Beekman, A. T. F., Deeg, D. J. H., Fuhrer, R., Kivela, S. L., Lawlor, B. A., ... Copeland, J. R. M. (1999). Depression symptoms in late life assessed using the EURO-D scale. Effect of age, gender and marital status in 14 European centres. *British Journal of Psychiatry*, 174, 339-345. <https://doi.org/10.1192/bjp.174.4.339>
- Prins, E. (2008). Adult literacy education, gender equity and empowerment: Insights from a Freirean-inspired literacy programme. *Studies in the Education of Adults*, 40(1), 24-39. <https://doi.org/10.1080/02660830.2008.11661554>
- Pugliesi, K., & Shook, S. (2009). Gender, ethnicity and network characteristics: variation in social support resources. *Sex*

- Roles*, 38, 215-238. <https://doi.org/10.1023/A:1018733116398>
- Quilty, L. C., Van Ameringen, M., Mancini, C., Oakman, J., & Farvolden, P. (2003). Quality of Life and the Anxiety Disorders. *Journal of Anxiety Disorder*, 17, 405–426. [https://doi.org/10.1016/S0887-6185\(02\)00225-6](https://doi.org/10.1016/S0887-6185(02)00225-6)
- Ross, C. E., & Mirowsky, J. (1995). Does employment affect health? *Journal of Health and Social Behavior*, 36, 230–43. <https://doi.org/10.2307/2137340>
- Ross, S., & Gray, J. (2005). Transition and re-engagement through Second Chance Education. *The Australian Educational Researcher*, 32(3), 103-140. <https://doi.org/10.1007/BF03216829>
- Rowe A. D., & Fitness, J. (2018). Understanding the Role of Negative Emotions in Adult Learning and Achievement: A Social Functional Perspective. *Behavioral Sciences*, 8, 27. <https://doi.org/10.3390/bs8020027>
- Rowe, A., Fitness, J., & Wood, L. (2014). The role and functionality of emotions in feedback at university: A qualitative study. *The Australian Educational Researcher*, 41, 283–309. <https://doi.org/10.1007/s13384-013-0135-7>
- Scott, K. M., Wells, E. J., Angermeyer, M., Brugha, T. S., Bromet, E., Demyttenaere, K., ... Kessler, R. C. (2010). Gender and the relationship between marital status and first onset of mood, anxiety and substance use disorders. *Psychological Medicine*, 40(9), 1495-1505. <https://doi.org/10.1017/S0033291709991942>
- Smyth, J., & Hattam, R. (2004). *'Dropping Out', Drifting Off, Being Excluded: Becoming somebody without school*. New York: Peter Lang Publishing Inc.
- Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the State-Trait Anxiety Inventory*. Palo Alto, CA: Consulting Psychologists Press.
- Spitzer, R. L., Williams, J. B. W., & Kroenke, K. et al. (1994). Utility of a new procedure for diagnosing mental disorders in primary care: the PRIME-MD 1000 study. *JAMA*, 272, 1749-1756. <https://doi.org/10.1001/jama.1994.03520220043029>
- Stoilescu, D., & Carapanait, C. (2011). Renegotiating relations among teacher, community and students. *European Education*, 43(2), 54-73. <https://doi.org/10.2753/EUE1056-4934430203>
- Tangney, J. P., & Dearing, R. L. (2002). *Emotions and social behavior: Shame and guilt*. Guilford Press.
- TeRiele, K. (2000). *The Best Thing I've Ever Done: Second chance education for early school leavers*. AARE Conference, University of Sydney. Retrieved from <https://www.aare.edu.au/data/publications/2000/ter00203.pdf>
- Ugalde, A., Krishnasamy, M., & Schofield, P. (2014). The relationship between self-efficacy and anxiety and general distress in caregivers of people with advanced cancer. *Journal of Palliative Medicine*, 17(8), 939-41. <https://doi.org/10.1089/jpm.2013.0338>
- Unesco. (1997). *Adult education: the Hamburg Declaration; the agenda for the future*. Retrieved from <https://uil.unesco.org/adult-education/confintea/adult-education-hamburg-declaration-agenda-future>, Access in 20/11/2020.
- Vergidis, D. (2003). *Adult education. Contribution in the specialization of executives and trainers*. Athens: Greek Letters.
- Vergidis, D., & Prokou, E. (2005). *Design, administration, evaluation of adult education programs. Elements of socio-economic operation and institutional framework*. Volume A. Patra: EAP.
- Vergidis, D., Eystratoglou, A., & Nikolopoulou, B. (2007). Second Chance Schools: Innovative Elements, Problems and Perspectives. *Adult Education*, 12, 25-26.
- Vergidou, A., Vergidis, D., & Ifanti, A. (2018). Second Chance Schools: Educational Innovations and School Culture. Play or adapt? *Educational Sciences*, 2, 169-186. Retrieved from <https://docplayer.gr/116258130-Second-chance-schools-adult-education-educational-innovation-school-culture.html>
- Wishman, M. A., & Bruce, M. L. (1999). Marital dissatisfaction and incidence of major depressive episode in a community sample. *Journal of Abnormal Psychology*, 108, 674–678. <https://doi.org/10.1037/0021-843X.108.4.674>
- World Health Organization (2020). *Depression*. Retrieved from <https://www.who.int/news-room/fact-sheets/detail/depression>. Access in 15/12/2020
- Wyn, J., Stokes, H., & Tyler, D. (2004). *Stepping Stones: TAFE and ACE program development for early school leavers*, NCVET. Retrieved from <https://www.ncvet.edu.au/research-and-statistics/publications/all-publications/stepping-stones-tafe-and-ace-progra>

