Challenges for the National Education System in the COVID19 Era

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Abstract

The Covid19 pandemic interrupted the normal teaching process all over the world. Some countries, including the G7-member countries, were better prepared for facing the new challenges of the Distance Learning paradigm.

In our country, the effect of Covid19 in the education system was close to a disaster as our system was unprepared for facing such a sudden paradigm shift. The Ministry of Education informed that the teaching will take place using a new, never used paradigm referred to as Distance Learning.

In these circumstances, it was necessary to organize a study to understand what were the feelings of students and professors using distance learning. To undertake the study, the technology of Mind Genomics was used. Mind Genomics uses statistical models, data mining, and clustering techniques to evaluate important patterns of thinking of students and professors as well.

Four pillars (or silos) were defined to be the focus of the study; Effectiveness, Interaction, Feasibility, and the Future of the new teaching paradigm. Among the data collected from students are age, gender, and the reasons 1) Looking for: Fast learning through tutorial services 2) Looking for: Every time and everywhere learning, and 3) Looking for: Learning while working.

Results show that 37% of respondents (the value of intercept) are inclined to use distance learning in absence of any other information about elements. This is a rather encouraging result. In general, most of the students and professors, 49.41% of them, use distance learning for the reason any time and everywhere learning. This result reinforces the idea that 37% of respondents are in favor of this learning paradigm in absence of any other information. Next, 27.06% of respondents use distance learning for Learning through tutorial services. Learning while working is the least appreciated reason, 23.53%.

The study shows that the effectiveness and the interactivity of this new paradigm are very important and any further developments of distance learning should provide strong support for these components. The position of the professor is indispensable as the guide to the entire process, suggesting that at least at the time of this writing (2020) distance learning

approach is perceived only to be an intermittent complementary path to in-person interactions.

Keywords: COVID19, distance learning, statistical models, mind genomics.

Introduction

The Distance Learning (DL), also referred to as distance education, e-learning, and online learning, is a new teaching paradigm mostly forced by the COVID19 pandemic. It represents an education approach which occurs when the professors and students are separated by space and time. DL is based upon the new sophisticated technology of today that allows the participants to communicate with each other as if they were in the same room. Today's sophisticated technologies allow for these 'room's, and have become well-known during the current (Spring 2020) COVID-19 crisis.

DL is not a new technological phenomenon. Its first appearances are around year 2000 and it is growing since with a fast pace. It has grown 900% and it is expected to triple its size by year 2025. The most relevant technologies have been seen in Europe and the United States that have 70% of the global market share (Online Learning Statistics, 2019).

This study aims at understanding the feelings of professors and students about this new teaching paradigm, never seen so dominant before. The existing literature explored addresses various aspects of DL such as users' barriers in the use of technology in higher education platforms (Jariang

Pcasert, 2003; Nedelman, 2013); the evolution of technological institutional communication (Gutierrez et al., 2016); the student's skills and the intellectually-stimulating learning environment elements; distance learning platforms` typologies as well as the technological pedagogical approaches used (Alhih et al., 2017; Coymak, 2019). This study is different from previous ones as it deals directly with people, trying to collect their opinions about this new teaching paradigm.

This study presents results obtained from a Mind Genomics experiment (Moskowitz et. al., 2006; Milutinovic & Salom, 2017) with students and professors of different group-ages, genders and stated reasons why distance learning is relevant to the respondents, or the participants in the Mind Genomics experiment. The underlying theoretical framework is the narrative persuasion theory, which divides the message into logically different components; for whom; under what circumstances; how; and when does each message achieve optimum effect.

Distance Learning at Universities

Learning is an important skill, and the approach to learning is very personal. The most effective strategies vary from student to student (Brown et al., 2014). As of the last year, the evolving paradigm of "Distance Learning" today being literally an important issue (Sun et al., 2007). In this context, the concept of the class room is totally changed, represented in a larger framework. The 'new classroom' has been as is being designed both to deliver education, and to evaluate students who are

the recipients of that education. The modality is the internet, an electronic, multi-media infrastructure, allowing a continual perspective on learning, comprehending, and mastering the material.

