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"Collaborative Learning Policy for Quality Education in Digital World: A Review of the Literature"

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ΕΘΝΙΚΟ ΚΑΙ ΚΑΠΟΔΙΣΤΡΙΑΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ

ΦΙΛΟΣΟΦΙΚΗ ΣΧΟΛΗ

ΤΜΗΜΑ ΦΙΛΟΣΟΦΙΑΣ, ΠΑΙΔΑΓΩΓΙΚΗΣ & ΨΥΧΟΛΟΓΙΑΣ

ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ ΣΤΗΝ

«ΕΚΠΑΙΔΕΥΤΙΚΗ ΠΟΛΙΤΙΚΗ ΚΑΙ ΔΙΟΙΚΗΣΗ ΤΗΣ ΕΚΠΑΙΔΕΥΣΗΣ»

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Φοιτήτρια: (ΑΜ: 217001)

Επιβλέπων καθηγητής:

Αθήνα

Φεβρουάριος, 2020

DECLARATION

I declare that this thesis in the Master's Degree in Educational Policy and Administration of Education - Full time of the School of Philosophy, Faculty of Philosophy, Pedagogy and Psychology, is an original report of my research, has been written by me and has not been submitted for any previous postgraduate or undergraduate degree, in Greece or abroad.

This dissertation represents my personal views. I have faithfully and accurately cited all my sources, including books, journals, handouts and unpublished manuscripts, as well as any other media, such as the Internet, letters or significant personal communication.

In any case of inaccurate reporting, I am subject to the consequences provided for in the Master's Degree Program in Educational Policy and Administration of Education and in the provisions of Greek and Community intellectual property law.

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“Collaborative Learning Policy for Quality Education in Digital World: A Review of the Literature”

Jeon Hyeeun Jannie

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Abstract

Introduction

Digital learning and related concepts have received widespread attention in the educational field. Despite this worldwide expectation for innovative evolution in education equity and quality education, the impact of technology in changing educational practices is not facilitated in-depth as it is expected.

It is time for the education policy sought the entrepreneurship by foreseeing at least a decade forwards since the more automation speeds up to taking place in our life, the more problem-solving and value-creating collaboration should be cultivated in the education field.

Purpose

As the 'prisoners' dilemma' derived from the famous Game Theory shows many real-world situations involving cooperative behavior, the lack of collaboration based on mutual trust causes completely rational individuals not cooperating even if it appears that it is not their best interest to do so : A fait accompli of the theory is that rational individuals tend to act minimizing the risk rather than maximizing the interests to avoid the potential risk as collaboration is interdependent and expands the risk of uncertainty in control by populating more stakeholders. In collaboration work, 2+2 is not always mechanically 4, it can range analogically from minus value to a prodigious number and the crucial variable is the interdependent individual who works in the collaboration. Therefore, the purpose of this paper is to find how to reduce the collaboration risk through education and provide an intensive approach to the collaborative education policy for individuals in digital world. To have more reliable estimate of the effectiveness of specific collaborative learning skills, this paper is based on comprehensive overview of the interrelationship between technology and pedagogy.

Methods

The reflection on the core value and traits of millennial generations is a starting point of this study as they are standing unconventional revolutionary era with restrained transmission of traditional culture and values. The significant research results from US show the declining trend of deep collaboration skills of millennial generations and this paper analyzes the phenomenon as a logical reaction to avoid the collaboration risk

from the Game Theory view, thereby could help us identify the collaborative learning and find out how educational policy and program craft it efficiently through various research synthesis of case studies from Professional Learning Community, Global Engagement and Social and Emotional Learning including group of procurement, one of most market-sensitive professionals. The study adopts both quantitative and qualitative approach of learning policy and trends including Asia, Australia, US and Europe, a survey of global organization such as OECD and UNICEF and professional groups which provide insights from experts, practitioners, and policy makers.

Results

The tense of education policy is not the present limited but encapsulated for the evolving future as the benefits and concerns of the evolving technology in the future for millennials are undeniably evident. Under any circumstances, our child's physical, intellectual and emotional well-being is one of educators' top concern and without a sense of individual well-being, the needs analysis of the students for quality education is a drifting promise for the future. The core value for millennial generations is well-being in digital world where automation is reshaping the world, causing career disruption and leading many people into hypercompetitive markets. Competitions through our histories have been stimulated deeper collaboration to overcome the challenge which means the requisition for more collaborative individuals is growing in hypercompetitive markets of today and the future.

Implications

The lack of clear direction and definition on future requisition for millennials' well-being complicates its implementation. Therefore, the findings of this study suggest that developing social and emotional learning program is a priority since quality education depends on the development of collaborative individual and facilitating research-based collaborative teaching is in urgent need according to the recent research for our millennials. Collaboration expertise for students means that the number of differences doesn't matter but it depends on how to resolve the differences. It means our students should be experienced in what it would be like and how to manage the collaboration risk through evidence-proven quality education program and in the end,

the learning will transform the student's life by performing their roles and responsibility based on collaborative relationship.

Keywords: Digital well-being, Quality education, Collaborative Learning, Emotional Intelligence, Social and Emotional Learning, Game theory, Global engagement, Professional Learning Community

Table of contents

Introduction

Today's industries are beginning to change drastically by the *Internet, robotics, artificial, intelligence (AI) and data analytics* in the same way steam engine and electrification did in the 18th century (World Economic Forum. 2016, p.6) *"This third millennium has been variously characterized as the Creative Age, the Digital Age, and the Conceptual Age"* in Pei-Ling Tan's study (2017, p.425: as cited in Florida,2002; Thomas & Brown, 2011; Pink, 2005). These labels describe the birth of virtual world, the digital world and they reflect a shared acknowledgement that our twenty-first century social and economic landscape bears distinctive features that sets it apart from preceding historical periods.

If we look back a few decades ago, many of technology we take for granted today seemed like impossible at that time. The current "*digital revolution" – embodied in personal, mobile, and networked technologies – has replaced manual and routine mental labor with ideas, innovation, and personalized services. These are in turn argued to be key commodities that drive new economic growth and social mobility*." (Pei-Ling Tan, 2017, p.425)

Digitalization also provides with new opportunities for innovation in learning environments. MOOCs (massive open online courses) and OERs (open educational resources) already offer the possibility to learn for many workers, although they still remain underutilized. In addition, take-up remains low due to the low quality of these forms of learning, lack of motivation and recognition of the competencies that are acquired through these and other both informal and non-formal ways. So, alternative certification methods (e.g. OpenBadge) are appearing (ITU, 2014). Microsoft, CISCO, HP, Samsung, Apple, and Google offer certificates that MOOC participants can earn online by participating through these platforms. Moreover, technology offers prospects of new ways to learn skills. These new ways are virtual reality, games and a lot of other tools. (OECD, 2016, p.3).

In this context it is essential that the education policy should be adapted to the new situation since the more automation speeds up to taking place in our life, the more

problem-solving and value-creating collaboration should be cultivated in the education field. However in this era the lack of collaboration based on mutual trust between completely rational individuals is a common phenomenon even though it is against their best interests. More specifically, rational individuals tend to act as to minimize the risk rather than maximize the interests to avoid the potential risk of collaboration. Therefore the purpose of this paper is to examine how to reduce the collaboration risk through education and provide an intensive approach to the collaborative education policy for individuals in digital world. To have more reliable estimate of the effectiveness of specific collaborative learning skills, this paper was based on comprehensive overview of the interrelationship between technology and pedagogy. In order to examine the above the study adopts both quantitative and qualitative approaches of learning policy and trends including Asia, Australia, US and Europe, a survey of global organization such as OECD and UNICEF and professional groups which provide insights from experts, practitioners, and policy makers.

In the beginning of this paper the focus is on the study. First and most of all the necessity of this study is presented followed by the purpose and the goals. Then there are the exploratory questions which are connected with the corresponding thematic sections. The methodology of this study is presented and described in the next section, with emphasis and detailed description of the methods ofliterature review and content analysis.

A whole section is dedicated to the literature overview of other related studies both in Greece and worldwide. In the next section, the emphasis is given on the characteristics and of the digital world and a historical retrospection is presented. Also this section elaborates the world wide web connectivity issue and the related inequity that it causes. In addition, in the next section the relationship between digital well-being and quality education is discussed in detail. In section five the focus is on millennial generations and their connection to the digital world. Section six focuses on a developmental route map for evolving collaboration. The last section is about collaboration expertise and the analogy that lies beyond mechanism. Finally this paper includes conclusions drawn from the analysis of the previous sections and are connected with the exploratory questions and the limitations of the present study.

Section 1: The study

1.1 Necessity of the study

Given the fact that education is changing its direction towards learners' needs and technology is growing and expanding in all aspects of our lives it becomes very important that these two meet. In order to achieve quality education, collaboration is the key and technology the means to this end.That being said, we should not forget that technology should be used as the way it was crafted for: to further the human potential. This issue has been examined and discussed a lot but this study focuses solely on the connection between quality education, collaboration and the risk of it and technology and gives the reader a full view of their complicated relationship and connection. As it is evident quality education, collaboration and technology are not easy to be combined together and creating an effective policy in order to bring them together can be very challenging. To have more reliable estimate of the effectiveness of specific collaborative learning skills, this paper is based on comprehensive overview of the interrelationship between technology and pedagogy.

1.2 Purpose and goals of the study

As derived from above the purpose of this study is to examine whether and how it is possible to reduce the collaboration risk in education through digital technology and to provide an intensive approach to the collaborative education policy for individuals in digital world. Especially, this paper attempts to examine the prerequisites in order to attain quality education in the digital world. Also it tries to examine if technology is helpful in building healthy social relationships and last but not least the existence or non – existence of risk or fear in collaboration and the reasons why millennials do not seem able to cooperate.

1.3 Exploratory questions

Thus, the questions that are posed, discussed and tried to be answered in this study are the following:

- Which are the prerequisites for attaining quality education in the digital world?
- Does digital technology help build healthy social relationships?
- Is there risk – fear in cooperation and why can't millennials cooperate?

The first question about the prerequisites is discussed and examined in the first case study "Professional Learning Community" and in the third case study "Social and Emotional Learning". The second case study "Global engagement" and the wholeSection 5, "Millennial generations in digital world" is about the second question. Finally the third question is discussed in detail in Section 7: Collaboration expertise: Analogy beyond mechanism. The other sections are also important because they help in the better understanding of this issue.

1.4 Methodology of the study (literature review & content analysis)

As stated, before the methodology that was followed in this study was based on literature review and on content analysis and below is a detailed description of them.

Literature Review

According to Schryen, Wagner and Benlian (2015) literature review is very important for developing people's knowledge. When Researchers use this method they want to start a research study, as it is impossible to begin an important research without getting familiar with the literature around it (Schryen et al., 2015). Vasiliadis (2007) writes that literature review is an organized listing of the following things:

a) the research field that is examined
b) the essential technical issues related to the research
c) the coping methods for solving the technical issues.

The goal of every literature review is to produce a comprehensive, homogenous text and not just piece together some texts (Vasiliadis, 2007). Bolderston (2008) adds that a literature review can be an informative, essential and useful composition of a theme and can help trace all the known and unknown parameters of an issue, define all those sections were there is dispute or scientific conversation and pose questions that need to be answered.

There are various types of literature reviews and Polgar and Thomas (2000) say that the systematic review is related to meta – analysis and it is an effort to quantify the results in a comprehensive statistical form. Mulrow (2000, in Bolderston, 2008) acknowledges the importance of the systematic review as it allows magnified power and accuracy in estimating consequences and dangers. In addition with this approach it is easier to process and assess a lot of information and condense them.

Another type is secondary data analysis. Steward (2004) refers to it (Bolderston, 2008), as a research project that needs to be conducted with caution. Secondary data analysis is useful either when we do not know a lot about an issue or when we know too much. In this method the researcher should begin with an exploratory question or by declaring his/her purpose (Steward, 2004 in Bolderston, 2008).

In order for a literature review to be effective and give results it should have the following characteristics: First of all it should be inclusive (using data from all the available sources), selective (using the right strategies for searching the data), relevant, analytical, having all the necessary references, composing all the important issues and ideas and balancing between them and with a critical perspective (Steward, 2004 in Bolderston, 2008). Most of all, according to Bolderston (2008: 87), any writer should give the readers a clear view of the issue and the variety of perspectives and opinions.

Content analysis

According to Elo&Kyngäs (2008), content analysis is a method used for analyzing optical, verbal or written texts, can be utilized in any kind of conversational text, regardless of its form and can support research projects in a variety of issues (Kyriazi, 1999). Generally, it is considered one of the most estimable research techniques in humanitarian sciences. Weber (1990) says that content analysis is a research method which uses particular rules in order to deduct accurate results. Of

course, these rules differ from research to research and are influenced by the theoretical background. Athanasiou (2000) tries to put together all the different definitions of content analysis and writes that: content analysis is a research technique for systematic quality and quantity data analysis, which are derived from various circumstances of communication.

After discussing and examining the many definitions of content analysis it becomes evident that some researchers refer to it as a method and others as a technique. Of course, these two are not identical. When a researcher is dealing with natural, raw material, then the right term is method. But when the researcher is responsible for producing the research material, then the right term is technique. If there are both kinds of material in a research then either terms can be used (Vamvoukas, 1991).

When a researcher wants his/her research to be effective, his/her data to be valid and his/her results to be proved, then he/she should follow these steps:

1. Clearly express the issue or the problem.
2. Develop either the exploratory hypothesis or the exploratory questions.
3. Define which is the material under research and where should the researcher search it.
4. Define the units (or sections) of analysis.
5. Define the categories of analysis.
6. Code and analyze the data.

(Nova – Kaltsouni, 2006)

In order for a classification to be effective it should have three traits, according to Athanasiou (2000). First of all it has to objective, its content should be valid and credible. Vamvoukas (1991) adds exhausting all possibilities and mutual exclusion, which means that a unit of analysis cannot be coded more than once in only one category and only once in the all the categories of the same variable.

To sum it up, content analysis is an objective, research approach of systematic coding, categorizing and analyzing data, which examines text data, written or verbal and can go deeper than that and trace hidden meanings using valid ways.

Section 2: Literature Overview

Resta and Laferrière (2007) wrote an article with the title "*Technology in Support of Collaborative Learning*". There they presented in detail the research conducted in the last 20 years which was the application of technology in order to support collaborative learning in higher education. This article mainly focused on studies that used internet-based technologies and social interaction analysis.

In 2008 Laurillard wrote the article "*The pedagogical challenges to collaborative technologies*" in the International Journal of Computer – Supported Collaborative Learning. In this article the author focuses on how to exploit the many opportunities collaborative technology offers in order to facilitate the learner's needs. Especially, Laurillard explains that researchers should put in use everything they know about what it takes to learn and create a "pedagogical framework" which will include and utilize digital technologies in order to enhance the learning results.

Laurillard and Masterman (2009) wrote another article with the title "*TPD as online collaborative learning for innovation in teaching*". The emphasis here is on providing support in university teachers in United Kingdom through the use of digital technologies. The authors argue for the creation of an online collaborative environment to scaffold teachers' engagement with technology-enhanced learning and present their findings about the necessary requirements for an online collaborative environment.

