Teachers’ Perceived Self-Efficacy for Mobile Teaching and Learning

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Abstract: In the context of the pandemic generated by the COVID-19 (SARS-CoV-2), the global education system is currently facing an unprecedented situation which has proven to be difficult to be managed - closing schools and identifying alternative on-line methods in order to continue the educational process. Therefore, teachers, students and parents have become actors playing new roles to which they have to adapt as well and fast as possible. Innovative solutions, good practices, teaching staff creativity and a receptive attitude are fully used and exploited. The way in which the lessons, the strategies and the instruments used in teaching, learning and assessment are developed has to relate to a series of variables: digital skills - competences of teachers and students, their attitude toward modern available technological means, ways for customizing the instructive process and learning conditions. The teachers have to turn students into trustworthy and responsible parties, as active partners in the process of their own formation. The proposed research aims to identify - from the psychological point of view - the perceived self-efficacy among teachers in relation to the use of mobile technology in education, in the context of working just from home. The sample of the research consisted on 125 teachers, having different ages and background in Science and Technology, who carry out educational activities both in urban and rural areas.

Keywords: pandemic; on-line teaching; perceived self-efficacy; mobile technology; working from home.

1. Introduction

In December 2019, in China (Wuhan, Hubei), there was an outbreak of coronavirus disease (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which spread throughout more than 200 states of the world, within three months. The World Health Organization (WHO) declared a worldwide pandemic on the 11th of March 2020.

The affected countries have taken a series of measures against the spread of the virus, one of those measures involving the closing of the schools. In this context, in the beginning of April 2020, over 1.5 billion learners in the whole world stay at their homes, for an indefinite period of time, while their teachers are requested to find efficient ways and therefore ensure the continuation of the educational process (https://en.unesco.org/covid19/educationresponse).

Immediately, UNESCO has provided solutions for distance learning and proposed a list of educational applications and platforms in order to facilitate remote learning (https://en.unesco.org/covid19/educationresponse/solutions). Such solutions represent a major challenge for many teachers, since a series of changes are required both in connection with how contents, resources, methods are used, about the way in which teachers are able to reinvent themselves and find the best solutions to reach students’ possibilities and interest. Distant teacher-student communication has therefore become absolutely necessary.

Teach-from-home firstly means minimal digital skills and necessary technological resources for both teachers and students. More, discipline, organization, coherence, innovation, adaptability, psychological flexibility, creativity, open, reflexive attitudes, critical thinking, self-control and self-efficacy are strongly requested. The lessons have to be transferred on-line; however, not all teachers are ready; the impact is also high for students as well as parents - attempts and errors, intuitive practices, small steps, confidence and a lot of patience.

All those challenges come with a psychologically unstable background on a collective basis, affected by the imposed isolation, anxiety before the unseen danger, feeling of insecurity associated with stress, fear, depression and agitation, somatization, distrust, panic, negative emotions, lower efficiency, loss of motivation, lower self-esteem, etc. - substantial subjective factors which may affect the quality of the educational act. The
capacity to manage such status is very important, as the mental and emotional adaptation to new contexts enable the teachers to exploit all mental resources toward achieving the considered purpose.

2. Conceptual framework

Appana (2008) described distance education as “a formal learning activity conducted when students and teachers are separated by (geographical or temporal) distance and supported by communication technologies (television, computers, e-mail and mail) - on-line learning falling under this broader framework”. According to the same author, on-line learning refers to “the learning experiences based on the Internet, as the main means to deliver communication and presentation” (Appana, 2008, p. 5).

On-line teaching, learning and assessment imply a particular approach compared to how they are carried out in the traditional educational process. Weiner (2003) showed that “successful on-line learning depends on the motivation created and the structure of the courses, the students being prepared to learn in the virtual space, but supported and guided by their teachers”. A study - conducted by Bartolic-Zlomislic & Bates (1999) - shows that “the didactical process carried out on-line is more time consuming; nevertheless, an important benefit is that students learn the content of the courses, on the one hand, and improve their writing, digital and time management skills, on the other hand”.