m-development-for-early-school-leavers, Access in 1/10/2019

Zeidner, M. (2014). Anxiety in education. In P. A., Alexander, P., Pekrun, & L. Linnenbrink-Garcia, (Eds.), *International Handbook of Emotions in Education*, pp. 265–288. London, UK: Routledge.

Mezirow, J. (2007). *Transformational Learning*. Athens: Metaixmio.

Appendix

Table 1. Cronbach's Alpha in the Experience of Shame Scale-ESS)

Cronbach's Alpha	N of Items
0,808	4

Table 2. Cronbach's Alpha in the Spielberger's State Trait Anxiety Inventory

Cronbach's Alpha	N of Items
0,889	3

Table 3. Cronbach's Alpha in the Patient Health Questionnaire-9 (PHQ-9)

Cronbach's Alpha	N of Items
0,853	9

Table 4. Demographics of participants

Demographics	Frequency	Percentage
Sex		
Male	49	51,6
Female	46	48,4
Total	95	100,00
Age		
18-34	36	37,9
35-50	47	49,5
50+	12	12,6
Total	95	100,00
Marital Status		
Married with children	51	53,7
Married without children	8	8,4
Divorced	12	12,6
Widower	3	3,2
Unmarried	21	22,1
Total	95	100,00
Professional Status		
Unemployed	40	42,1
Employed in public sector	10	10,5
Employed in private sector	36	37,9
Retired	6	6,3
Unable to work	3	3,2
Total	95	100,00

Table 5. Value range, Average, Standard deviation and mean value on the Experience of Shame Scale (ESS)

	Value Range	Average	Standard Deviation	Mean Value
Characterological Shame	10-38	18,31	5,43	18
Behavioral Shame	7-27	16,6	4,59	16
Bodily Shame	2-12	5,73	1,91	5
Total score	22-68	40,65	9,8	40

Table 6. Correlations identified in the Experience of Shame Scale-ESS

Correlation	r	Significance level
Sex and Body shame	0,27	0,01
Marital Status and Shame	-0,21	0,05
Marital Status and Characterological Shame	-0,21	0,05

Table 7. Price range, Average, Standard deviation and mean for the Patient Health Questionnaire-9 (PHQ-9)

	Price Range	Average	Standard Deviation	Mean Value
Total Score	0-15	5,87	4,16	6

Table 8. Correlations identified in the Patient Health Questionnaire-9 (PHQ-9)