A more general approach of the issue is discussed in the paper of Collins and Halverson (2010) with the title "*The second educational revolution: rethinking education in the age of technology*". In this paper, the authors summarize all the pros and cons of appropriating digital technology into learning and educational practice. They argue that although technology gives new opportunities, also it brings significant challenges. So, it is urgent to create a "coherent model" for effectively embodying technology into education.

Harris, Jones and Baba (2013) in their paper "*Distributed leadership and digital collaborative learning: A synergistic relationship?* «discuss about the synergy between

distributed leadership and digital collaborative learning. They examined two online educational platforms and explored the challenges of leading and facilitating digital collaborative learning. At the end they concluded that "distributed leadership is integral to effective digital collaboration and is an important determinant of productive collaboration in a virtual environment" (Harris, Jones & Baba, 2013: 926).

In 2015, Barber, King and Buchanan wrote a paper titled *«Problem based learning and authentic assessment in digital pedagogy: Embracing the role of collaborative communities*". Their focus was on the examination of the relationship between problem based learning, authentic assessment and the role of community in fostering learning in digital contexts. Moreover, in the first place the authors created a meaningful learning environment and built an online class community using "Digital Moments" and secondly they collaboratively developed assessment strategies and tools following problem-based learning methodologies. In the paper they discuss in detail about the results and implications of this effort.

In Greek bibliography there are far less studies related to this one. Backin 2002 Vidaki wrote a paper with the title "Intesectional – Holistic approach in Teaching and Learning with the help of New Technologies: A critical educational action research". When she wrote that paper this issue was recently introduced and this paper was part of the author's PhD thesis. The research was conducted between 2000-2001, in a primary school in Greece. Purpose of this study was to examine which are the skills, knowledge and behaviors that students acquired when they were exposed in interaction programs and collaborative activities using new technologies.

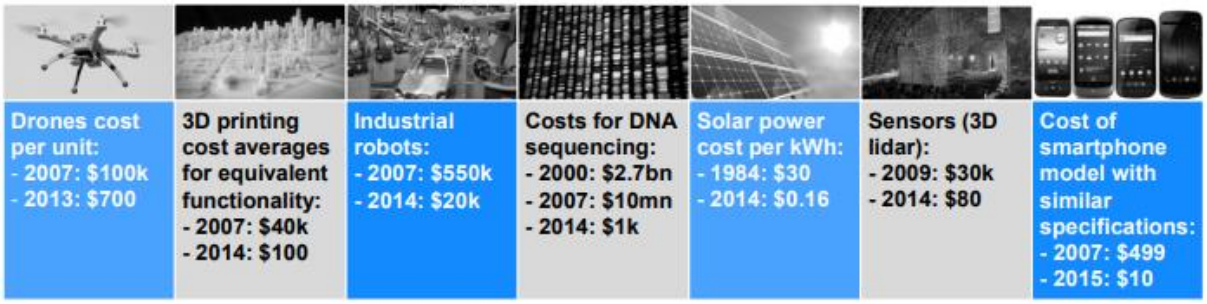
In 2019, Repantis wrote his PhD thesis with the title "Collaborative learning using interacting technologies in interacting surfaces". In this paper the emphasis is on collaborative learning through three kinds of interactive surfaces. The first one is called "interaction tables for multiple users", the second one"interaction monitors for multiple users" and the third one "pc's with multiple mouses". These three surfaces are compared and the author presents the results in his paper and discusses about the pros of using them in promoting collaborative learning.

Section 3: We live in a digital world

3.1 Characteristics and Facts: Historical Perspective

The technological advancement is accelerating. It's been frequently observed that *improvements in computing power have largely kept pace with Moore's Law.* The rapidly descending cost of advanced technologies (below infographic) means that the world around us is becoming ever more connected. Considering that everything we do requires energy, this rapid cost fall in the course of nature easily shall accelerate the expansion of technology. According to the World Economic Forum (2016), back in 2005, only 500million devices were connected to the Internet, whereas today there are about 8 billion. By 2030, it is estimated that the number will reach about 1 trillion.

Figure 1-1. The cost of key technologies has fallen rapidly



Adapted World Economic Forum. (2016). Digital Transformation of Industries: Digital Enterprise. P.6

World Economic Forum (2016, p.6) argues that there are 'Five key technology trends' which are shaping the new digital landscape:

1. The Internet of me: users are placed in the center of the digital world, through the personalization of apps and services
2. Outcome economy: sensors and connectivity are becoming ubiquitous in many environments and firms have the increasing ability to measure the outcomes

of the services. In addition, business models that sell results appeal to customers far more than those that just sell products.

3. The Platform (r)evolution: the rapid advance in cloud and mobile connectivity are crushing the technological barriers and reducing the costs associated with establishing global platforms. These platforms offer great potential both for innovation and the delivery of next-generation services.

4. The intelligent enterprise: there are advances in data science, cognitive technology and processing power that are combined and open up the possibility of 'intelligent enterprises', that are related with smart machines and software intelligence. Also, by turning big data into smart data, firms can achieve higher levels of operational efficiency and innovation.

5. Workforce reimagined: machines and humans need to work together efficiently more than ever due to digital economy. New opportunities to empower human talent through technology are opened through advances in wearable devices, natural interfaces and smart machines.

This significant virtual but real shift to digital world brought in turn substantial pressure on education worldwide to evolve and respond to the new human capital demands of industries and workplaces, and more importantly, to the learning needs and social futures of student lives.

We have selection of research works in the field of technology and education conducted by several researchers and organizations. According to OECD research (2018, p.2), work on e-learning has not changed learning and teaching in higher education systems yet. This was demonstrated by low adoption of the corresponding content management systems. Technology utilization in education field was poorer than we'd expected and there is legitimate reason to be concerned when the gap of the requisition for individuals are getting bigger from what the education system could provide to the students' experience to the future trends directive.

Technology is an integral part of any organization and its strategy, but these trends reflect the fact that people are those who underpin success thereby upsizing requisition of qualified talents. Leaders of now and tomorrow are taking these trends on board and executing strategies in order to secure a clear digital advantage. The

Digital World is showing and intensifying the best and worst of human nature through internet connection. It is a significant tool, but will always be used both for good and for bad. Our job is to restrain the harms and expand the opportunities digital technology makes possible in order for things to be better for future generations. Garvey, D. (2017, p.131) argued in his research that the millennials and young generation will take advantage of the connectivity in Digital world as they are eager to learn, socialize and prepare themselves for their future employment. Hence, it is up to all of us to provide children to fit in Digital world with access to proven online education opportunities and develop opportunities to equip required skills in the market through education culture and curriculum.

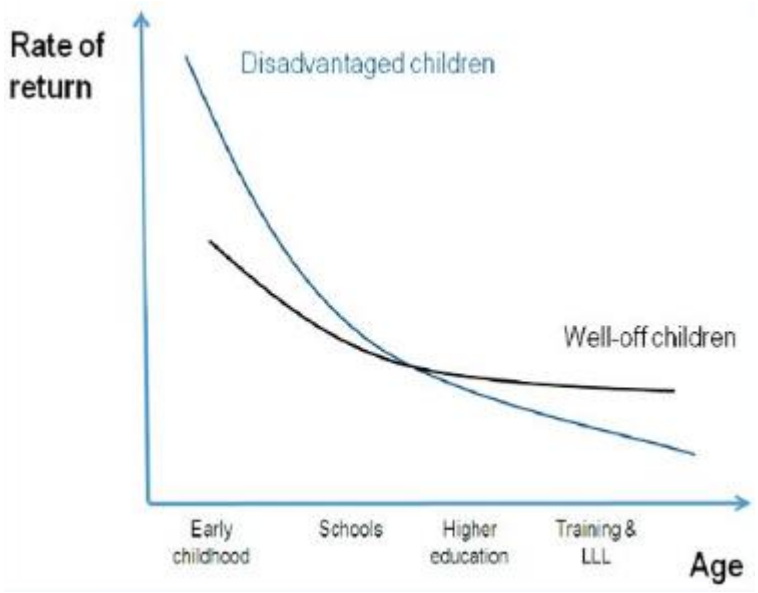
Of course there is a need for more extensive studies and much more child-centered research as Garvey, D. (2017, p.119) claimed *too many news articles share evidence from studies that are methodologically weak or exaggerate or misrepresent the evidence provided.* Building hypothesis on the base of adults' experience and perspective is not useful as children are in many ways the pioneers and experts in digital area. In fact some are even creating on-line apps and programs on their own. Hence to draw substantial conclusions from limited research frame would cause the deviation from the right track: Put children at the center of digital policy. For example, it should be defined which are the limits on the use of internet. Of course, the answers depend on the child's age, individual characteristics, social or cultural and life context. To sum it up, the key for research is the qualitative measurement on internet usage but related to the content and children's online experiences rather than measuring on the internet usage hours. When there is a problematic or unhealthy behavior the causes should be seeked in life factors, such as school environment and relationships with family and friends. Moreover, the allowed screen time varies from parent to parent and this drives the debate. All in all, children use digital technology for specific reasons, and it is important to take their opinions and explanations seriously.

3.2 World-Wide-Web Connectivity: Deepen inequity

"Reducing school failure pays off for both society and individuals. It can also contribute to economic growth and social development. Indeed, the highest performing

education systems across OECD countries are those that combine quality and equity." (OECD, 2012, p.9). More educated people contribute to more democratic societies and sustainable economies and are less dependent on public aid and less vulnerable to economic downturns. Societies with skilled individuals are best prepared to respond to the current and future potential crises. Therefore, investing in early, primary and secondary education for all, and for children from disadvantaged backgrounds, is both fair and economically efficient. In this economic perspective to achieve quality and equity in education field, the digital world is the medium that connects individuals to the mainstream of education with incomparable costs and energy which would seem like impossible to imagine in a decade back.

Figure 1-2. Efficiency and equity of investing early in education



Adapted from "The Evolution of Inequality, Heterogeneity and Uncertainty in Labor Earnings in the U.S. Economy", *NBER Working Paper No 13526*, National Bureau of Economic Research, Cambridge, by Cunha, F., and J. Heckman (2007) www.nber.org/papers/w13526

By 2007, an unusual trend emerged, as more and more institutions and individuals start sharing digital learning resources over the Internet openly and without

cost, like MOOCs (massive open online courses) and *Open Educational Resources* (OER). At the same time there was quick expansion not only in the number of OER projects but in the number of people involved and the number of resources available too. In Istance&Kools' study (2013, p.46: as cited in Hylén et al., 2012), a more recent survey suggests that activities in OER are spreading widely across all educational sectors, with high levels of activity. In addition most countries have simultaneously initiated activities in several educational sectors."

This phenomenon practically represents the 'Liberty of knowledge stream' where knowledge transfers and spreads out from individuals to individuals quicker than ever before. Great technologies have never been disregarded since its fundamental to create and maintain technology-rich learning environments as Istance&Kools claimed (2013, p.55): We live in a digital world and the transformation is changing our work, social and daily life. Loveless (2013, p.305) also quoted from Livingstone that "*in economically developed societies, technologies are becoming 'embedded in the fabric of every activity – they are part of the infrastructure that supports learning, communication and participation'.*

However, the "*impact of technology in changing educational practices is currently less evident than it was hoped for*." (European Commission, 2018, p.2). Technology cannot be blamed for it since it is evident that our life transformed by it but the aim of education to transform the student's life. Technology crafts teaching and learning techniques through research-based big data. World-Wide-Web connection is covering almost all over the world supporting positive social mobility by providing students in their pursuit of cost-effective and envisioned education.

Research is also struggling to keep up with the subject of children's wellbeing online. In preparation for this report, UNICEF's Office of Research performed a literature review to answer the question "How does the time children spend using digital technology impact their well-being?" The data collected are not clear, but recent research shows that children's use of digital tech has a mostly positive effect. This refers to screen time and its effect on mental well-being, social relationships and physical activity, examines the issue of digital dependency and, the effects digital experiences

have on children's brains. So harms should be mitigated and the opportunities digital technology makes possible should be expanded.

Figure 1-3. Typology of ICT-Related Harms

	Content Child as recipient	Contact Child as participant in adult-initiated activity	Conduct Child as victim / actor
Aggression and violence	• Self-abuse and self-harm • Suicidal content • Discrimination • Exposure to extremist/violent/gory content	• Radicalization • Ideological persuasion • Hate speech	• Cyberbullying, stalking and harassment • Hostile and violent peer activity
Sexual abuse	• Unwanted/harmful exposure to pornographic content	• Sexual harassment • Sexual solicitation • Sexual grooming	• Child sexual abuse • Production and consumption of child abuse material • Child-produced indecent images
Commercial exploitation	• Embedded marketing • Online gambling	• Violation and misuse of personal data • Hacking • Fraud and theft • Sexual extortion	• Live streaming of child sexual abuse • Sexual exploitation of children • Trafficking for the purpose of sexual exploitation • Sexual exploitation of children in travel and tourism

Adapted from Source: *A Global Review of Evidence of What Works in Preventing ICT-related Violence, Abuse and Exploitation of Children and in Promoting Digital Citizenship by* Burton, Patrick, Brian O'Neill and Monica Bulger, *(2017)*

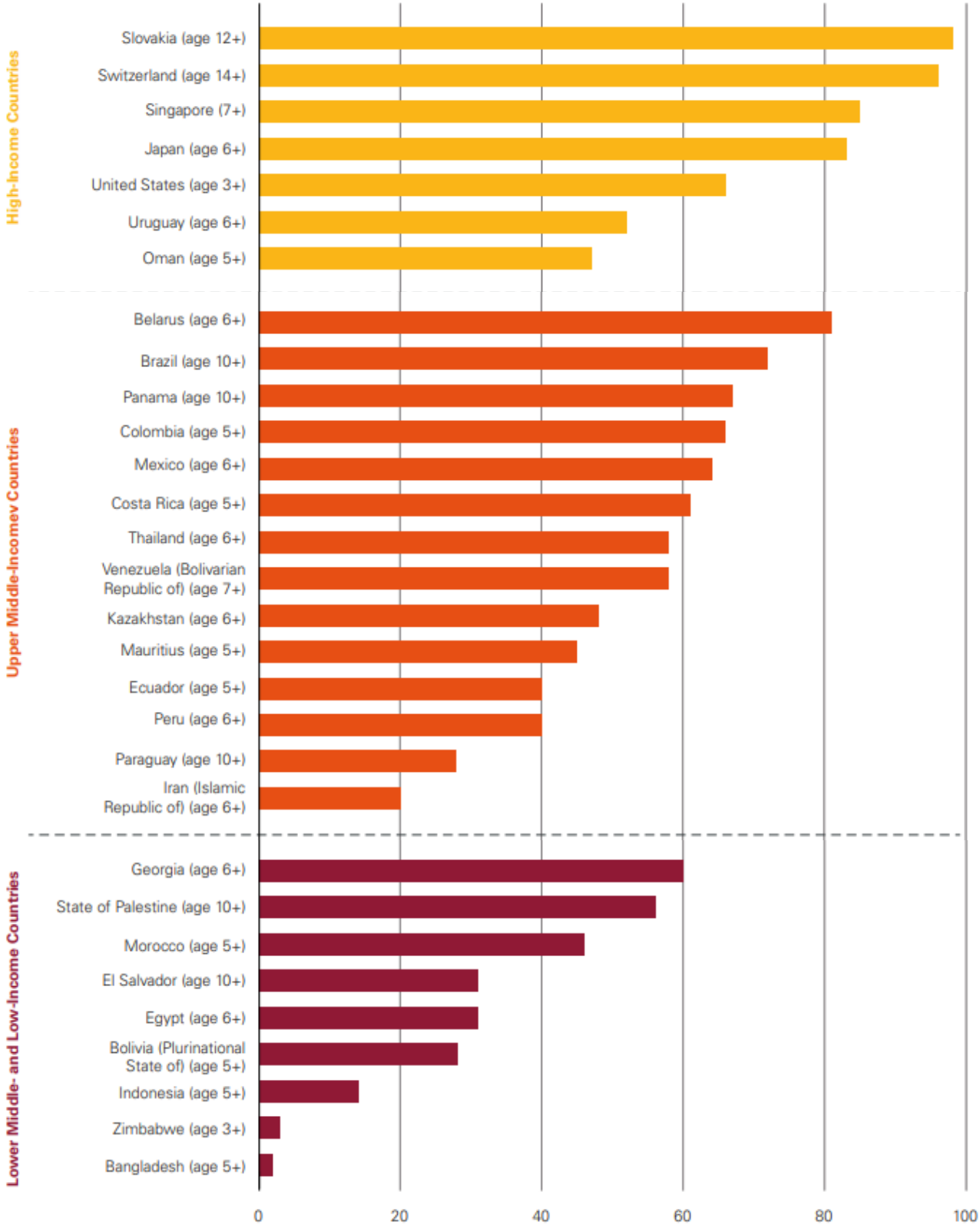
Recent research suggests that youth seem quite resistant to screen consumption at higher levels – up to six hours daily – than is typically recommended. That said, while it is a relief that children are not harmed by the amount of time spent online, more research is needed to understand the benefits or harms of spending up to a third of one's waking hours online.