The sophistication and usability of the distance learning platforms varies among higher education institutions and different countries. As of this writing (Spring, 2021) there does not appear to be any well-structured framework and model for the use of DL, or educational technology. The lack of a commonly agreed-to set of principles to guide the development of DL platform arises from management attitude, technical readiness, funding, and resources made available, etc. The list of that which is needed can be expanded to pages when the need becomes specific for a given group of professors and students, and the application specified in light of a specific university culture (Nedelman, 2013; Pcasert, 2003).

Beyond the general aspect of 'culture' of the specific institution of higher learning lies the very real aspect of structure and finances. Gutierrez et al., (2016) highlight other obstacles hindering the evolution of technological adoption in the institution. The strategy, or more appropriately the lack of strategy, the change in the nature of administrative costs, as well as the concomitant increase in the new cost to the institution of DL, all become problems as the need for DL becomes increasingly real and immediate.

More funds must be allocated to assure the continuing evolution and improvement of the used tools, and for the integration of new technologies such as the use of virtual and augmented reality-based learning tools (Birch & Barnett, 2009; Moro et al., 2017). The technology changes require that professors and students make the effort to attend training courses to master this new paradigm.

Besides the training courses, another issue is the active use of DL platforms. During the conventional teaching philosophy, the student need only listen to the lecturer, take notes, and ask questions face to face with the instructor. DL requires more effort, and specifically, more focused effort. Thus, Ossiannilsson (2012) and Ossiannilsson et al. (2015) reported that the effectiveness of distance learning platforms is measured through the level of their interactivity, and not just by the ability of the lecturer to present a coherent lecture. New behaviors, skills and attitudes, are required from students to successfully complete the distance courses (Hart, 2014). These skills encourage them to adapt this new education paradigm with greater ease. At the same time, the burden for student interaction comes back to the nature of the course, how it is structured, and how well it is delivered, all this being on the shoulder of the lecturer (Robinson, 2009). Thus, it is both the higher education presenter, the lecturer, and the student, who, together, drive the effectiveness of the DL platform, a new platform in which successful business and social life require engaging intensive knowledge and constant learning (Coymak, 2019).

Considering the way of cooperating with students the distance learning platforms` of higher education institutions are separated into two approaches: asynchronous and synchronous distance learning tools (Alhih et al., 2017). In the asynchronous group the content is constructed before and stocked onto databases and only later on students can access it (Simonson & Schlosser, 2009). The most popular variants used in these cases are the one of courses registered in CD-ROM, audio-visual presentations, audio power point slides, video-recorded courses, etc. By

nowadays standards, these technologies look obsolete today. Students using this distance learning version can explore even the forum, quizzes, messages and announcements practices. In such cases is recommended also the help of an online tutor for a successful comprehension of the presented topics. These types of distance learning platforms seem to be more flexible and fit better the lifestyle of students that work.

In the synchronous distance learning platforms instead, the professors and students are face-to-face (Simonson & Schlosser, 2009). This approach replicates the face-to-face communication style by using, audio and video conferences, and phone connections over the internet and live satellite broadcasts to communicate with the classroom. Thus, both professors and students provide a simultaneous feedback and discuss together as in a traditional classroom (Schwarz & Asterhan, 2011). Later on, students can individually proceed to complete exercises or labs over the discussed topics. These kinds of distance learning platforms seem to be more useful for full time students.

Methodology

In order to collect the thinking of professors and students, a Mind Genomics experiment is designed. 6672 participants; professors and students were invited to participate. The participants were from the Mediterranean Basin (Albanians, Italians, Moroccans, Algerians) and from some African universities. Only 4080 students and professors accepted the invitation.