On-line education may be perceived by students as “an impersonal, distant exercise which drives them apart, as the interactions are devoid of non-verbal clues specific to the face-to-face approach and therefore affect communication and bonding with the others” (Appana, 2008, p. 15).

Of course, advantages and limits are present. Nonetheless, the most important benefit of the didactical process, implemented in the on-line format, is that learning represents a constant and continuous process, the teacher-student relation remaining active, different opportunities and resources, solutions, innovative and creative ideas being identified and the transition to permanent education and self-education being therefore facilitated.

One of the variables on which successful on-line educational activities depend and influencing the level of involvement and the motivation of teachers is represented by the feeling of the perceived self-efficacy.

The self-efficacy is a concept introduced in Psychology by Albert Bandura (1977), considering that “people’s convictions - in regard to their
capacity to achieve certain purposes - influence their success in relation to the planned activity” (Butler-Bowdon, 2017). Bandura launched the idea according to which “individuals who feel that they can influence the result of an action, become more confident, they have a feeling of power and control, they are better mobilized and make more effort to meet their objectives”.

In Bandura’s view (1994), the perceived self-efficacy represents “people’s beliefs in relation to their own capacities, beliefs that determine their way of feeling and thinking, the way they find their motivation and choose to behave; a strong feeling of personal self-efficacy improves one’s personal well-being and achievements, the difficult tasks reach the point when they are perceived as challenges and not threats”. The feeling of self-efficacy generates interest and profound involvement in and a strong commitment to carry out the planned activities.

The successes of an individual are important when building the feeling of self-efficacy. The same aspect is met for the information received as feedback from the others, self-observation, observation of others and comparing oneself with them. Bandura (1986) asserts that “individual performances are the best guide for evaluation of self-efficacy; therefore, personal success generates a strong sense of efficacy”.

With reference to the teaching staff, Ashton & Webb (1986) emphasize the importance of personal convictions with regard to their capacity to help students to learn. Teachers with a high level of perceived self-efficacy make greater efforts when carrying out activities and persevere when encountering difficulties. By contrast, the ones with a lower level of perceived self-efficacy invest less effort and give up when they consider that their chances of success are inexistent.

3. Method

The sample of research consisted on 125 lower and upper secondary teachers, having the background in Science and Technology, with different ages, 26% of them activating in rural area and 74% in urban area. The research instrument took the format of a questionnaire, that captured various issues expressed by the teachers related to the use of mobile technology in the educational process.

4. Results and Discussion

Mobile technology has been called to fight against the coronavirus disease, in a period when learning institutions are closed - one of the first measures for trying to limit the COVID-19 pandemic. In this respect, with a
cohort of more than 90% of the world’s students who stay at home (https://en.unesco.org/covid19/educationresponse), mobile learning tries to support teaching and training for various groups, even small or large. On the other hand, the mobile networks show their power, trying to manage the “stay-at-home networks”.

In this context, the operationalization of the abovementioned concept of perceived self-efficacy has been covered by defining of the following variables: (a) the competences to use mobile technology for didactic purposes; (b) the ability to identify suitable educational applications for teaching purposes; (c) the ability to better explain difficult concepts with the help of mobile technology; (d) the ability to stimulate students to learn better with the help of mobile technology.

![Graph showing the comparison of teachers' feedback on using mobile technology for teaching purposes and finding educational applications.](image)

**Fig. 1.** A juxtaposition of the teachers’ feedback related to “holding the necessary skills to use mobile technology for teaching purposes” vs. “being able to find educational applications for teaching purposes”

To identify the degree of teachers’ perceived self-efficacy in relation to the use of technological tools and means, in the actual conditions of offering didactic activities using on-line solutions, in Figure 1 there were juxtaposed: (a) the perceptions of the teachers regarding the digital competences used in the teaching process, and (b) their abilities to select the most suitable applications in relation to students’ age, particularities and
needs for consolidating their knowledge. Thus, it is observed that a significant percentage of teachers (around 85% - respectively those who answered *agree* and *strongly agree*) consider they have the digital competences - proper to mobile technology - necessary to carry out didactic activities in an on-line format, being also able to identify applications suitable for the purposes and established teaching objectives. So, the questioned teachers perceive themselves as having digital-operational and instrumental competences.