Around the world today, about 27 million children live in conflict zones and are out of school. There is evident absence of resources, such as books, classrooms and t teachers, and these are the main barriers to children's education in those areas. Garvey D. (2017, p.40) suggested that digital technologies should fill these gaps, by creating opportunities for distance learning both for children and for teachers, improving coordination of educational activities during emergency situations, spreading educational knowledge and supporting the development of digital curricula.

When someone is unconnected in the digital world, basically he/she is deprived of new opportunities to learn, communicate and develop skills. Unless these gaps in access and skills are identified and covered, connectivity may deepen inequity.

In a world where digital access and digital skills increasingly influence children's futures, the outlines of global connectivity are troubling. The fact that just over 29% of the world's youth (15–24 years old) – or 346 million –do not use the internet is evident of the current situation.

Figure 1-3. Children from the lowest-income countries use the internet least percentage of under-15 children using the internet, selected countries and territories. 2012-2016



Adapted from "Children in a Digital World" by Garvey, D. (2017), p.55

Section 4: Digital Well-being stands for quality education

4.1 What is Technology to Pedagogy

The focus on research in the field of technology and education is constant since 1980s. Of course, a more holistic focus on learning environments, of which *technology is only a part*, is needed to help design education for current and future systems. As suggested in Loveless' study (2011, p.306: Istance & Kools cited, 2013), technology does not have a single effect and does not operate by itself, but always in combination with other elements, dynamics, contexts, and partners in the learning environments. European commission (2018, p.1) stated on its 'Digital education action plan' that "*leveraging technology for education is first a question of improving education"* not the digital technology per se. The metaphor of ICT (Information and Communication Technology) *as a tool* is commonly used. (Loveless, 2011, P.306).

Loveless (2011, p.306:as incited in Stevenson, 2008) discussed a model for pedagogy, based on Activity Theory, which highlighted these relationships between the rules, management and artifacts in a teaching activity. In 60 'snapshots' of teachers and learners in schools, he identified four common metaphors of ICT (Information and Communication Technology) as *"resource, tutor, environment and tool",* but not education nor pedagogy.

Singapore is definitely one of the pioneers in "in learning technologies in schools, and technology is regarded as very important, *but as a tool* that is taken for granted, and it is conceived at a more practical level. Therefore, Singapore considers *technology as a means to an end*, rather than as an end in itself in spite of its high level of technology development. Similar attitudes toward technology are observed in other countries under study.(Kai-ming Cheng, 2017. P.20) Technology should be used as the way it was crafted for: to further the human potential.

Avril Loveless (2011, p.302) suggested the seven inter-related dimensions of pedagogy are described as: "*goals and purposes; views of mind and knowledge; views of learning and learners; learning and assessment activities; roles and relationships; discourse; and tools and technologies."*

The tools are useless per se unless being used by users for the right target, therefore, technology is useful only when it contributes to well-being of life by recognizable improvement.

Emejulu (2016. p.1) quoted from Morozov that the reason the digital debate feels so empty and toothless is simple: *"[it is] framed as a debate over 'the digital' rather than 'the political' and 'the economical'.*" This refers that 'How to use the tool in education' is the essential requisition rather than debate on "What is the tool". The digital, frequently became the target of education by itself rather than tool or method for education since it is so dynamic and influential as Jeannette M.Wing (2006, p.35) claimed that "*Equipped with computing devices, we use our cleverness to tackle problems we would not dare take on before the age of computing and build systems with functionality limited only by our imaginations".* This is so apparent phenomenon which can be found in the context of worldwide 'Digital Agenda' policy in education. As Stefania Bocconi quoted (2016, p.6: as cited in EU Digital Single Market, 2016), "*Coding is the literacy of today and it helps practice 21st century skills such as problem-solving, team work and analytical thinking*. The European e-skills Manifesto (McCormack, 2014, p.57) declares that "…*the world is going digital and so is the labor market…Skills like coding are the new literacy, whether you want to be an engineer or a designer, a teacher, nurse or web-entrepreneur, you'll need digital skills."*

However, the cognition of technology in education as a tool becoming apparently clear in the context of Computational Thinking theory in curriculum. "*Computational thinking is a way human solves problems; it is not trying to get humans to think like computers. Humans make computers exciting."* (Jeannette M. Wing, p.35) Human's thinking is superior to the computational thinking, therefore, mis-cognition on the relation of the pedagogy and the technology might explain how come technology *not yet revolutionized* learning system just like as a tool cannot work out alone by itself.

Therefore, the digital policy strategy is tangible and priority requisition to reach the full potential by maximizing benefits and minimizing risks of digital education tool.

Livingstone (2009, p.1) argued that "*Today, faced with anxieties about streets, parks, even the swimming pool, home seems safer. To occupy children at home, many parents – rich and poor – seek to fill their homes with media. To give children and parents some privacy, ever more media are located in children's bedrooms. To keep them in touch with friends, parents provide mobile phones and domestic internet access. If they are worried, guilty, rushed for time or flushed with cash, the media – in one way or another – provide a ready answer, seemingly less the problem than the solution."*

Digital citizenship places online safety in the center of every digital practice by promoting *etiquette, literacy* and *security* in an effort to empower children, young people and their families with the capacity to participate onlinewith safety.

The Japanese system demonstrated an early awareness of the necessity for change. Many waves of reform appeared and various committees were established, at different points of time in history. "Zest for Life" was the most recent one, it began in 1996 and included all the Japanese conceptions of 21st century competencies. As a result it demonstrated how traditional cultural factors, dating back to the Meiji restoration, influenced the emphasis on the affective domain of learning to meet the needs of contemporary society. This approach can be characterized as *a return to the basics* both in *intellectual, moral, and physical dimensions*. In the recent reforms there is a shift from what students know toward *what students can do with the knowledge*, which is reflected in the proposed reforms to curriculum and assessment.

A point about technology: The Japanese case demonstrates an attitude towards technology that could be representative of the entire East Asian education systems. In the expectations articulated for students, ICT literacy is listed as parallel to language literacy and numeracy. Thus, technology is taken for granted as a basic competency. However, the reforms add that ICT literacy also includes "the manners and morals for ICT."

4.2 Dimension of Digital Well-Being: Technology, Pedagogy and Ethics

Jefferies et al. (2007, p.123) suggested that *"To develop a framework to locate areas of interest in the overlap (conceptual link) of ethics, technology and pedagogy by exploring the core of below Venndiagram to facilitating a better use of ICT in education."* If a given technology is not compatible with the underlying pedagogy or if the pedagogy conflicts with ethical ideas, then it is likely that the purpose of the use of technology, namely to educate, is in danger of not being fulfilled. What appears to be lacking, however, is a good overview of the relationships of the different issues involved.

As reviewed case studies of technology leading Asian countries like as Japan and Singapore, the digital training aims after implementation of technologies in pedagogy are "Quality of Life", more descriptively, technology became the essential and fundamental of well-being life thereby the digital well-being is pursued.

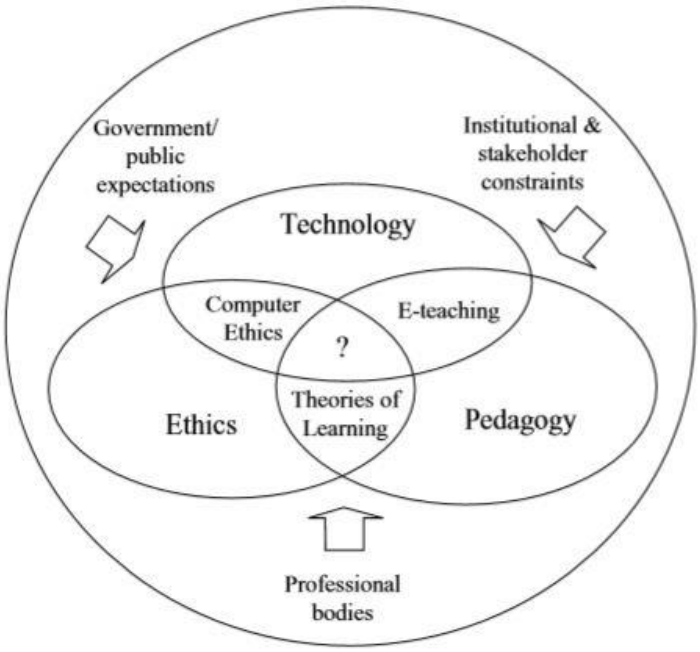
Quality is one of the five 'golden' metrics used to measure performance. (Cane, 2011) Since quality should be measurable and comparable, quality education also should be measurable and it's inevitable to diagnose what should be measured.

Education highly depends on dynamic interaction of interdependent individuals as Dannetta (2002) noted, the improvement of students and the enjoyment that teachers get through interaction with their students were most important reasons why teachers remained in teaching. And it is remarkable that the successful Finland education reform highly focused on retaining high quality teachers thereby securing platform of teaching professionals contributes to teacher commitment, especially the commitment to students, which can be expressed by teachers' belief of selecting teaching as a continuous career, is essential for fostering student-centered instruct. (Chikin, 2011)

Therefore, quality education keyed to evolve the collaboration skill of individual and it's simultaneously growing to evolve as the collaboration types and ranges are continuously expanding through technology and it is increasingly evident the benefit of facilitating technology in our lives as Toks Oyedemi (2015, p.462) suggested that "*Internet connection is essential for everyday citizenship activities since it provides the access to information and the conduit for sociability. Consequently, if having access to information is a fundamental necessity for citizens, having access to technologies that make this necessity possible is essential.*"

The center in the Venn diagram below, therefore, 'digital well-being' could be applicable as the common denominator of Technology, Ethics and Pedagogy.

Figure 2. The links between pedagogy, ethics and technology



Adapted from "Technology, pedagogy and Education," by Pat Jefferies et al. (2007), p.123.

Section 5: Millennial generations in digital world

5.1 Wide connectivity with less collaborative individuals

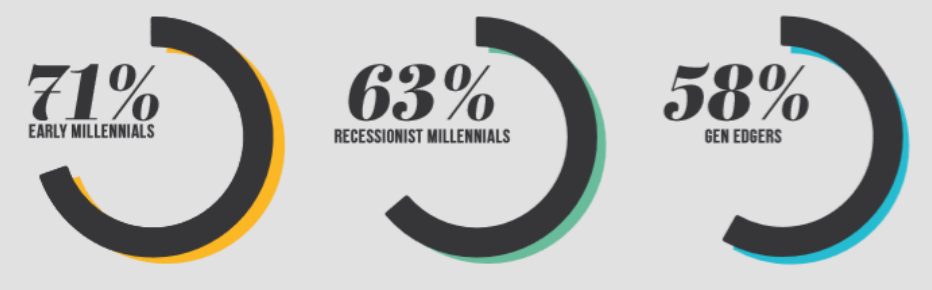
The offline(place-based) Well-being is different from digital well-being, which is in conceptual world existing virtually, but they are undeniably interrelated closely. Moonsun Choi (2016, p.587) argues that "digital citizenship needs to be understood as a multidimensional and complex concept in connection with *an interrelated but non-linear relationship with offline (place-based) civic lives."*

Consequently, policy makers and educators may be pressured to privilege the question of how to implement "twenty-first century competencies (21CC)" most effectively over more philosophical questions about why 21CC is *valuable for a flourishing life and citizenry*(Jennifer Pei-Ling Tan et al., 2017, p.434). Considering the aim of pedagogy existing in life, the digital education which is significant tool of pedagogy should be advocative for well-being life innately.

The importance of digital well-being for technology competency is also being recognized commercially. For example, technological company Google, as recent 'Digital Well-being' movement initiative, argued *that their upgraded technology aims are for users to focus on what matters most by providing answers quicker and get places sooner.* This is a mere reflection of digital generations' pursuing their well-being lives through technology.

According to a survey from Bridgeworks (2017, p.7), *more than half of digital generations answered that they prefer work-life balance over a well-paid job.* The cognition of young and digital generations on their lives is very significant since they are going to be the leaders of upcoming future who value well-being over well-paid.

Figure 3. I would prefer work-life balance over a well-paid job.



(born 1980-1987) **(born 1988-1995)** **(born 1997-2010)**

Adapted from "*3G Connecting with three generational segments in the workforce, A survey comparing Early Millennials, Late Millennials& Generation Z", (2017),* p.13. Copyright 2017 by Bridgeworks

According to Pew Research Center (2010, p.4-5), the millennial generation's recognition on their uniqueness is apparently exceeding over any other generation and the key figure which make their uniqueness is their 'technology use'.

Quote:

The Millennial generation refers those born after 1980.

Generation X covers people born from 1965 through 1980 who are often depicted as savvy, entrepreneurial loners.

The Baby Boomer label comes from the great spike in fertility that began in 1946, and ended almost as abruptly in 1964, around the time the birth control pill went on the market. It's a classic example of a demography-driven name.