Among participants, 68.2% of the responders (students and professors) are female and around 31.8% are males. Over 63.5% of the responders were students in the age of 18-24 years old and around 36.5% are professors. The professors in the age of 25-34 years old form 17.74%, 35-44 years old were around 35.48%, 45-54 years old were around 22.58% and over 55 years old were around 24.19%. Around 80 % of the responders were involved in Bachelor study program and the remaining part is involved in Master's study programs. The professors that participated in the study were involved in both study programs.

The approach uses Mind Genomics, a research procedure which combines messages about a topic, presents these combinations to respondents, obtains responses, and then deconstructs the data to estimate the contribution of each message. In short, Mind Genomics allows the researcher to understand the response of individuals to the granular aspects, the specifics of everyday life (Milutinovic & Salom, 2016; Moskowitz et al., 2006). Mind Genomics has a long history, with applications ranging from merchandising (e.g., finding customer requirements for nature food stores (Gere et. al., 2018)), the concerns of people about the prospects of cancer (Gabay et. al., 2018), and even corruption in education (Gere et al., 2019).

Sending to customers with the right message has always been a major objective of companies offering products and services. Successfully achieving this target demands understanding the mind of customers and what they think about specific ideas and messages. It is also important to determine whether there are different Mind-Sets for the same topic, and if there are, assigning people to the right Mind-Set. (Ilollari et al., 2019)

used Mind Genomics as a simple tool, to understand the specifics of what features of a service or product appeals to an individual through the notion of Mind-Sets, and then a method for assigning any new person that has not participated in the survey, to the most appropriate Mind-Set. (Ilollari et al., 2020) used Mind Genomics to understand the client perception of the quality of this paradigm shift that had been forced upon them.

The Mind Genomics approach is hypothesis-agnostic. Finally, the Mind Genomics approach is statistically oriented. The responses to the vignettes are deconstructed by ordinary least-squares regression (OLS) (Zdaniuk, 2014), to reveal the part-worth contribution of each element (answer) to the rating question. It uses a set of new technologies such as statistical models (Zdaniuk, 2014), datamining and clustering techniques (Mucherino et al., 2009) to find out what is of importance to participants. A very unusual field of application for the Mind Genomics approach is the field of law. Many would think that this field is out of the reach of statistical and technological advances. A new book titled ***Mind Genomics and the Law*** has appeared recently that combines science, the law, and people (Moskowitz et al., 2020).

This study established as main pillars of DL the following aspects: Effectiveness, Interactivity, Feasibility and Perspective of distance learning.

Table 1. The array of "questions" and their associated answers presented in the survey

Question 1 - How effective is distance learning?

A1 Distance learning is not as effective as the face-to-face communication

A2 Distance learning is more an individual learning approach

A3 Distance learning platforms are less friendly to use than social media (Facebook, Instagram)

A4 Distance learning is more appropriate for people that have a job

Question 2 - How interactive is distance learning?

B1 Distance learning platforms do not favor an immediate feedback from students

B2 Distance learning platforms are not helpful for students during web-seminars

B3 Distance learning platforms allow for interaction between professors and students

B4 Distance learning platforms push students towards rational thinking

Question 3 - How feasible is distance learning?

C1 Distance learning platforms require high speed Internet

C2 Distance learning platforms operate with limited supportive infrastructure

C3 Distance learning platforms do provide enough support for labs, seminars and exam sessions

C4 Distance learning platforms provide full support to forums, quizzes, messages, announcements, audio & video recordings

Question 4 - What is the perspective of distance learning as a learning approach?

D1 Distance learning platforms require the ability to upload and download files on and off line

D2 Distance learning platforms should provide interaction as in the classroom

D3 An online tutor is necessary (besides the lecturer)

D4 A better distance learning approach requires more infrastructures and human resources

RESULTS AND DISCUSSION

Results show that 37% of respondents (the value of intercept) are inclined to use the distance learning in absence of any other information about elements. This is a rather encouraging result. In general, most of students and professors, 49.41% of them, use distance learning for the reason any time and everywhere learning. This result shows the idea that 37% of respondents are in favor of this learning paradigm in absence of any other information. Next, 27.06% of respondents use distance learning for Learning through tutorial services. Learning while working is the least appreciated reason, 23.53%. Results show as well that based on their statistical relevance the four pillars/groups considered for this study are ordered as follows: The perspective of distance learning as a learning

approach is evaluated with the value of 3. The effectiveness pillar is evaluated with the value of 2.75. The interactivity pillar is evaluated with the value of 2.5. And last, the feasibility pillar is evaluated with the value of 0.25.