Correlation	r	Significance level
Depression and marital status	-0,24	0,05
Depression and professional status	-0,23	0,05

Table 9. Price range, Average, Standard deviation and mean for the Spielberger State Trait Anxiety Inventory

	Price Range	Average	Standard Deviation	Mean Value
State Anxiety	23-74	44,53	12,37	45
Trait Anxiety	21-60	38,85	10,2	38
Total Score	44-123	83,41	20,24	84

Table 10. Correlations identified in the State Trait Anxiety Inventory

Correlation	r	Significance Level
Transient stress and marital status	-0,26	0,05
Permanent stress and marital status	-0,26	0,05
Total stress and marital status	-0,28	0,01
Permanent stress and professional status	-0,25	0,05
Total stress and professional status	-0,23	0,05

Copyrights

Copyright for this article is retained by the author(s), with first publication rights granted to the journal.

This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (<http://creativecommons.org/licenses/by/4.0/>).

Reviewer Acknowledgements

Review of European Studies wishes to acknowledge the following individuals for their assistance with peer review of manuscripts for this issue. Their help and contributions in maintaining the quality of the journal is greatly appreciated.

Many authors, regardless of whether *Review of European Studies* publishes their work, appreciate the helpful feedback provided by the reviewers.

Reviewers for Volume 13, Number 2

Alex Almici, Università degli Studi di Brescia, Italy
Ali S.M. Al-Issa, Sultan Qaboos University, Oman
Ana Souto, Nottingham Trent University, UK
Annalisa Pavan, University of Padova, ITALY
Arthur Becker-Weidman, Center For Family Development, USA
Carmen Ramos, University of Oviedo, Spain
Delfín Ortega-Sánchez, University of Burgos, Spain
Eugenia Panitsides, University of Macedonia, Greece
Evangelos Bourellos, Institute of Innovation and Entrepreneurship, SWEDEN
Ezgi Pelin Yildiz, Kafkas University, Turkey
Federico De Andreis, University Giustino Fortunato, Italy
Florin Ionita, The Bucharest Academy of Economic Studies, Romania
Friedhelm Pfeiffer, Centre for European Economic Research (ZEW), Germany
Gabriela Gruber, Lucian Blaga University of Sibiu, Romania
George Mathew Nalliveetil, Aljouf University, Saudi Arabia
Hiranya Lahiri, M.U.C Women's College, Burdwan, India
Ioan-Gheorghe Rotaru, 'Timotheus' Brethren Theological Institute of Bucharest, Romania
Ismail Affero, Universiti Tun Hussein Onn Malaysia, Malaysia
Johnnie Woodard, Independent Scholar, USA
Ludmila Ivancheva, Institute of Philosophy and Sociology at Bulgarian Academy of Sciences, Bulgaria
Maria Pescaru, University of Pitești, ROMANIA
Meenal Tula, University of Hyderabad, India
Natalija Vrecer, independent researcher, Slovenia
Nunzia Di Cristo Bertali, Liverpool John Moores University, United Kingdom
Pri Priyono, universities PGRI adi buana, Indonesia
Prof. Karen Ferreira-Meyers, University of Eswatini, Eswatini
Savanam Chandra Sekhar, St. Ann's College of Engineering & Technology, Chirala, India
Serdar Yilmaz, World Bank, USA
Smita M. Patil, School of Gender and Development Studies, India
Szabolcs Blazsek, Universidad Francisco Marroquin, Guatemala
Valeria Vannoni, University of Perugia, Italy
Vicenta Gisbert, Universidad de La Laguna, Spain
Zeina Hojeij, ZAYED UNIVERSITY, UAE
Zining Yang, La Sierra University & Claremont Graduate University, USA

Paige Dou

On behalf of,

The Editorial Board of *Review of European Studies*

Canadian Center of Science and Education

➤ CALL FOR MANUSCRIPTS

Review of European Studies is a peer-reviewed journal, published by Canadian Center of Science and Education. The journal is available in electronic form in conjunction with its print edition. All articles and issues are available for free download online.