The Silent generation refers to adults born from 1928 through 1945. They are considered children of the Great Depression and World War II, their label refers to their conformist and civic instincts.

The Greatest Generation (those born before 1928), it's the generation that fought and won World War II.

Figure 4. What Makes Your Generation Unique?

Adapted from "*Millennials, A portrait of generation next: Confident. Connected. Open to Change", (2010) p.4,* Copyright (2010) by Pew Research Center

	MILLENNIAL	GEN X	BOOMER	SILENT
.	**Technology use (24%)**	Technology use (12%)	Work ethic (17%)	WW II, Depression (14%)
.	Music/Pop-culture (11%)	Work ethic (11%)	Respectful (14%)	Smarter (13%)
.	Liberal/tolerant (7%)	Conservative / Traditional (7%)	Values/Morals (8%)	Honest (12%)
.	Smarter (6%)	Smarter (6%)	"Baby Boomers" (6%)	Work ethic (10%)
.	Clothes (5%)	Respectful (5%)	Smarter (5%)	Values/Morals (10%)

Note: Based on respondents who said their generation was unique/distinct. Items represent individual, open-ended responses. Top five responses are shown for each age group. Sample sizes for sub-groups are as follows: Millennials, n=527; Gen X, n=173; Boomers, n=283; Silent, n=205.

The above research data suggest that the Millennial generations with strong technology-use trait, have tendency weigh more to the well-being of life rather than financial stability which indirectly was portrayed also on their Full-time Employment Declines of the Millennial generations from the research above. It seems that

millennials are far less likely to be working full time (41%) than Generation X (65%) or Boomers (54%), reflecting the very different life circumstances of each category. At the same time, these youngest members of the labor force are about twice as likely to work part time (24%) as the members of Generation X (10%) or Baby Boom (13%) generations.

Full-time employment among 18-29-year-old people has dropped significantly in the past four years while older aged adults remain in the same levels. According to Pew Research Center surveys, the share of 18-29 people who are employed full time declined 9% from 2006 to 2010. In comparison, full-time employees make about the same to 30-45 (63% in 2006 and 65% in the latest survey) and 46-64year-olds (53% in 2006 and 54% today).This gives us insight that the digital well-being is not limited to the protection from digital risks but for digital competence that can make the most benefits from the technology, the digital education through minimizing or eliminating the risks.

Choi (2016, p.589) stated that "*digital citizenship should also be examined in conjunction with existing conceptions of citizenship because it is not a single dimension and/or a suddenly abrupt change in what citizenship means*". In the same context, digital well-being interrelated with life well-being as aforementioned; therefore, findings from well-being life studies may provide significant insights to measure the dimension of digital well-being to improve digital education policy towards sustainable direction. One of the most significant well-being research reports is from UNICEF (2007, p.2). According to that, measurement and comparison gives an indication of each country's strengths and weaknesses. Moreover, it shows what is achievable in practice and can provide both government and society with the information to work towards the fulfillment of children's rights and the improvement of their everyday lives. Above all, it demonstrates that the particular levels of child well-being are not an inevitable situation but are the results of the policies that are followed. Thus, the wide differences in child well-being seen throughout this Report Card can be interpreted as a guide for improvement.

One of most significant findings from the study is that there is no obvious relationship between levels of child well-being and GDP per capita. Czech Republic, for example, has a higher overall rank in child well-being than several much wealthier countries like France, Austria, the United States and United Kingdom.

		Dimension 1	Dimension 2	Dimension 3	Dimension 4	Dimension 5	Dimension 6
Dimensions of child well-being	Average ranking position (for all 6 dimensions)	Material well-being	Health and safety	Educational well-being	Family and peer relationships	Behaviours and risks	Subjective well-being
Netherlands	4.2	10	2	6	3	3	1
Sweden	5.0	1	1	5	15	1	7
Denmark	7.2	4	4	8	9	6	12
Finland	7.5	3	3	4	17	7	11
Spain	8.0	12	6	15	8	5	2
Switzerland	8.3	5	9	14	4	12	6
Norway	8.7	2	8	11	10	13	8
Italy	10.0	14	5	20	1	10	10
Ireland	10.2	19	19	7	7	4	5
Belgium	10.7	7	16	1	5	19	16
Germany	11.2	13	11	10	13	11	9
Canada	11.8	6	13	2	18	17	15
Greece	11.8	15	18	16	11	8	3
Poland	12.3	21	15	3	14	2	19
Czech Republic	12.5	11	10	9	19	9	17
France	13.0	9	7	18	12	14	18
Portugal	13.7	16	14	21	2	15	14
Austria	13.8	8	20	19	16	16	4
Hungary	14.5	20	17	13	6	18	13
United States	18.0	17	21	12	20	20	–
United Kingdom	18.2	18	12	17	21	21	20

Figure 5. Report Card of Child well-being in OECD Countries

The Netherlands is in the top of the table on overall child well-being, ranking in the top 10 for all six dimensions included in this report. European countries dominate the top half, with Northern European countries being in the top four places. There are of course, weaknesses that need to be addressed and no country features in the top third of the rankings for all six dimensions of child well-being, although the Netherlands and Sweden come close to doing so. United Kingdom and the United States are in the

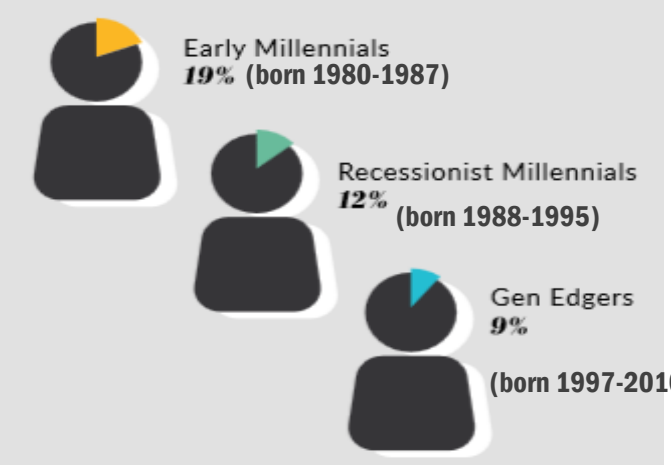
bottom third of the rankings for five of the six dimensions reviewed. No single dimension of well-being can be considered a reliable proxy for child well-being as a-whole. Apparently advanced technology has no obvious relationship with the levels of digital education and child well-being.

As empirically demonstrated by social economist Carlotta Perez in her seminal work on techno-economic paradigms and socio-institutional innovations, "it often takes two to three decades for policy reforms to cause changes in society and cultural practices (Pei-Ling Tan, 2017, p.434), whereas digital eco-system spreads out more quickly into individual lives and operative function of socio-economic society, region and countries. Therefore, considering policy reforms take considerable time for paradigm shift, the digital well-being policy should be focused on the fundamental well-being rather than superficial progress of digitalized education platform utilization. For example, it is remarkable that the child well-being interrelationship with dimension 4 'family and peer relationship', was least related attributes of top 7 ranked countries in child well-being research. As family relationship generally has been considered one of mostly interrelated aspects to education, the research implies that it is becoming more individualized whereas the dimension 2 'Health and safety' was most related attributes of top 7 ranked countries in child well-being. This is very significant signal of spreading individualism also in education well-being area by increased requisition on the health and safety level and at the same time weakened family or peer relationship effectiveness. 'Individualism' is one negative aspect of digitalization whereas many of educational organizations look after the 'cooperative skills' for key element to acquire for the future. Therefore, the current digital well-being can be interpreted as developing paradigm to be more individualized or customized well-being which contains higher potential of various and frequent conflicts and it requires prevention policies for how to harmonize students in digital era which rapidly changing into extreme individualism.

Moreover, various researches provide an insight that **wide connectivity** in digital era could not be interpreted into **collaborative individuals** as refer to

Bridgeworks (2017, p.17) on millennial generation's perception on themselves for their collaborative traits.

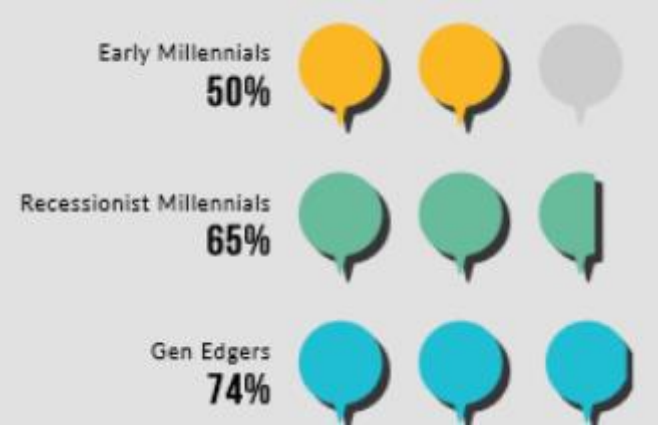
Figure 6. Percentage that describe themselves as Collaborative



Adapted from "*3G Connecting with three generational segments in the workforce, A survey comparing Early Millennials, Late Millennials& Generation Z", (2017)*, p.17, Copyright 2017 by Bridgeworks

When it comes to communication, the youngest generations are stereotyped as poor communicators who are too reliant on their phones. Technology has certainly transformed how the youngest generations think, work, and communicate, but it hasn't made them equipped at in-person communication as Bridgeworks claimed. (2017, p.21)

Figure 7. Will/Does your generation struggle with in-person communication? Yes.



Adapted from "*3G Connecting with three generational segments in the workforce, A survey comparing Early Millennials, Late Millennials& Generation Z", (2017)*, p.21, Copyright 2017 by Bridgeworks

5.2 Sharing Is Not Enough, Should Be Supportive

The individualism inclusive lack of collaborative skills and in-person communications is adversary against the legacy of collaboration which is one of most important skill and attitude for problem solving. As Bocconi (2016, p.52) quoted from Leo Pahkin (FNBE, Finland) "*when something is working already elsewhere, it is better to copy, then tailor it to your own purpose than trying to do everything from the beginning yourself. Co-operation is key and also the sharing of failures*".

The demands for world talents with collaboration skills have rapidly increased to manage growing risks of uncertainties in trade flows, cyber security incidents and extreme weather or climate change issues. The uncertainty usually stems from political instability and disputes, such as the US and China trade tensions and Brexit. For instance, one of the highest disruptions in Europe was civil unrest, including Labor Day and yellow vest protests in France and Belgium which interrupted supply flow to highways, ports, borders and industrial areas. Though there are indicative information and precaution through real-time broadcasts and networks, it's hard to find supportive

actions proportionable to the infusion of information. The impact of knowledge sharing is not always proportional to the effectiveness or efficiency of quality improvement. Hence, in recent years, there has been much debate about the concept of digital natives, the differences between the digital natives' knowledge and adoption of digital technologies in informal versus *formal educational contexts*. (Ng, W. 2012, p.1065).This paper investigates the knowledge about educational technologies of a group of undergraduate students studying the course "Introduction to eLearning" at a university in Australia and how they adopt unfamiliar technologies into their learning. The study explores the 'digital nativeness' of these students by investigating their degree of digital literacy and the ease with which they learn to make use of unfamiliar technologies. The findings show that the undergraduates were generally able to use unfamiliar technologies easily in their learning to create useful artifacts. They need, however, to be made aware of what constitutes educational technologies and be provided with the opportunity to use them for meaningful purposes. The self-perception measures of the study indicated that digital natives can be taught digital literacy.

Heaton, Margot (2013, p.23) claimed the supportive conditions both structures and relationships are critical quoting that:

Structures that support the shared vision and values of the school and the PLC are critical to the quality of classroom teaching. Eastwood and Louis (1992) *claimed that the supportive structures are "the single most important factor" to enhancing schools and that they must be "the first order of business" for those committed to school improvement* (p.215). Hord (1997) distinguished further between two types of supportive conditions: relationships and structures.

Cyber security risk is another matter that needs attention as trade secret leaks, blackmail, or economic disruptions are very usual these days. The spread-out and sharing of knowledge is speedy than ever before and the process to reach on a problem-solving gets more complicated due to populated stakeholders. Thus, sharing more knowledge is not enough for problem-solving but should find ways of cooperation with more supportive individuals.

Section 6: Developmental route map for evolving collaboration

Case study 1: Professional Learning Community

The whole point of a professional learning community is that the '*sum is greater than the parts'* and that by distributing and sharing leadership more widely, the opportunities for releasing interdependent learning capacity within schools and across the system is maximized. (Alma Harris and Michelle Jones 2010. p.180) This implies that the sum of parts is beyond the mathematic formula and not of mechanical but of creative analogy. Collaboration is not only mechanical action but also or more of analogical action with interactive variables.

Dillenbourg et al. argue (1996, p.189) that "Collaboration" differs from "cooperation", as an activity where each person is responsible for a part of the problem solving, whereas collaboration involves the "*mutual engagement of participants in a coordinated effort to solve the problem together.".* The mutual engagement of collaboration makes them a 'united group' differentiated from cooperation as 'united individuals'. Therefore, theories of collaborative learning which had been focused on how individuals' function in a group has been shifted to the group itself as the unit of analysis. (Dillenbourg et al. 1996, p.189). Through the empirical studies which established initially to analyze whether collaborative learning is more effective than individual learning, researchers found that it is hard to establish links between several independent variables since those parameters(size of group, composition of the group, nature of the task, communication media, and so on) are interacting with one another. Therefore, throughout collaboration work, they can do more or less than what they expected which has bigger deviation on expected results from individual learning. Hence, as Dillenbourg et al. (1996, p.189) claimed, empirical studies have been shifted to more process-oriented analysis to focus more on the role that each variable plays in moderating interaction rather than establishing parameters for effective collaboration.

"Teachers" learning communities are no different. They are subject to the continuing dialectic process between social groups and individual identities. Therein

lies both strength and vulnerability. As Mertler, C. A. (2018, p.31) argued some of the most significant effects of becoming a PLC are the impact on the process of planning, delivering, and assessing instruction and learning. When compared to a more traditional school, the processes of planning and delivering instruction look very different in a school that operates under the principles of a PLC. When groups work on the process towards a shared goal, social bonds based on mutually agreed engagement strengthen between individual. But *if groups cannot establish shared purposes or foster healthy relationships, or when one of two strong individuals sabotage collective work, group members disengage, often becoming cynical*." Diane (2011, p.478).

Zafeiris D.& Fenton G.(2005, p.202) claimed that in order to build up positive organizational relationships it requires *many skills and experiences* and to be more specific on the skills for healthy relationship building, the collaboration skills should be the key word. The process of re-culturing schools as professional learning communities is a journey as evidenced by the time and energy to move schools from one level to the next. *Some schools take two steps forward-one step back; some move along in their efforts at a steady pace; others seem to stall never really re-culturing; and others beat the odds and persist*. (Fullan 2000, Kristine Kiefer Hip et al. 2008, p.173).