The study shows that as the distance learning approach is taking momentum, the perspective of this paradigm is quite relevant to respondents. The survey results show the more relevant aspects of distance learning from the students and professors' point of view. The aspect of perspective of distance learning as a learning approach shows these facts: The element which respondents' value the most (with value of 4) is that the future learning platforms should provide interaction as in the classroom. Students value this item with 2 and all professors older than 35 years old, agree on the matter, they value this item with 6 to 19. Young professors in the group age 25-34 years old do not consider this to be a problem; they value this item with -6. Males value this item with 6 and are more exigent than females that value this with 4.

Another issue important to respondents is that a better distance learning approach requires more infrastructures and human resources; this element is evaluated with 3. In particular students evaluate this with 2 and professors older than 35 years old, agree on the matter and their evaluation goes from 7 to 19. For professors of younger age, 25-34 years old this is not an issue at all, their evaluation is -13. Males need more infrastructure and human resources to operate with distance learning platforms; they evaluate this element with 9 while for females there is no need for assistance, they evaluate this element with 1.

The element that had the highest evaluation from respondents in the study was distance learning platforms push students towards rational thinking evaluated with the value of 5. Students evaluate this element with a value of 6 and all professors excepting the ones of group age 35 - 44, agree. Professors of age 45-54 evaluate this element with 14. Instead, professors of age 35-44 years old don`t think that distance learning platforms push students towards rational thinking. Males evaluate this item very high, with value of 10 and are more favorable than females that evaluate this item with 3. Regardless of the value, both male and female think that distance learning will push students to be more rationale during their studies.

The issue of students becoming more responsible and more rationale as a result of the use of distance learning tools is a topic widely discussed in the literature (Jossberge et al., 2010). Several authors emphasize the relevance of using workplace simulations (WPS) appeal to students' self-directed learning (SDL) and self-regulated learning (SRL) skills, as students are required to work and learn independently in these settings (Tekkol & Demirel, 2018). As the new learning paradigm is taking a first-hand role in the education process, there is a need to better define the used terminology of self-directed learning (SDL) and self-regulated learning (SRL) skills (Saks & Leijen, 2014). As the distance learning as the main method for teaching is a new paradigm there is a need to foster innovation, particularly in technology-enhanced learning, at institutional scale (Bennett et al., 2018).

An important issue pointed out from this study, is what approach will be used to implement this new teaching paradigm in Albania. Many

European countries have already implemented complex DL systems. Will Albania import those systems or will we design and implement our systems? Both solutions have advantages and disadvantages.

Importing a foreign system implies implementing a teaching philosophy that may not be appropriate for us. Designing and implementing our teaching philosophy might be technologically difficult, but at the same time will push forward our engineers to work harder and advance this technology.

At the same time, the implementation of this new teaching paradigm will put in front of the Ministry of Education several issues to be addressed. The accreditation process implies a number of parameters to be respected such as m3 for student, recreational spaces, etc that must be respected by the institutions of Higher education. Thus, such parameters, translated into numbers must be included in the requirements institutions must respect even when using telematic approaches to teaching.

An important point is that the Law for Higher Education No,80/2015, in item 24 point C, does not include distance learning as one of the teaching paradigms. Thus, the Ministry of Education must revise its regulation and procedures to make room for this new teaching paradigm. In this process, the ministry must include local specialists and perhaps foreign experts to correctly address all these issues.