**Fig. 2.** A juxtaposition of the teachers’ feed-back related to “better explaining of difficult concepts” and “better stimulating the students to learn”, with the help of mobile technology

Figure 2 illustrates the teachers’ perceptions concerning: (a) the ability to better explain difficult concepts with the help of mobile technologies, and (b) the ability to stimulate students to learn better, with the help of mobile technology. Thus, it is observed that a significant percentage of teachers (79% - respectively those who answered *agree* and *strongly agree*) appreciate that with the means proper to mobile technology, they are able to facilitate the explanation and understanding of difficult concepts, being also sure that they can stimulate the students to learn better in such conditions. In this respect, the responding teachers consider that they can motivate the
students to learn and can contribute to the facilitation of the learning process.

Figures 1 and 2 show that the perceived self-efficacy of the teachers, in relation to the use of mobile technology in the teaching-learning-evaluation process of the students - seem to be a developed dimension of their professional profile, which can be applied in the educational practice and can considerably help to achieve a qualitative educational process. The question is: how much of this dimension is really covered in practice? Even the period of “working from home” has not recorded one month till the spring holiday, the questioned teachers tried to express several main problems, limitations or difficulties that cumber the use of mobile technology in the teaching-learning process. Their answers were not strictly directed just to the situation imposed by COVID-19 pandemic.

**Fig. 3.** Teachers’ perceptions concerning the restrictions that limit the use of mobile technology in the teaching-learning process.
The offered feedback (illustrated in Figure 3) take into account the actual situation met in schools - lack of proper equipment (77%) and lack of Internet (39%) - which make impossible to deliver educational activities that involve technology, but recommended to be started in the classroom with the mediation of teacher. Here, it is important to mention that the use of mobile devices is forbidden in Romanian schools, even the former Minister of Education declared in 2019 that “… we should not ban mobile phones in schools and we should find a way to use the phone as an instrument in the educational process, not to forbid it.” (https://www.romanian-insider.com/romanian-minister-smartphone-ban-school)

However, the low teachers’ digital competences level (38%) and the lack of teachers’ ICT abilities (33%) remain important issues to be solved in the following period. In this respect, teachers’ continuous professional development specific programs represent the main solution for improving the teachers’ digital skills and abilities related to the use of technologies able to support collaboration, learning management and knowledge transfer in on-line environments - course management systems, video-conference applications, document management interfaces etc. - considering particular characteristics of various groups: small or large, with intermediate or advanced computer skills (Suduc, et al., 2010).

5. Conclusion

The new educational solutions identified and applied by many teachers in the actual context imposed by the COVID-19 pandemic - to continue the teaching-learning process in the on-line environment -, could lead to major changes in education. In fact, the main consequence generated by the COVID-19 pandemic in education aims at transposing the didactic act from the natural physical environment - the school -, into the virtual space. This fact represents a complex process, clearly dependent on multiple variables, but unanticipated and insufficiently prepared previously. More, additionally to the pedagogical support, there is a major challenge for both teachers and parents: focusing on the physical and emotional well-being of young students during this time (Cerdan, 2020).

On the other hand, the teachers themselves have the feeling that the educational process cannot be limited by all kind of restrictions. In this respect, they try to capitalize their digital competences and resources, and adapt the whole process as fast and efficient as they can to the students’ needs and possibilities.
The paper exposes some particular aspects related to the use of mobile technology, seen as a feasible solution and a proper answer to the actual challenges regarding “teaching and learning from home - 100 %”. It is obvious that such solution is welcome in the whole world, the educational researchers being called to assess the introduction of mobile technology in a large scale, in order to become a key-component of the nowadays blended-learning support.

However, the results of the research described in the paper, show that the level of teachers perceived self-efficacy regarding their competences of using mobile technology for teaching purposes is quite high, but on the other hand, it is clear that a series of variables have a great potential for limiting the use of such means (equipment, specific resources, particular abilities, funding etc.).

Anyway, using mobile technology in education could significantly help to extend the teaching and learning process outside classroom. This research contributes to a better understanding of the requirements to be met for a meaningful use of mobile devices in education.

References


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