In Diane's theory of Transformative synergy, "*Individuals can change communities.*" And the opposite is also available as Kegan (1982, 1998) makes an argument about the evolution of personalities and social groups. People's identities are fluid rather than fixed, and they shift and change depending on context and relationships. (Kegan 1982, Taylor 1992, Belenky et al. 1997, Kegan and Lahey 2002, Diane R.Wood 2011, p.478) Thus, prerequisite for collaboration success in PLC is laid on the collaborative skills which is learnable, restructurable and measurable throughout the collaboration process.

From one case study of Diane (2011, p.479) in one high school PLC, five of the fourteen members refused to move their chairs within the group's circle which is a very odd reaction during usual professional activity. Interviewed later, the distraught facilitator characterized these participants as 'poisoning the well'. In teachers' defense, however, they had been 'ordered' to participate in random groups of educators from a

variety of disciplines in random groups with no shared sense of purpose. 'Ordered' participation process to the group has been disregarded the fact that individuals like to have their own choices which is the fundamental structure to inspire the participants to be motivated and taking responsibility in turn. The 'poison' can affect to the whole well and is rendering the risk of collaboration as it can be found in teachers' learning communities by having both strength and vulnerability during the continuous interactive collaboration. As Diane claimed (2011, p.478), individuals can sabotage the collective work when the groups fail to establish shared purposes or build up healthy relationships. In this episode, the poisoning would not take place or even the poison might have been facilitated into building block for the group if the facilitator allocated enough time and effort to provide the platform a shared goal. *Building healthy organizational relationships is a slow process that requires many skills and experiences.* (Zafiris& Fenton, 2005, p.202) To distinguish schools as learning organizations is *their sense of inclusiveness, encouraging the participation of the whole staffs, students, parents and other interested parties who are willing and able to contribute to the school's effectiveness.* (Butt, 1999; Coombe, 1999). As described, change as a process in his change model (1985), Fullan proposes three distinct levels through which an innovation moves to reach desired outcomes. Each level takes time and is influenced by factors within and outside the school organization.

• Initiation—the faculty and staff adopt an innovation *by making the decision to proceed* with the change.

• Implementation—the faculty and staff begin to operationalize the innovation into practice

• Institutionalization—the innovation is recognized as an ongoing part of the system or the ''way things are done around here.''

In collaboration work, it is significant to put priority to invest time and efforts to build up firstly the mutual goal in the 'initiation' stage in which its members agreed rather than facing those 'poisoning' members' own issues and its negative effects additionally to the whole group in the later stage of 'implementation' just as the prevention is far better economic and efficient than treatment afterwards.

Figure 8-1. PLC Dimensions and description

Dimensions	Description
Shared and supportive leadership	Administrators share power, authority, and decision-making, while promoting and nurturing leadership.
Shared values and vision	The staff share visions that have an undeviating focus on student learning, and support norms of behavior that guide decisions about teaching and learning.
Collective learning and application	The staff share information and work collaboratively to plan, solve problems, and improve learning opportunities.
Shared personal practice	Peers meet and observe one another to provide feedback on instructional practices, to assist in student learning, and to increase human capacity.
Supportive conditions–relationships	Peers meet and observe one another to provide feedback on instructional practices, to assist in student learning, and to increase human capacity.
Supportive conditions–structures	…include respect, trust, norms of critical inquiry and improvement, and positive, caring relationships among the entire school community.
External factors	…include parents, community, and central office

Adapted from "Sustaining professional learning communities: case studies" by Hipp, K et al. *Journal of Educational Change (2008)*, p.175

As Fullan (2008) suggested the dimension of PLC in figure 8.1, sharing and supporting are the fundamental elements of the process and it describes apparently what collaboration requires: Continuous sharing and supportive relationships craft collaboration. The ability of sharing made us available to transmit knowledge across the space and times and it shapes the others' thinking. Sharing can provide the experience that we never give it a thought before which usually make us reasoning that the collaboration should have more abundant result compared to individual learning. The significant structure of collaboration is sharing which requires dynamic supporting

to craft it into the reality. Supporting the shared vision is where the implementation starts to take place by the goal-shared group.

Despite many ways that PLCs can 'go bad', there are those that succeed against considerable odds. (Diane, 2011, p.479) One of successful case studies described in Hipp K et al. (2008, p.180), quote:

"Teachers enjoy working at Lake Elementary school.'' was repeated across all interviews. One teacher stated it, ''Once you get in the school, you don't leave''… ''The key is that you have to like what you do.'' Teachers here 'want to learn and constantly better ourselves.'

Lake Elementary is in Ascension Parish, mixes Old South traditions with exciting new traits. Situated in the heart of Plantation Country, the school district is known for pursuing educational excellence traditionally. The Ascension Parish School System of 21 schools with 15,000 student population and nearly 1,000 teachers staff the system along with administrators, service personnel, and other support employees. The district's pursuing target of educational excellence has withstood the test of time and has survived the transition from the industrial age to the new information economy. Ascension Parish, the second fastest growing area in Louisiana, provides learning experiences that enable all students to adapt to the evolving educational standards.

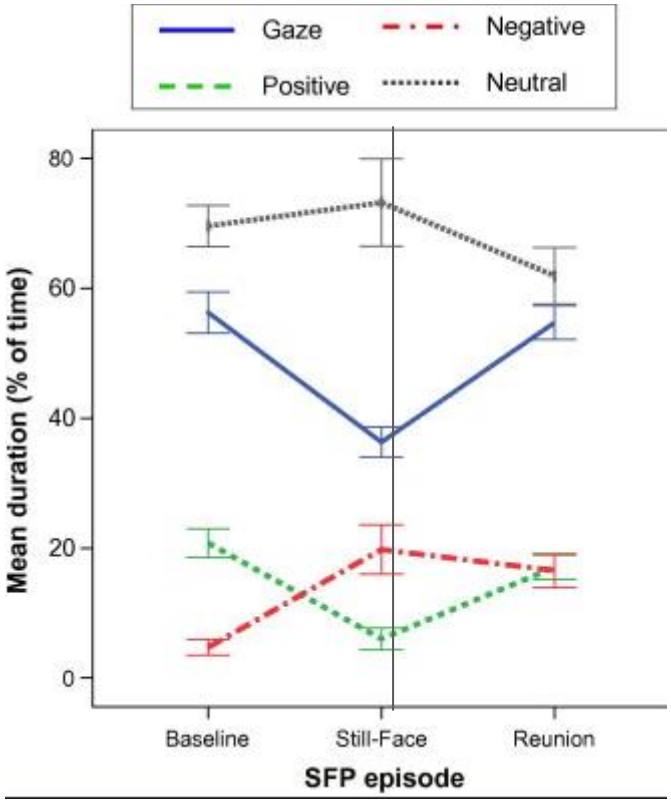
Lake Elementary, one of 11 primary/elementary schools in Ascension Parish, has eight student population of 1,038 comprised of 97.9% White and the remaining 2.1% a combination of American Indian, Hispanic, African American, and Asian students. Although a small percentage of students represent various ethnic backgrounds, no student is classified as Limited English Speaking. The socio-economic level is indicated by a relatively small percent of students eligible for free and/or reduced lunch, only 26%. In addition to the principal, Lake has two assistant principals, two guidance counselors, 74 teachers, and nine instructional paraprofessionals.

High student achievement is reflected in the student performance on the Louisiana Educational Assessment Program (LEAP) assessments. The LEAP tests students across the state with the Iowa Test of Basic Skills at grades 3, 6, and 7, as well as criterion-referenced tests at grades 4 and 8. Based upon student performance on

LEAP exams and factoring in attendance and dropout rates, Lake Elementary has received two labels (representing growth and performance) of Exemplary Academic Growth and a School of Academic Achievement.

Teachers in the Lake Elementary are respected as professionals by highly inspired to be self-learners throughout their active participation and decision-making which can be reflected on the collaboration process. The school leaders share their vision and teachers participate on how to achieve the goal which makes them feel trusted. As show-cased PLC success in the Lake, teachers are having highly interactive process to participate which makes them feel worthy. Successful collaboration tracks the active interaction. In 1975 at the biennial meeting of the Society for Research in Child Development, Edward Tronick and colleagues first presented the "still face experiment". This was a phenomenon in which a new born baby, after few minutes of "interaction" with a mother that was not responsive and without expressions, he rapidly turned serious and became wary. Then, he made repeated attempts to make his mother interact as expected. When these attempts failed, the infant withdrew and oriented his face and body away from his mother with a sad and hopeless expression. This experiment proves and supports the significance of interaction in human development and education. Mesman (2009, p.120) analyzed the SFP to examine the nature and correlates of infant behavior in a systematic review and *the results of the meta-analyses confirmed the classic still-face effect of reduced positive affect and gaze, and increased negative affect, as well as a partial carry-over effect into the reunion episode consisting of lower positive and higher negative affect compared to baseline.* The still-face effect is very robust as it identifies the fundamental requisition for the development of individual is the ‘interaction’ as a crucial instrument which also resulted in various interactive learning and teaching program approach in technology area.

Figure 8-2. Summary of meta-analytic findings regarding the changes in gaze, positive, negative and neutral affect across the three SFP episodes.



Adapted from "The many faces of the Still-Face Paradigm: A review and meta-analysis" by Mesman, J.et al. *Developmental Review* (2009)

Collaboration is a perseverant movement to the excellence growing upon considerable amount of time and effort. Through the case study of Lake School by Hipp K et al. (2008, p.180), teachers shared what they've paid for the successful collaboration of PLC. Quote:

In the beginning, some teachers were more hesitant to move too quickly, ''I think we are coming along. It doesn't happen overnight; it takes a few good leaders, teachers and administration, to get the whole group going in a whole new direction… our school is really working toward getting everybody on the same page and tackling our problems.''

The perseverance over colleagues who don't agree to go with would not the most efficient time management though, by believing the reluctant colleagues' behavior is not permanent condition, educators keep sharing and supporting by respecting the others' obstacles of not being collaborative to the movement. This is the supporting perseverance with respect to collaborate as a team. One of the most significant recognition of educators is that ''*Trust is work, but we are alike in work ethics, values, purpose and philosophy.*": Being-alike means they are connected by mutual sharing and supporting by which shaped successful PLC.

Hipp K et al. (2008, p.179) argued that these 5 characteristics below are found in the culture of school as a Professional Learning Community through their group and individual interview on December 2003:

• A ''learning family'' committed to self and student learning.

• United staffs on a moral purpose for one priority—student learning.

• The power of the whole on teamwork of shared responsibility among all stakeholders.

• Effective professional development and learning structures that focus on teachers' collaborative learning

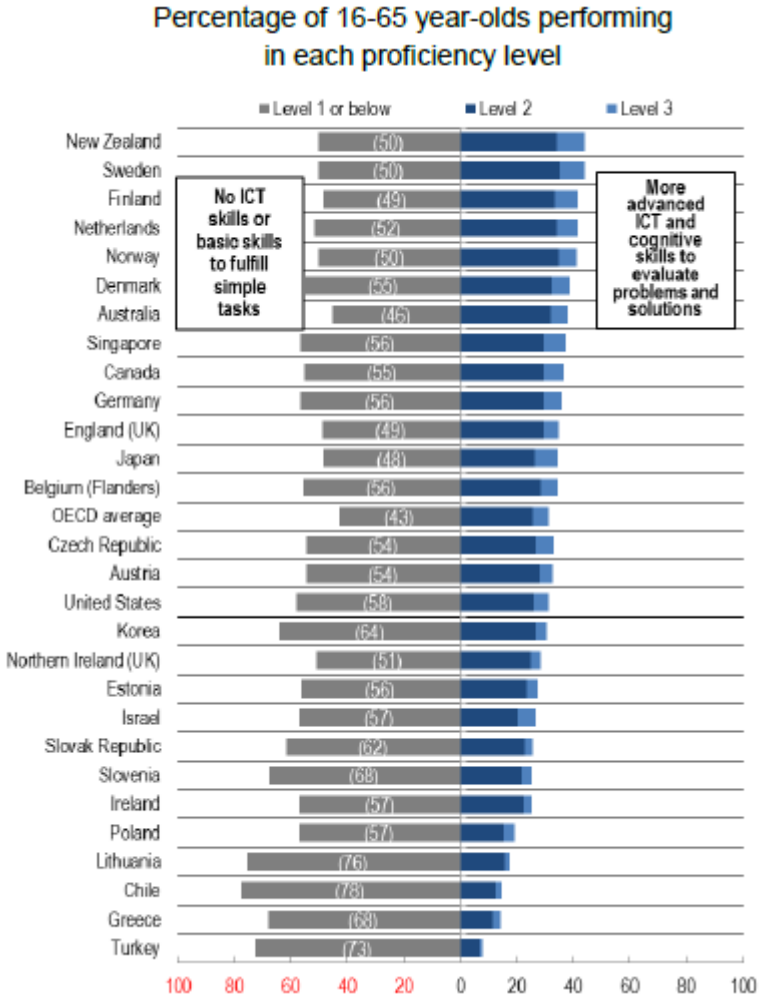
• Inclusive leadership culture—shared governance for teaching and learning.

Case study 2: Global engagement

Although 'Globalization' or 'becoming international' is almost all schools' strategic plan for the future, we realize there is still much work to be done; The level of global 'contact' expanded through dominance of English as a global common language and the world-wide digital communication provide global contact. The critical aspect on 'Globalization' is that the relentless contact expansion does not naturally craft the collaborative connection among those who are contacted. Sheila Embleton (2015, p. 3) in Universities Canada report argued that *only 3.1% of university students have an international experience as part of their undergraduate degree*. Moreover, students' preferred countries are narrowly limited to English-speaking countries, France and Germany. Also, Embleton (2015, p. 3) suggested that3.1% of university students with international experience of Canada in 2014 are better than US (1.4% mobility), *but is far distanced from the EU where Erasmus+ has set itself an ambitious target of 20% mobility by 2020.* But successful global engagement is not only limited to increased mobility and the key to success is to venture our idea of global engagement as a form of "home-based internationalization." Getting wider contact does not necessarily foster strong connection where has requisition of interactive reorientation process on how to think and act. 'The connection' operates upon each other: when one of the part moves, all its connected parts should be affected or moved since the connection means linkage to each other. Connection means there are mutual impacts upon integrated structure unlike to 'be contacted' which is more of one-sided instant action status. What skills are required for tomorrow's digital world is getting attention continually and various research emphasize in the ICT skills for workers, citizens, and for education system to support digital infrastructures for the students. ICT generic skills are depicted as skills required for the contact process of global engagement. They also require complementary 'soft skills' for this connecting process *such as leadership, communication and teamwork skills.* (OECD, 2015a; OECD, 2016, p.1; Grundke et al., 2017). There is no longer a debate within the education world about the need for students to develop global competency beginning at a young age. (Marjorie B.Tiven& Ester R.Fuchs 2017, p.93).

"By the time students reach ages 10 to 13, most of them are able to articulate personal interest in academic subjects and other topics. It is expected that as part of adolescent development, students differentiate their likes and dislikes and exhibit motivation to pursue knowledge and skills they view as related to expanding their interests. (Tiven& Fuchs 2017, p.65) As OECD (2016, p.1) claimed, Millennials are have much better ICT skills than older generations, as 56% of them have no ICT skills or have only the skills necessary to fulfill the simplest tasks required in a technology-rich environment.