References

Alhih, M., Ossiannilsson, E., & Berigel, M. (2017). Levels of interaction provided by online distance education Models. Eurasia Journal of Mathematics, Science & Technology Education, 13(6), 2733-2748. https://doi.org/10.12973/eurasia.2017.01250a

Bennett, S., Lockyer, L., & Agostinho, Sh. (2018). Towards sustainable technology-enhanced innovation in higher education: Advancing learning design by understanding and supporting teacher design practice. British Journal of Educational Technology, 49(6), 1014-1026. https://doi.org/10.1111/bjet.12683

Birch, D., & Burnett, B. (2009). Bringing academics on board: encouraging institution-wide diffusion of elearning environments. Australasian Journal of Educational Technology, 25(1), 117-134. https://doi.org/10.14742/ajet.1184

Brown, P. C., Roediger, H. L., & McDaniel. M. A. (2014). Make it stick: The science of successful learning. Cambridge, MA: Harvard University Press. https://doi.org/10.1080/00220671.2015.1053373

Gabay, G., Zemel, R., Gere, A., Zemel, R., Papajorgji, P., & Moskowitz, H. (2018). On the Threshold: What Concerns Healthy People about the Prospect of Cancer? Cancer Studies and Therapeutics, Research Open, 3(4). Retrieved on 28 March 2020 from https://www.researchgate.net/publication/330534911_On_the_Threshold_What_Concerns_Healthy_People_about_the_Prospect_of_Cancer

Gere, A., Papajorgji, P., Moskowitz, H. R., & Milutinovic, V. (2019). Using a Rule Developing Experimentation Approach to Study Social Problems: The Case of Corruption in Education. International Journal of Political Activism and Engagement (IJPAE), 6(3), 23-48. https://doi.org/10.4018/IJPAE.2019070103

Gere, A., Zemel, R., Papajorgji, P., Sciacca, A., Kaminskaia, J., Onufrey, S., & Moskowitz, H. (2018). Customer Requirements for Natural Food Stores - The Mind of the Shopper. Nutrition Research and Food Science Journal, 1(1). Retrieved from https://researchopenworld.com/customer-requirements-for-naturalfood-stores-the-mind-of-the-shopper/

Gofman, A. (2011). Rule Developing Experimentation in Consumer-Driven Package Design. https://doi.org/10.1002/9780470400531.eorms1036

Gofman, A., & Moskowitz, H. (2010). Isomorphic permuted experimental designs and their application in conjoint analysis. Journal of sensory studies, 25(1), 127-145. https://doi.org/10.1111/j.1745459X.2009.00258.x
Gutierrez - Santuste, E. Gallego - Arrufat, M.G. & Simone, A. 2016. Barriers in computer-mediated communication: typology and evolution over time. Journal of E-learning and Knowledge Management, 12(1),107-119. https://doi.org/10.20368/1971-8829/953
Hart, J. (2014). Social learning handbook 2014. Centre for Learning & Performance Technologies.
Ilollari, O., Papajorgji, P., Gere, A., Zemel, R., & Moscowitz, H. R. (2019). *Using Mind Genomics to Understand the Specifics of a Customers Mind*.
Ilollari, O., Papajorgji, P., & Civici, A. (2020). Understanding client's feelings about mobile banking in Albania. *Interdisciplinary International Conference On Management, Tourism And Development Of Territory*, 147–154.
Jariang Pcasert, N. (2003). The opinion of faculty of business administration lectures and students, Chiang Mai University about the use of E- Learning. Songklanakarin J of Social Sciences & Humanities, 9(2), 136-145.
Jossberger, H., Brand-Gruwel, S., Boshuizen, H., & Van De Wiel, M. (2010). The challenge of self-directed and self-regulated learning in vocational education: A theoretical analysis and synthesis of requirements. Journal of Vocational Education and Training, 62(4), 415-440. http://doi.org/10.1080/13636820.2010.523479
Milutinovic, V., & Salom, J. (2016). Mind Genomics: A Guide to Data-Driven Marketing Strategy. Springer.
Moro, C., Štromberga, Z., Raikos, A., & Stirling, A. (2017). The effectiveness of virtual and augmented reality in health sciences and medical anatomy. Anatomical sciences education, 10(6), 549-559. https://doi.org/10.1002/ase.1696
Moskowitz, H. R., Gofman, A., Beckley, J., & Ashman, H. (2006). Founding a new science: Mind genomics. Journal of sensory studies, 21(3), 266-307. https://doi.org/10.1111/j.1745-459X.2004.00066.x
Moskowitz, H., Wren, J., & Papajorgji, P. (2020). *Mind Genomics and the Law* (1st Editio). LAP LAMBERT Academic Publishing.
Mucherino, A., Papajorgji, P., & Pardalos, P. M. (2009). Data mining in agriculture (Vol. 34). Springer Science & Business Media. https://doi.org/10.1007/978-0-387-88615-2