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: res@ccsenet.org

Paper Selection and Publishing Process

- a) Submission acknowledgement. If you submit manuscript online, you will receive a submission acknowledgement letter sent by the online system automatically. For email submission, the editor or editorial assistant sends an e-mail of confirmation to the submission's author within one to three working days. If you fail to receive this confirmation, please check your bulk email box or contact the editorial assistant.
- b) Basic review. The editor or editorial assistant determines whether the manuscript fits the journal's focus and scope. And then check the similarity rate (CrossCheck, powered by iThenticate). Any manuscripts out of the journal's scope or containing plagiarism, including self-plagiarism are rejected.
- c) Peer Review. We use a double-blind system for peer review; both reviewers' and authors' identities remain anonymous. The submitted manuscript will be reviewed by at least two experts: one editorial staff member as well as one to three external reviewers. The review process may take four to ten weeks.
- d) Make the decision. The decision to accept or reject an article is based on the suggestions of reviewers. If differences of opinion occur between reviewers, the editor-in-chief will weigh all comments and arrive at a balanced decision based on all comments, or a second round of peer review may be initiated.
- e) Notification of the result of review. The result of review will be sent to the corresponding author and forwarded to other authors and reviewers.
- f) Pay the article processing charge. If the submission is accepted, the authors revise paper and pay the article processing charge (formatting and hosting).
- g) E-journal is available. E-journal in PDF is available on the journal's webpage, free of charge for download. If you need the printed journals by post, please order at <http://www.ccsenet.org/journal/index.php/res/store/hardCopies>.
- h) Publication notice. The authors and readers will be notified and invited to visit our website for the newly published articles.

More Information

E-mail: res@ccsenet.org

Website: <http://res.ccsenet.org>

Paper Submission Guide: <http://res-author.ccsenet.org>

Recruitment for Reviewers: <http://www.ccsenet.org/journal/index.php/res/editor/recruitment>

➤ JOURNAL STORE

To order back issues, please contact the journal editor and ask about the availability of journals. You may pay by credit card, PayPal, and bank transfer. If you have any questions regarding payment, please do not hesitate to contact the journal editor or editorial assistant.

Price: \$40.00 USD/copy

Shipping fee: \$20.00 USD/copy

ABOUT CCSE

The Canadian Center of Science and Education (CCSE) is a private for-profit organization delivering support and services to educators and researchers in Canada and around the world.

The Canadian Center of Science and Education was established in 2006. In partnership with research institutions, community organizations, enterprises, and foundations, CCSE provides a variety of programs to support and promote education and research development, including educational programs for students, financial support for researchers, international education projects, and scientific publications.

CCSE publishes scholarly journals in a wide range of academic fields, including the social sciences, the humanities, the natural sciences, the biological and medical sciences, education, economics, and management. These journals deliver original, peer-reviewed research from international scholars to a worldwide audience. All our journals are available in electronic form in conjunction with their print editions. All journals are available for free download online.

Mission

To work for future generations

Values

Scientific integrity and excellence

Respect and equity in the workplace

CONTACT US

1595 Sixteenth Ave, Suite 301,
Richmond Hill, Ontario, L4B 3N9,
Canada

Tel: 1-416-642-2606

Fax: 1-416-642-2608

E-mail: info@ccsenet.org

Website: www.ccsenet.org

The journal is peer-reviewed

The journal is open-access to the full text

The journal is included in:

CNKI Scholar

Genamics JournalSeek

Google Scholar Citations

Harvard Library

IBZ Online

JournalTOCs

Lockss

Mir@bel

NewJour

Open J-Gate

PKP Open Archives Harvester

ResearchGate

ROAD

Scilit

SHERPA/RoMEO

Standard Periodical Directory

Universe Digital Library

UC Riverside Library

Review of European Studies

Quarterly

Publisher	Canadian Center of Science and Education
Address	1595 Sixteenth Ave, Suite 301, Richmond Hill, Ontario, L4B 3N9, Canada
Telephone	1-416-642-2606
Fax	1-416-642-2608
E-mail	res@ccsenet.org
Website	http://res.ccsenet.org

ISSN 1918-7173



9 771918 717212 02 >