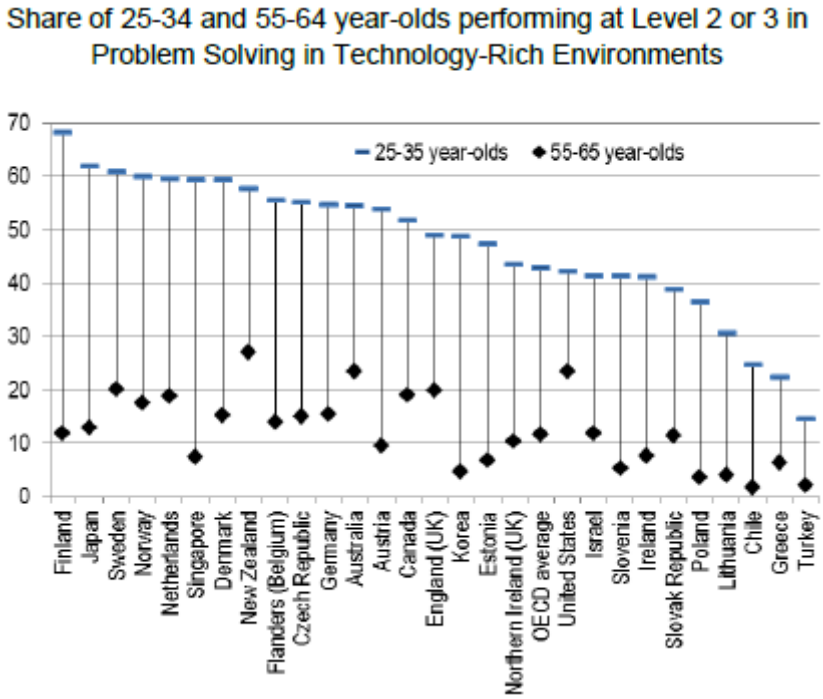
Figure 8-3. The majority of adults have low proficiency in problem solving in technology-rich environments



Adapted from OECD (2016, p.2), "*Skills for a Digital World*", Policy Brief on The Future of Work, OECD Publishing, Paris.

The above OECD's survey shows that more than 50% of the adult population can only carry out the simplest computer tasks, like writing emails and browsing the web or cannot do anything at all. From a 'global engagement' view, only around a third of the workforce has more advanced cognitive skills that enable them to evaluate problems and find solutions (OECD, 2016, p.2). As a result, many workers use ICT regularly, although they lack the adequate ICT skills (over 40% of those using software at work every day do not have the skills required to use digital technologies effectively) (OECD, 2016, p.2).

Figure 8-4. Younger people are better prepared for the digital working environment than older people



Ac ' Brief on

Not surprisingly, younger generations have better ICT generic skills than older people. *About 42% of adults from 25 to 34 can complete tasks with multiple steps which*

require the use of specific technology applications, such as a new online form (Level 2 or 3), whereas in the age group 55-65, only one in ten can do the same task. (OECD, 2016, p.2).

Although most millennials are claimed to be better prepared to interact with technology (OECD, 2016, p.3), there are still a lot young people with low levels of ICT skills and there unequal distribution of the skills too. So this situation intensifies existing inequalities, related to educational and nationality. Hence, the skill development program for digital world should be diversified by providing available and attainable education program under various situational conditions such as aforementioned migration status. In order to thrive in the digital economy, ICT skills will not be enough and other complementary skills are needed (OECD, 2016. p.1), like the right socio-emotional skills to work collaboratively and flexibly.

As Embleton (2015, p.3) claimed, it is significant that the overseas travel experience, which is a physical internationalization often regarded to the students as a supplement rather than integrating the knowledge and skills from the experience into their own educational experience. Hence, merely contacting outside world is not directly translated into global connection. Embleton (2015, p.3) suggests that the institutional mission and strategy toward global engagement should be reoriented in favor of "comprehensive internationalization" including in particular curriculum and "soft skills." As OECD (2016, p.1) suggested: ICT skills *are not enough to succeed in the digital economy and the right socio-emotional skills are required to work collaboratively.* Aon (2018, p.1) argued that the concept of 'engagement' is often confused with satisfaction or happiness, but the true definition is deeper in meaning. Through his survey on 'Global Employee engagement' which measures motivators of employee's engagement to their organization defined 'the engagement' as "*the level of an employee's psychological investment in their organization.* «So, the key measures for employee engagement defined:

• If an employee *Says* positive things and advocates about his/her organization

• If an employee has an intention of *Staying* at his/her organization for a long time.

• If an employee is motivated to *Strive*, by giving his/her best efforts to help the organization reach success.

Hewit (2018. P.13) measures employee engagement for more than 1,000 companies around the globe annually. This study has been conducted using data from more than 8 million employee responses in 2016 and 2017. The responses come from organizations with as few as 100 employees to the most complex organizations with hundreds of thousands of employees. More than 60 industries are represented in the study. This research focuses on the key areas that have the greatest opportunity to impact employees' desire and accelerate their engagement.

The table below demonstrates how the top five focus areas around the world have remained the same, just slightly re-ordered compared with the past years. For the second year in a row the *Rewards &Recognition dimension* is the strongest driver of engagement.

Figure 8-5. Top Engagement Opportunities Globally

2016		2017
1	Rewards & Recognition	1
2	Senior Leadership	3
3	Career Opportunities	4
4	Employee Value Proposition (EVP)	2
5	Enabling Infrastructure	5

Adapted from Aon Hewitt (2018, p.13). "*2018 Trends in Global Employee Engagement*" Aon Hewitt Consulting Performance, Reward & Talent.

Furthermore, Hewit (2018, p.13) argues that the key factor in 'Rewards & Recognition' was the Recognition for contributions (beyond pay and benefits,

meanwhile “fair pay” had an important supporting role. Senior Leadership which has strong influence for two consecutive years, aptly illustrated the importance of agility and direction from leaders.

This research provides significant track of requisition for effective global engagement:

- Recognition for contributions
- Senior Leadership of organization

The conception of ‘recognition’ and ‘leadership’ has the nerves of ‘soft skills’. People are emotional and without ‘soft skills’, mobility and various technology tools alone as Embleton (2015, p.3) suggested, *will not be enough to produce graduates who are better citizens, knowledgeable and globally engaged, with skills and attitudes to take them and their country to step forward.*

Global engagement is developmentally the most difficult global learning outcome for students to achieve. (Tiven & Fuchs 2017, p.67) The lack of clear definition and understanding on the structure of Global engagement complicates its implementation. Hence, the illustrative curriculum in the classroom for the global engagement should be developed according to its essential ‘soft-skills’ combining with ICT skills. “Students must use their communication skills, interests, and knowledge to work as a group to more completely understand problems, design solutions and suggest changes.” (Tichnor-Wagner et al.,2016). For example, students should also be able to explain why solutions proposed by their global peers may not be appropriate for their immediate environment which requires critical thinking skills. Programs that engage students in project- and inquiry-based learning provide them with significant opportunities to build such skills. Project-based assignments that ask students to propose solutions to a global issue can be used to assess knowledge and skills needed to globally engage as well as students’ recognition of their ability to contribute to positive change. (Tiven& Fuchs 2017, p.69) Examples of these indicators include the ability to engage in inclusive problem-solving as essential twenty-first-century skills that students need if they are to solve complex problems as adults. (Tiven& Fuchs 2017, p.65).

Many studies have shown that when an instructor provides a purpose or implication for a concept or activity, students are less likely to retain what they have learned after the class has ended, as compared to students engaging in self-reflection and meaning-making for their own learning experiences (Mezirow, 2003). The reason is two-fold: first, when students are asked to self-reflect, they have an increased sense of ownership of their learning; second, self-reflection activates the abstract thinking portions of the brain, which neuroscience points toward being associated with increased long-term learning and retention (Kuhlthau, Maniotes, &Caspari, 2015).

One of education policy's main challenge is to obtain the engagement whilst encouraging student creativeness. But a learning process often faces barriers to success, such as lack of interest. Morgan (2014, p.34) claimed that differentiated instruction required to motivate can eliminate students' disengagement to academic pursuits since students tend to get little and lose focus of classroom instruction when their teachers fail to use instructional strategies that match students' learning styles.

The collaborative nature of global engagement makes group assessment particularly relevant, but carries specific challenges. Students' ability to interact with peers and work toward shared outcomes is typically assessed at a basic level by the quality of the final product that the partnership or group produces. (Nicaise et al., 2000) (Tiven& Fuchs 2017, p.70) Finally, much educational research indicates increased engagement in academic work when activities involve elements of *authentic and interpersonal learning*. The impact of learning increases when students afford the opportunity to connect what they are learning to the "real world" they inhabit (Hattie et al., 2017). Today's students are more aware of and concerned with their own futures and the futures of their communities. (Tiven&Fuchs 2017, p.87) Hence, knowing the purpose of learning which aforementioned strong motivation for student engagement, should be maximized by curriculum development.

When teachers are asked about changes that must happen in the classroom for students to thrive in a twenty-first-century global world, critical thinking and problem solving repeatedly appear at the top of the list (Kivunja, 2014; Tiven& Fuchs 2017, p.88).

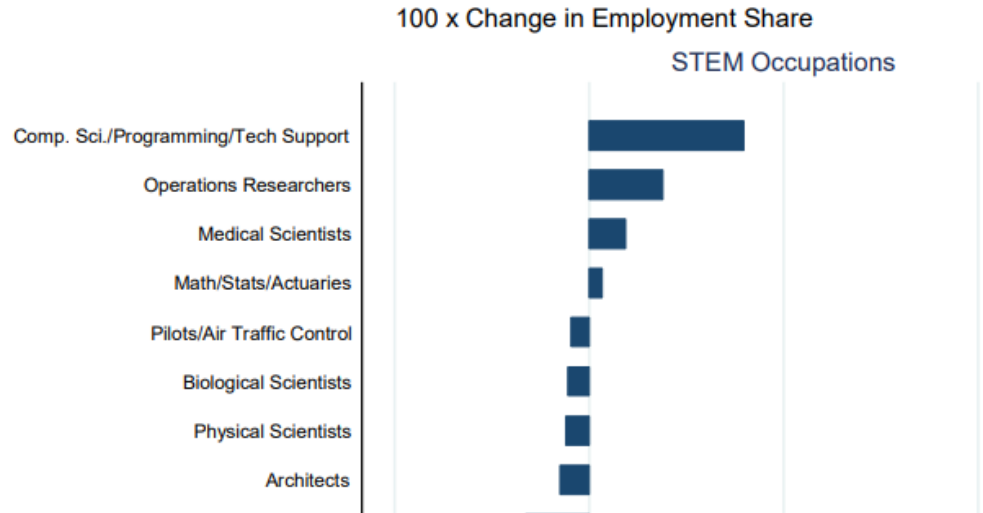
Chiara C. et al. claimed (2010, p.191) that multinational enterprises usually have higher productivity than their domestic competitors. This conclusion was drawn from surveys through data of a UK firm and correlations of global engagement with various significant parameters (knowledge investments, innovation/knowledge outputs, and sources of existing knowledge). The research found the link that globally engaged firms innovate more and its researchers argued from the research that the multinational corporates sourcing important knowledge or information through their own systematic global network which is substantial pool for innovation. Hence, the global engagement is the track to the critical thinking and problem solving through which education system should foster individuals for the quality education in digital world.

Case study 3: Social and Emotional Learning (SEL)

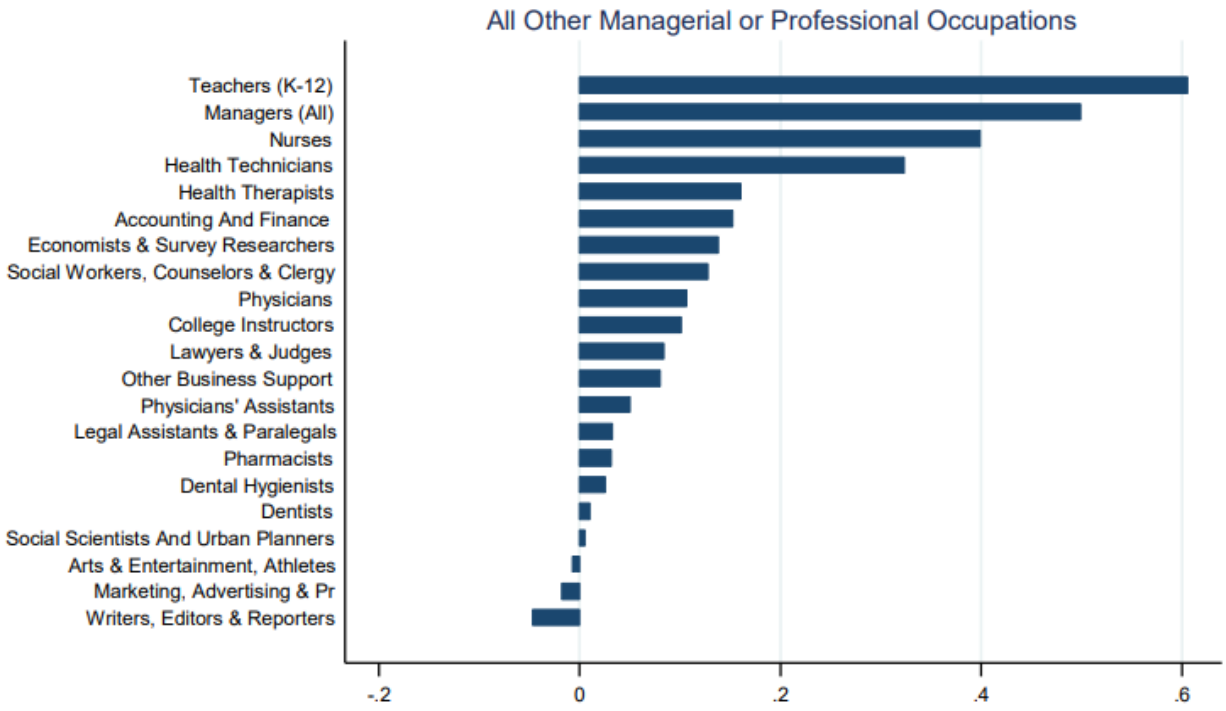
Deming (2017, p.1594) claimed that *the labor market or high-paying jobs increasingly reward social skill.* The skills and tasks that cannot be replaced by automation are commended and it has proven difficult to automate the social interaction. (Deming 2017, p.1594; Autor 2015). Deming (2017, p.1595) argued in his study that the labor market commend for social skills has increased since 1980 *and jobs require a lot more higher levels of social interaction, whereas math-intensive but less social jobs - including many STEM occupations - decreased by 3.3 percentage since then.*

Each row presents the change in employment share between 2000 and 2012 for the indicated occupation, magnified by 100 times. Consistent occupation codes for 1980-2012 are updated from Autor and Dorn (2013) and Autor and Price (2013).

