COVID-19 as a Catalyst for Change in the Digital Learning Environment: How Israeli Middle and High School Teachers, Students, and Parents Cope with Information Transfer and Processing on a Distance Learning Platform

Ayelet Ayalon

Abstract

From a historical perspective, school closures are not a unique phenomenon. Across the globe, schools have been closed for a variety of reasons including natural disasters, inclement weather, gun violence, and health crises. In Israel, security emergencies, in particular, play a role in preventing continuous learning. During some historical events, attempts have been made to maintain educational continuity. For example, during the Second World War, educational materials were sent to students in France by mail or by post.

Research regarding education during school closures is scarce. There is some literature that addresses the success of school closures in preventing the spread of past viruses, including the Asian influenza pandemic in the United Kingdom in 1957 and the H1N1 virus in Bangkok and Hong-Kong in 2009. However, research regarding the continuation of teaching and learning during these school closures does not exist. We can understand that formal education was suspended during past official school closures. However, this was certainly not the case in the spring of 2020, when school closures did not lead to the suspension of all formal education. The United Nations Educational, Scientific and Cultural Organization (UNESCO) estimated that by April 2020, 193 countries had ordered institutions to cease in-person instruction due to the Covid-19 pandemic, and about ninety percent of the world's total student population no longer attended in-person classes. Yet, the global school closures in 2020 were accompanied by many attempts to continue formal education.

Israel's entire education system, from kindergarten and up to university, transitioned to online learning in March 2020. Online education requires preparation; lesson planning, the developing of online instruction materials, as well as choosing and optimizing the right platform. However, teachers' preparation was limited, and students were forced to quickly transition to an online

curriculum. Many parents had to inadvertently become involved in their children's learning process. School closures disrupted the traditional instruction process, forcing both teachers and students to rely on technology they were neither prepared nor trained for. Hence, the education system had to allow for more autonomy to both teachers and students.

For several years now, different educational institutions in Israel such as The Open University and The Center for Educational Technology – CET, have been developing digital learning tools intended for both face-to-face and online learning.

However, despite their efforts, these tools have yet to be integrated as an integral part of the education system. The abrupt transition to online learning challenged teachers, students, and parents immensely. At the same time, such a transition holds opportunities for growth in the field of digital education. As time goes by and the pandemic is still disrupting the learning routine, it is also affecting the design and the future of education worldwide.

The unprecedented disruption of education due to the Covid-19 pandemic brought up numerous challenges for teachers, students, and parents, as they dealt with the transferring and processing of information in the new digital platform. Parents were suddenly forced to guide their children's learning process. Teachers, students, and parents had to deal with challenges they were neither prepared nor trained for. The research concerning digitalized education emphasized students' digital literacy as the key factor affecting their ability to learn in an online environment, search for and process information.

The primary purpose of the current research is to examine the online teaching, learning, and assessing strategies, which were applied during the Covid-19 crisis from March 2020 – April 2021. Other research goals include the examination of teachers' perceptions and needs, and the ways in which these influenced the application of instructional approaches in the new digital platform. Finally, the research aims to understand the experiences of middle and high school students; in particular the ways they process information, and the factors that influence this processing of information.

During Covid-19 related lockdowns, many parents were forced to stay at home and become involved with their children's education. The case study at hand sought to understand how their

involvement contributed to the success of their children's learning process. Eventually, the study aimed to investigate how the education system can integrate distance digital learning in crisis times, as well as a part of the general learning routine.

The research was conducted according to a 'Case Study' approach. Three Israeli middle and high schools were chosen (all from the same socioeconomic status). Three population groups were examined using two research methodologies. The teaching staff and parents were examined via the qualitative method, namely interviews. And the students were examined by both the qualitative method (via questionnaires), and the quantitative method (via focus groups). Results revealed that although teachers' technological competencies have improved due to high usability of digital tools, most of them lacked any previous knowledge and skills that could be applied to distance learning. The lack of appropriate training and deficient digital literacy harm both the transmission of information by teachers, as well as the processing of information by students.

The parabolic correlation revealed that students with both high and low DL levels preferred the Zoom platform. Research indicates that high performance can influence students' preferences when it comes to online learning. Therefore, it was expected that high performing students would prefer online learning, while low performing students would not, since the latter tend to perform even worse in online courses compared with face-to-face. However and in spite of this, low performing students tended to opt for online courses at a higher rate. This finding supports our results that students with low level of DL prefer the digital platform. Presumably, these students enjoyed staying behind screens, but not necessarily for learning purposes. The possibility of attending a class, while at the same time playing video games alone or with friends from the comfort of one's home, is a convenient one, and does not exist in face-to-face learning.

Matriculation exams serve as the main index of estimating students' achievements, and have critical influence over their lives. Therefore, much attention was given to this issue, as it came up from the following finding. Male students in middle school showed a higher preference of the digital platform than male students in high school. However, female students in high school preferred the digital platform at a higher rate than female students in middle school. An explanation for this finding apparently stems from the level of distress male and female students experience while studying for these exams using the digital platform. The distress, which arose

Library of Information Science
Bar-Ilan University, Ramat-Gan, Israel
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while processing information through the digital platform, has become more apparent when it came to studying for these exams. Hence, the differences found between middle and high school students, mainly stem from the degree of their investment in preparation for these exams.

Parental support is a critical influencing factor on each of the research variables. The more parental support students received, the higher their digital literacy skills, their self-efficacy, their attitude towards technology, and their achievements were. Finally, parental support also influenced students' preferences for digital learning.

Turning the cameras on during zoom classes revealed to be a complicated issue for both teachers and students, and influenced the following: Teaching and learning, emotional, and social aspects. Teachers invested much time and energy explaining the importance of having students' cameras turned on. However, the lack of explicit guidance and the ability to enforce the turning on of students' cameras, had resulted in the issue being unanswered and without a practical solution, even a after an entire year of digital learning.

Using Whatsapp and creating Zoom rooms were strategies designed to bridge the gap of social distance and showed teachers' desire to create an e-learning community. Nonetheless, it seems that teachers did not know how to use other digital tools or social media in order to promote social relationships while learning. Therefore, it is important that teachers acquire competencies and different instructional strategies that support collaborative learning, especially in times of quarantine when social relationships are harmed.

Maintaining a routine during times of crisis requires investment in the well being of students, teachers, and parents. Much attention was given to students' well being, while the well being of teachers was largely neglected, and parents did not have the skills to cope with the crisis.

Teachers crucial role in the online learning environment turns them into educators who guide and encourage learning. Therefore, they need to be emotionally and socially competent, as well as technologically literate. During the pandemic crisis, the education system experienced a technological renaissance, the likes of which has never been before. This turning point can serve as a springboard to a better educational and technological future. It's time for policy makers to take advantage of this window of opportunity and lead education system towards the 21st era.

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