Nedelman, C.A. (2013). Exploring organizational and cultural barriers to developing distance learning programs in higher education (PhD Thesis). North Central University. Retrieved from https://search.proquest.com/openview/a004ead5846591dd5dd3f25594cb090c/1?pqorigsite=gscholar&cbl=18750&diss=y
Online Learning Statistics. (2019). Retrieved on 3 April 2020 from https://skillscouter.com/online-learningstatistics/
Ossiannilsson, E. (2012). Benchmarking e-learning in higher education: lessons learned from international projects. Juvenes Print.
Ossiannilsson, E., Williams, K., Camilleri, A. F., & Brown, M. (2015). Quality models in online and open education around the globe. State of the art and recommendations. Oslo: International Council for Open and Distance Education. Retrieved from https://www.pedocs.de/volltexte/2015/10879/pdf/Ossiannilsson_et_al_2015_Qualitymodels.pdf
Robinson, K. (2009). The element: How finding your passion changes everything. Penguin.
Saks, K., & Ä. Leijen, Ä. (2014). Distinguishing Self-Directed and Self-Regulated Learning and Measuring them in the E-learning Context. Procedia - Social and Behavioral Sciences, 112, 190-198. http://doi.org/10.1016/j.sbspro.2014.01.1155
Schwarz, B. B., & Asterhan, C. S. (2011). E-moderation of synchronous discussions in educational settings: A nascent practice. Journal of the Learning Sciences, 20(3), 395-442. https://doi.org/10.1080/10508406.2011.553257
Simonson, M., & Schlosser, L. A. (2009). Distance Education 3rd Edition: Definition and Glossary of Terms. IAP.
Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. (2007). What drives a successful e-Learning? An empirical investigation of the critical factors influencing learner satisfaction. Computers & education, 50(4), 1183-1202. https://doi.org/10.1016/j.compedu.2006.11.007
Tekkol, İ. A., & Demirel, M. (2018). An investigation of self-directed learning skills of undergraduate students. Frontiers in psychology, 9, 2324. https://doi.org/10.3389/fpsyg.2018.02324.
Tulving, E. (1983). Ecphoric processes in episodic memory. Philosophical Transactions of the Royal Society of London. B, Biological Sciences, 302(1110), 361-371. https://doi.org/10.1098/rstb.1983.0060

Tulving, E. (2002). Episodic memory: From mind to brain. Annual review of psychology, 53(1), 1-25. https://doi//10.1146/annurev.psych.53.100901.135114
Zemel, R., Choudhuri, S. G., Gere, A., Upreti, H., Deite, Y., Papajorgji, P., & Moskowitz, H. (2019). Mind, Consumers, and Dairy: Applying Artificial Intelligence, Mind Genomics, and Predictive Viewpoint Typing. In Current Issues and Challenges in the Dairy Industry. IntechOpen. https://doi.org/10.5772/intecopen.85532
Zdaniuk, B. (2014). Ordinary Least-Squares (OLS) Model. In *Encyclopedia of Quality of Life and Well-Being Research* (2014. Edit). https://doi.org/https://doi.org/10.1007/978-94- 007-0753-5_2008