Figure 8-6. Change in Relative Employment for Cognitive Occupations, 2000-2012



For the high-level jobs requiring for both math skill and social skill has significant employment and wage growth.



but low social skill requirements including many of STEM jobs has been declined. *Contemporaneous trends in the labor market over this period such as offshoring, trade and shifts toward the service sector can partially explain these patterns.*

When surveyed, employers talked about teamwork, collaboration and oral communication skills as the ones being the most valuable yet hard to find qualities in their workplace. (e.g. Casner-Lotto & Barrington 2006; Jerald 2009; David J.Deming 2017, p.1594). In fact, according to NACE (2015), employers listed the ability to work in a team as the most desirable one, ahead of problem-solving and analytical/quantitative skills.

The demand in the labor market for highly skilled collaboration is so obvious as various researches shown including the tests of emotional and social intelligence. (Salovey & Mayer 1990; Mayer et al.1999; Baron-Cohen et al. 2001; Goleman, 2006).

Woolley et al. (2010) who designed the test to measure social intelligence, predict that team productivity and group performance are positively connected with the "average social sensitivity" of the members of each group.

When the IQ was considered as the standard of excellence in life considered as the ingredients of life success, the education system in those days cultivated learners mainly for the competition rather than the collaboration. As globalization is getting deeper and has wider effect in our lives, the market segmentation increased in education, business, and society with requisition for the people who are collectively good and highly developed at different things which eventually required social skills to coordinate the deeper differences. Social skills for quality education mean that the number of differences between the students doesn't matter but it depends on how to resolve the differences and it is interdependent and interpersonal performance. It means our students should be experienced in what it would be like and develop the social skills and become collaboration experts with interpersonal management skills.

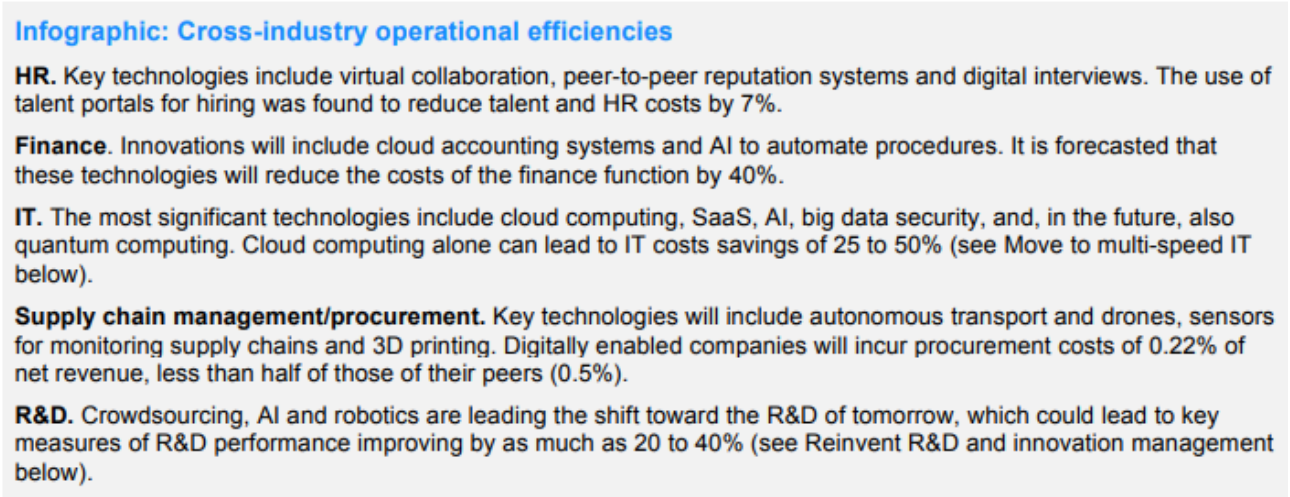
EI or EQ is how somebody manages their personality to be both personally and interpersonally effective (JCA Global). Goleman, one of the prominent science journalists in Emotional Intelligence (EI) field recalls that back in 1995 he was able to find only a few programs that taught emotional intelligence skills and a decade later, tens of thousands of schools all around the world offer children Social and emotional learning programs (SEL). In the United States many districts and even entire states make SEL curriculum requirement, saying that just as students must reach a certain level of competence in math and language, so they should master these essential skills for living. Social and emotional Learning (SEL) can be perceived as a process through which learners understand and manage their emotions, set and achieve important goals, experience and express empathy for others, establish and maintain positive relationships, and take responsible decisions. According to an examination, in 2018, on a range of school-based social and emotional learning(SEL) programs from hundreds of thousands of K-12 students within and outside U.S, *57% more students in schools with an SEL program improved their skills compared to students in schools without an SEL program, 27% more improved their academic performance, and 24% more improved their emotional well-being and social behavior. In sum, data collected from*

many studies indicates that adding an SEL program to the school curriculum can lead to several real-life benefits for students. (Joseph Mahoney et al. ,2018 p.18-23).

The SEL programs yielded a strong benefit not only in academic accomplishment, but also in the business field, particularly in the areas of leadership and employee development (a form of adult education). The Harvard Business Review has hailed emotional intelligence as "a ground-breaking, paradigm-shattering idea," one of the most influential business ideas of the decade. Today companies worldwide routinely look through the lens of EI in hiring, promoting and developing their employees. For instance, Johnson and Johnson found that in divisions around the world, those identified at mid-career as having high leadership potential were far stronger in EI competencies than were their less-promising peers.

It is a remarkable survey result that there is recognition of the importance of soft skills like emotional intelligence learning as well as in professionals: The procurement sector has traditionally valued negotiation skills which is key factor for successful collaboration with the job requirement of hard to be automated compared to other professional sectors such as HR, Finance, IT and R&D as follow figure shows:

Figure 8-7. Change in Relative Employment for Cognitive Occupations, 2000-2012



Considering rapid automation is replacing and restructuring the future jobs to pursue more high 'soft skills' traits like above SCM/Procurement, analyzing the individual workers' requisition for their job provides significant tracks to develop. According to the survey, 98.5% of Procurement workers believed there was an importance in the use of soft skills within their business sector.

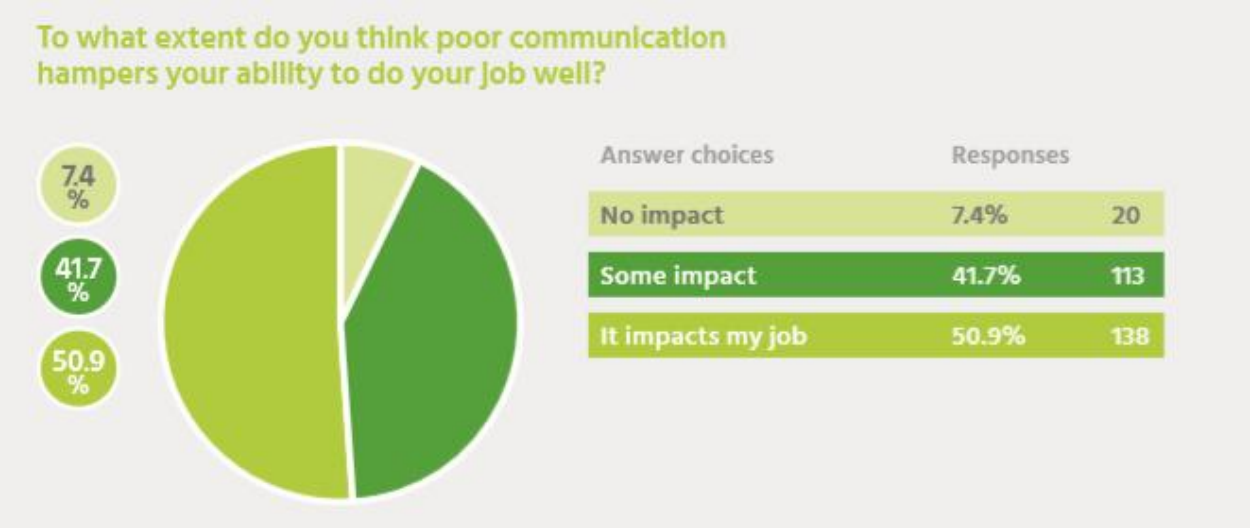
Figure 8-8. Survey on individual workers in Procurement Sector about soft skills

Adapted from "*Emotional intelligence in the procurement sector*" by JCA Global. (2017), p.5.

More importantly, the survey claimed that there is a great disparity between the recognition of the importance of EI learning and its utilization throughout the profession.

As explored in previous section about research on millennials, technology has certainly transformed how the youngest generations think, work, and communicate, but it hasn't made them equipped at in-person communication as Bridgeworks (2017, p.21) claimed. Nevertheless, communication skills are the most demanding soft skills in most work places where the ability to hold successful relationships for quality collaboration is required.

Figure 8-9. Survey of individual perception on poor communication impact



Adapted from "*Emotional intelligence in the procurement sector*" by JCA Global. (2017), p.6

There was a common view across respondents that poor communication affected their ability to perform their job as they would like. In fact, 92.6% of the respondents agreed that poor communication was a barrier to success in their field and that reflects in the labor market demand for social and emotional intelligence. It will be

expanded beyond certain business sectors in the future for the professionals with advanced soft skills taking account for the speedy replacement of routine work by automation.

The evolving biological sciences' research provides useful evidence-proved information for successful implementation of social and emotional intelligence development. The understanding of the biological bases of mental processes including learning and behavior connection is expanding enormously as Eric Kandel (2012, p.5) described it "the ultimate challenge of biological sciences". For instance, learners often know what they should do but do not put it into practice. One of the reasons for thatis knowing knowledge lives in a different part of the brain from the one doing practice. The emotional brain learns by doing, therefore, in order to turn good intentions into behavior, learners need to put them into practice through rehearsal and physical experience. (JCA Global).

Collaboration is an evolving process, involves two or more people working together for mutual benefit and it requires systematic engagement with equipment of learnable skills: Social and Emotional skills. During this process any individual involved has the opportunity to learn.

Figure 8-10. Core Social and Emotional Learning Competencies

Adapted from Collaborative for Academic, Social and Emotional Learning (CASEL) "*Five Core Competencies", (2017),* Copyright 2017 by CASEL

CASEL suggest five core abilities to promote interpersonal and cognitive competence and these can be learned in many ways. Thosefivecorecompetencesare:

a. Self-awareness:

- Recognition on one's own emotion
- Accurate assessment on one's strengths and limitations
- Self-efficacy

b. Self-management

- Effectively managing emotions to set and work toward goals

c. Socialawareness

- Understand social and ethical behavior norms and respect for others

d. Relationshipskills

- Having healthy and rewarding relationships with diverse individuals
- Clearcommunication
- Cooperation by resisting inappropriate social pressure, negotiating conflict constructively, and be supportive when needed

e. Responsibledecision-making

- Problemsolving
- The realistic evaluation of consequences of actions, and a consideration of the well-being of oneself and others.

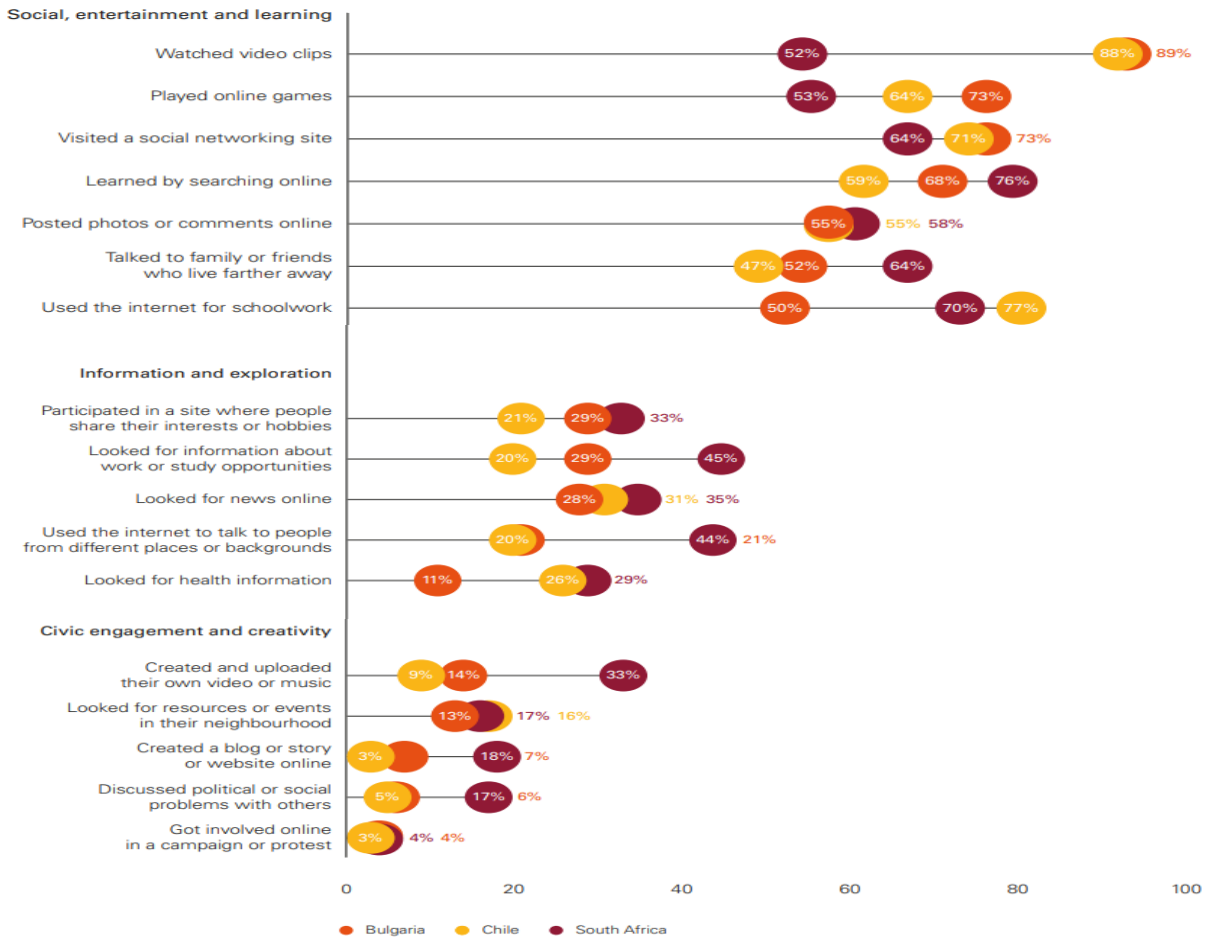
Reviewing analytically, developing individuals 'critical thinking facilitates each core competences and create values, thereby their relationships become rewarding to each other. To have sustainable rewarding relationships, individual learner is required to have systematic collaboration skills. Most autonomous agents are in a social context and need to interact with other agents to complete their problem solving (Kalenka and Jennings, 1999, p.135).

Increased globalization in education and work fields requires extensive social and emotional management skills. Based upon the latest brain science, Emotional Intelligence (EI) provides a fresh perspective on collaboration skills and puts systematic attitudes at the heart of achieving enduring change. EI is a learnable skill: it takes investment of time, energy, and determination. Building EI requires social and emotional learning, and we must put the learning into practice supported by educational learning policy.

EIis linked to effective leadership in many professional arenas (Goleman, 2002, p.22-24) and the level of collaboration requires analogical EI skills. As Kalenka and Jennings (1999, p.140) claimed, the ongoing commitment structure cultivates a safe and long-term basis for entering cooperative problem solving. The individual alternates between "support-right" and "support-duty" intervals: Cooperating individuals committing to support one another for periodically repeating time intervals is called "support-duty" when one has to support the other and "support-right" when one can demand support from the other partner. During "support-duty" interval, the individual

supports the other if it is requested and when the individual's need occur for "support-right", it can demand up to an equivalent amount of support from the other as given in its last "support-duty" interval. From the individual's perspective, the level of mutual commitment is the decisive factor to acknowledge their own roles and responsibilities in collaboration works.

Figure 8-11. What Are Children Doing Online?



Percentage of Children Aged 9-17 Reporting Involvement in Online Activities, 2016-2017

Adapted from "Children in a Digital World" by Garvey, D. (2017), p.67.

Saxena et al. (2017, p.1) identify EI linkage to effective leadership referring that EI facilitated as the key role of leadership learning in medical education. According to

their research on leadership styles at different hierarchical levels in medical education, the leaders use different style(s) at each leadership level and the appropriateness of these styles has different accountabilities. Across all participants, the dominant leadership style (democratic and coaching styles respectively) is significantly more used.

More importantly, the purpose of using ICT Skills is deeply laid on the Social, entertainment and learning which substantially requires extensive Soft skills (EI). Garvey D. (2017, p.66) claimed that the Millennials and youth have a narrow range of online activities according to the Global Kids Online (GKO) international research project. Evidence of this comes from Figure 8-11. ("What are children doing online?") where data by GKO on children's online practices, is grouping them into three big categories: social, entertainment and learning; information and exploration; and civic engagement and creativity.

The practices of more than half of these children in all three countries (Bulgaria, Chile and South Africa) fell into just one category: social, entertainment and learning. Garvey D. (2017, p.66). They go online to empower their friendships or find new friends: The role of social networking in expanding friendship can be seen in countries as diverse as Egypt, India, Indonesia, Iraq and Saudi Arabia, where almost every child using mobiles reported that *social networking strengthens relationships with close friends*. Boundaries on offline and online have no meaning especially among millennials and young generation since most of them are always online: *"In high-income contexts, it is becoming difficult "to draw the line between offline and online" in children's lives. In the United States, for example, 92 per cent of 13- to 17-year-olds report going online daily. The picture is similar in Europe, where children access the internet from multiple locations and using multiple devices."* (Garvey D. 2017, p.67).

In addition, evidence from high-connectivity countries shows that children are going online at ever-younger ages and they reported that network helps them build relationships with friends to whom they are not so close and with friends of friends. (Garvey D. 2017, p.64) This provides significant track that according to its large extent properties connecting almost all over the world, the relationship type fragmented into multiple levels in digital world instead of conventional relation type of dichotomy. The

data from these three countries highlight the point that while connected children avail themselves of many online opportunities, their fuller engagement with the internet – doing more diverse or sophisticated activities – is not a given. A challenge for research and policy is to find ways to support children to engage in more creative and participatory activities. The Soft skills, Social and Emotional learning is a strategic direction and the IT Skill is a functional activity. Because of the complexity of global procurement, the responsibility for it is usually undertaken by specially designated teams who report at a high organizational level.

The fundamental and conventional needs for socialization building upon digital connection according to its large extent properties, apparently shows the collaboration skills from 'face-to-face' reshaped into Internet. According to Mansell and Raboy (2011) the universal connectivity promoted by the Internet becomes central to the realization of key human rights to information, free speech and organization. To this end, in June 2016, the United Nations (UN) Human Rights Council defined Internet access as one of the basic human rights (Human Rights Council, 2016). However, within the broad domain of Internet governance, distinct cultural and regional differences impact the quality of individual and collective experiences, including those of children. As digital engagement becomes very important for the realization of children's rights, the legislative and policy provisions that frame their access and participation require closer scrutiny from a rights-based perspective. This article examines the issues that arise when policies which are designed to secure children's basic rights of protection, come into conflict with their own practices and online behavior.

Section 7: Collaboration expertise: Analogy beyond mechanism

7.1 A fait accompli of the game theory: Collaboration Risk

The principle of social decision-making is, as Kalenka and Jennings (1999, p.137) suggested, both the individual who performs an action and the society can be affected by the execution and its effect can be positive, negative, or indifferent (value of zero).

Collateral damage is any damage inflicted on an unintended target, according to the military terminology, and the engagement means that we should be prepared to take a risk in role choices and the riskier opportunities often become the greatest ones. However, collaboration should not remain elusive. When we reach the tipping point where the potential benefit expected is beyond the risk, naturally we start to minimize the risk to maximize the benefit. Managing membership or partnership is one of the most frequently used techniques of risk management to minimize the collaboration risk by screening stakeholders.

Most work on decision making functions for autonomous individuals concentrates on making individually rational choices (e.g. Doyle 1992, Russell and Wefald 1991, Wellman 1993, Kalenka and Jennings 1999, p.137). As Kalenka and Jennings claim (1999, p.137), the decision-making function in most theories is solipsistic individualism without consideration of the impact of actions on other individuals of the society other than maximizing individual's own gain. Game theory is the study of mathematical models of strategic interaction between rational decision-makers. Originally, it addressed zero-sum games, in which one person's gains result in losses for the other participants. The prisoner's dilemma payoff matrix is a standard example analyzed in game theory that shows why two completely rational individuals might not cooperate, even it seems that it is in their best interests to do it.

< The prisoner's dilemma payoff matrix >

A \ B	B stays silent	B betrays
A stays silent	-1, -1	-3, 0
A Betrays	0, -3	-2, -2

In this example there are two members of a criminal gang that are arrested and sent to prison. Each prisoner finds himself in solitary confinement and cannot communicate with the other. The prosecutors have no sufficient evidence to convict them on the principal charge, but they have enough to convict both on a lesser charge. So simultaneously, each prisoner is offered a bargain. More specifically each one is given the opportunity either to betray the other by testifying that the other committed the crime or to cooperate with the other by remaining silent. The offer is:

- If A and B each betray the other, each of them will serve two years in prison
- If A betrays B but B remains silent, A will be set free and B will serve three years in prison (and vice versa)
- If A and B both remain silent, both of them will only serve one year in prison (on the lesser charge)

In fact, the results shown that even pursuing individual reward logically leads both of the prisoners to betray, they would get a better reward if they both kept silent.

The fundamental reason for not choosing the optimal option is the complete isolation of each prisoner. In case there is a trust to act their collaboration through intimate communication, both prisoners would be lucky to be sentenced only 1 year which is the best selection for both prisoners.

In other words, collaboration is beyond mechanism, it's not only interactive, but it's interdependent. Collaboration is about influence.

The strategy to maximize stakeholders' collaboration is on how to minimize the risk of the highlighted cell scenario: Both A and B should have trusted each other through experienced collaboration works. For instance, operating partnership or membership in various forms maximizes the interests of members and minimizes the risks by increasing common denominator in each members.

A / B	B stays silent	B betrays
A stays silent	-1 / -1	-3 / 0
A betrays	0 / -3	-2 / -2

The cooperative decision making requires some form of social commitment (Castelfranchi 1995, Jennings 1993, Kalenka and Jennings 1999 p.140) to be made between individuals. Without such a commitment, individuals will not consider detrimental actions since they cannot be guaranteed to recoup their loss by the execution of the subsequent action.

7.2 Building the research base for effective program: Manage risk in collaboration

Students today involve a far greater degree of equity and this is largely the result of technology enablers such as the Internet, the reduction of communication costs and the increase in cloud computing. Globalization through technology is also seen as a new enabler that can help education create more competitive advantage over those without it. After all, globalization has led to a saturation of markets in all industries and poses a considerable barrier to entry for new businesses, while placing immense pressure on established companies to remain competitive. In response, phenomenon hypercompetitive as game theory has been widely recognized as an important tool for measuring pros and cons in many fields also addressed zero-sum games, in which one person's gains result in losses for the other participants. Ironically though, as the

prisoners' dilemma showcased well, the best option for prisoners depends on their collaboration of absolute trust in any circumstances. In other words, the collaboration involved with risk element by populating stakeholders upon whom the individual cannot have absolute control, and it is the fait accompli of the game theory. It is significant to understand the requisition for collaboration in digital world is immense and crucial as World Economic Forum (2016, p.15) quoted from Mohanjit Jolly that "Companies, both large and small, are realizing that they don't have the luxury of time to innovate; they need to look at partnerships or acquisitions much sooner than they would have done earlier." The advantage of technology at the same time resulted in hypercompetitive market where the competition connoting the pressure of speed could be handled only through collaboration. According to the World Economic Forum(2016), digitalization is the cause for huge transformations in multiple aspects of business, by providing unparalleled opportunities for value creation and capture, when, at the same time is representing a major source of risk. One of the main challenges that many young people face is the lack of proper verification of the available sources. Even though technological innovations have accelerated the pace of life, it's important that we take our time to check the validity, credibility and overall quality of the sources of information that we and especially our children use.

"When learning communities work well, they cultivate new visions for educating students and develop new strategies for fulfilling those visions (Whitford and Wood 2010). They combat the entrenched forces of teachers' tendency towards individualism. Taylor (1992) argues that a sense of self develops from the language and values one shares with others and that selfhood relies on our 'orientation' towards 'the good'. In the process of establishing norms and undertaking collective inquiry, $%%PLCs developed a collective conviction that all students can and should learn and began to shoulder a collective responsibility for students' well-being." (Diane, 2011, p.478).

"The following portraits of grade-level PLCs …provide a realistic portrait of how difficult the work of collaborative learning actually is in the current policy context but that the rewards of achieving it are considerable….(Diane, 2011, p.479). When

setting the goal, it is very hard to keep it student-centered. Teachers wanted it to be focused on what they did rather than on student outcomes.

"At source, communication and soft skills are based on a common foundation of Emotional Intelligence-namely 'a person's capacity to make intelligent use of their emotions to be both personally and interpersonally effective." (Maddocks, 2014).

Experience Collaboration initiative is to equip learners with the essential life skills and supportive learning environments to become knowledgeable, caring, contributing and evolving adults, citizens, co-workers, friends and family members. The collaboration policy will help districts across the country implement curriculum, share best practices and challenges, and to ensure the long-term sustainability of high-quality SEL across all aspects of the school community.

Hence, the global engagement is the track to the critical thinking and problem solving through which education system should foster individuals for the quality education in digital world.

Conclusions, Limitations of the study & Future Investigations

To sum it up, the collaborative learning policy for quality education aims to equip the students with the appropriate skills by seeking to define the future evolution of education. This can be attained by starting to look a decade and more years ahead including getting vivid insights especially from professionals, who expect the irreplaceable by accelerating the development of technology.

About, the first exploratory question that was about the prerequisites for quality education in the digital era and was discussed in detail in section 6 there is no definite answer. Of course, education systems should continually evolve to secure the quality education effectively and efficiently, and simultaneously pursue the ultimate potential growth of individual learners with clearly envisioned education policy tailored for future. Collaboration is the key for sustainable growth, therefore collaborative learning policy should provide a linear development curriculum applicable to cultivate collaborative individuals. As mentioned in the corresponding section, Hipp K et al. (2008, p.179) argued that five characteristics are essential for developing quality policies: A ‘‘learning family’’ committed to self and student learning, united staffs on a moral purpose for one priority—student learning, the power of the whole on teamwork of shared responsibility among all stakeholders, effective professional development and learning structures that focus on teachers ’collaborative learning and the growth of an inclusive leadership culture. It is especially important for policy makers to provide solid understanding of the instant effects of learning but more importantly, its ultimate effects on pedagogy. Apparently critical thinking and problem solving skills are of outmost importance in this process (Kivunja, 2014).Finally, the impact of learning increases when students afford the opportunity to connect what they are learning to the “real world” they inhabit (Hattie et al., 2017).

The second exploratory question was “Does digital technology help build healthy social relationships?”. As Bridgeworks (2017, p.21) claims technology has certainly transformed how the younger generations think, work, and communicate, but it has not equipped them with in-person communication. In fact although most young people are claimed to be better prepared to interact with technology, there is still a large

share of youth with low levels of ICT skills and there is unequal distribution of skills too (OECD, 2016). As for older people, according to OECD (2016), they seem to find it difficult to adapt in the new technological era, as only around one third of workers have more advanced cognitive skills that enable them to evaluate problems and find solutions which are the required skills in 'contact process' of global engagement. Thus, digital technology is not a part of their everyday life, let alone helping them build social relationships.

The third and last exploratory question was "Is there risk – fear in cooperation and why can't millennials cooperate?". It is a fact that the millennial generations live in a globally homogenous society moving forward to the technology evolution beyond the border and the space. Technology is undoubtedly one of the principal enablers at the application level as it facilitates the integration of learning process providing worldwide education equity, but this must be utilized by people-centric decisions to foster value-creating collaborative individuals. David J. Deming (2017, p.1594) argued through case studies of ICT implementation that *computerization leads to the reallocation of skilled workers into flexible, team-based settings that facilitate adaptive responses and group problem-solving (e.g. Autor et al. 2002; Bresnahan et al. 2002; Bartel et al. 2007).* This shows a clear link between the computerization of the labor market and the decline of routine work lead to the incremental requisition for social skills. As many theoreticians argue (Caste Franchi 1995, Jennings 1993, Kalenka and Jennings 1999 p.140), cooperative decision making requires some form of social commitment between individuals. Without such a commitment, individuals will not consider detrimental actions since they cannot be guaranteed to recoup their loss by the execution of the subsequent action. In other words young people do not seem willing to collaborate even if collaboration has more advantages than disadvantages because they have not learnt how to do it in their life and they are not willing to take that "risk".

Additionally, most of the mechanical collaboration works are replaced by automation and the demand is increasing for creative collaboration works, which are rather analogical performances of interdependent individuals than a mere mechanical sum. The more mechanical activities simply disappear and become automated, the more the requisition grows for irreplaceable skills including collaboration ones. Unbalanced

though, our millennials are sharing more knowledge and experiences than ever before and becoming less engaged and less supportive. We are in a critical momentum, so we need to act now for the millennials and our future per se, before it is too late.

Collaborative learning policy should be keyed to the individual growth: Early communication to clarify expectations, avoid misunderstanding, and establish mutual interests through collaboration. Millennials should experience how to regulate their roles and responsibilities in their collaboration works by endeavoring to make responsible decision-making upon balanced mutual commitment.

The information collected through this paper exclusively focused on analogical and learner-centric skills of individuals upon millennials' inclination toward individualism. Thus, other related issues could be discussed and examined as the following: talented members' effect to the group, prominent leadership or economic rewards which are significant variables for the successful collaboration. Further elucidative research on direct or indirect influences affecting the collaboration work would provide more effective methods for efficiently managing the risk in collaboration work.

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