The Role of School Managers in the Process of Using Technological Means in the Learning Process During COVID-19 Crisis

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Abstract

The study examines the role of School managers in the process of using ICT means in the learning process. The study was quantitative using online survey for school managers through a Google forum. The questionnaires were distributed to 40 Arab schools in Israel.

The hypothesis was that managers will find it difficult to assimilate technological tools, they need planning before change.

The study findings show that there has been a change in schools following the Covid-19 crisis, schools have seen an increase in the use of ICT in the education process following the Covid-19 crisis Another finding is related to the difficulties in using digital technological means in schools, identified by school managers, such as: inexperienced teachers, lack of technological tools, infrastructure problems, students without computers, budget problems, failure to move to distance learning.

The paper suggest several recommendations for improvement of teaching using the hybrid model, while increasing the responsibility and authority of school principals by providing more pedagogical and managerial independence, in order to improve their effectiveness and efficiency.

Keywords: *manager's role, technological means, learning process, school change, Covid-19 crisis*.

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1. Introduction

The education system in Israel and around the world has undergone a crisis in the last two years generated by the COVID-19 pandemic that is fundamentally different from previous crises. We need to pay attention to the insights that arise from the way the education system has dealt with the crisis, especially from teaching and distance learning. The ultimate solution that allows for the continued functioning of the education system in this period is distance teaching and learning.

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In recent times, it may have been a short-term temporary solution, but we consider in fact there is a real chance that distance teaching and learning, as part of the learning and educational process, will become the new routine. Online teaching is not a substitute for traditional education, but it certainly creates a new reality that allows for great improvements, but also produces quite a few risks.

The Covid 19 crisis, which surprised Israeli society as a whole and Arab society, also surprised the education system in Arab society in Israel, which did not expect such a day and was not prepared for it (Alkarnawi, 2020).

Therefore, the Israeli education system must adapt to the contemporary digital environment for students. Following the Covid 19 crisis, most of the learning platforms has shifted to distance learning, and for that end, the use of digital technology is becoming a precondition element by schools. This paper focuses on the role of school managers in the process of incorporating digital technological instruments in learning in a crisis period, and the change in the role of school manager.

During the Covid 19 crisis the leaders of the education field quickly adapted to the changing reality, took responsibility and their role remained central but different. The opportunity given in the last two years to education leaders to be involved in initiative and planning and not just in the implementation has proved that this is effective. The crisis has created a historic opportunity to change the status of school manager and to make the school management and teaching professions attractive and to attract the best people to the education system and not by default.

2. Literature review

The assimilation of ICT in the education system is a lever for organizational, content and pedagogical change. In this framework, up-to-date teaching-learning methods are developed, and innovative learning materials are developed while constantly updating, and an innovative learning teaching process is implemented that breaks the boundaries of the classroom in space and time (Dayan, 2010).

Change from an external source is characterized by the fact that the source of the initiative comes from an external factor outside the organization, such as the Ministry of Education, or another factor that is usually in a higher position in the hierarchy and from there the change moves to lower-ranking factors. This is a sharp change from top to bottom. Changes of exogenous origin are usually defined by teachers' opposition to the proposed changes, threaten the teacher's academic freedom and thus undermine their sense of professionalism, and may provoke distrust and insecurity among teachers (Weinstein, 2000). The change implemented in the “Password for every student” program is a technological change. This is a program that creates an opportunity for pedagogical innovation based on ICT. Communication creates changes that require the education system to respond, cope, and change (Salomon, 2000, Fullan, 2001).

Working in the e-learning environment requires changes in the role of the teacher. For example, the teacher must adapt not only to a change in the areas of knowledge, but to changes in the needs of the learner. Therefore, he must create a learning environment that will encourage diverse forms of learning (Ehrenberg, 1995).

According to Gareth Morgan, the visible organizational phenomena on the surface are the result of a constant change of the organization below the surface - this is the organizational dynamics that must be discovered and understood. According to this approach, there is no sharp and clear distinction between the organization and its environment. Only those who look at the organization and its environment from the outside can notice the "contours" of the organization and see where the organization "ends" and the environment "begins" (Bar-Haim, 2017a).

Many managers of an organization are aware of the need for change in their organization and the complexity of the process, but only a few will be willing to take the initiative and formulate a process of thinking and preparing for change. Many times, only when there is a decline in sales, loss of competitive advantage, real fear of lack of resources or growing customer dissatisfaction, stimulates an understanding for the need for change. The managers' approach will then be reactive rather than proactive. Many times, they will prefer corrective actions over actual and fundamental change. Conservatism, fear of the unknown, lack of knowledge about how to make changes, opposition from various factors, uncertainty about the degree of success of the change or about the reactions of stakeholders to change - all make it difficult for management to initiate change (Meshulam & Herpaz, 2015).

The process of the desired organizational change is therefore gradual and ongoing and is done in small steps. The collection of these sequential steps can ultimately manifest in a fundamental change of the organization. The process is cross-organizational and across management levels, and rarely only localised in one part of the organization. The process of change is social and political in nature and is not a structured and rational process (Meshulam &Herpaz, 2015).

Samuel (2012) describes six factors for the need for change in an organization. First, technological factor - technological innovations and developments and computerized information systems require change and adaptation in order to meet a competitive market. This can be done on several levels. For example: in the past it was customary to market and sell videotapes. With the development of technology, an organization that did not adapt to the alternative media storage and continued to sell tapes, is in danger of bankruptcy. Another example of a field that is deeply affected by technological change is the field that includes knowledge management processes (Samuel, 2012). Managers are required to conduct a process of change with the people and not over their heads. Also, not everyone can lead the process of change, as certain skills and special qualities are required to lead this type of process, and this should be considered when starting a course (Bar-Haim, 2017b).

Schools have at their disposal various and varied ways to assimilate and implement digital learning. It is clear, however, that strenuous planning that leads to clear goals, a spirit of upbringing from the educational leadership, teacher training and involvement of all teaching staff, participatory leadership, and a commitment to continuous support, are essential components to implementing the challenge and leading change in schools. Principals and educational entrepreneurs in schools, who have moved to digital learning environments, agree on the key factors for success, and one of the factors is leadership; other important component for the success and implementation of digital learning, is an ongoing participatory process of the school teachers. Initiatives that were initially successful, later failed as a result of the abandonment of school leadership, which continued to other challenges. While personal leadership is important, for example of the principal or the teacher in his class, school leadership requires the involvement in the change process of the entire teaching staff as it enables and strengthen the construction of a shared vision and commitment to ongoing activities (Rotem, 2013).

Rotem (2013) summarizes the key factors for the success of the implementation: leadership, planning, integration in the process, creativity and flexibility, perseverance over time and prioritization, conversion - not addition, deployment of learning even outside of school. In order to assimilate and successfully implement digital learning, a plan is required that includes a plan to inform the school staff about the need for change and about the change process, written in a collaborative process of all stakeholders, headed by the teaching staff who must implement it. Focus must be on identifying the appropriate solutions to the existing situation, where there are conflicting requirements from the system: on one hand, there is a desire to promote active and collaborative teaching and learning, and on the other hand, the appropriate evaluation methods, and some curricula are not yet suitable for digital teaching, requiring different processes for learning assessment (Rotem, 2013).

The teaching staff is the critical factor for the success of any significant change in education, as is the assimilation of digital learning in the classroom. They must be involved in all stages of the planning and implementation of the process. To this end they must be assisted in familiarizing themselves with the tools and content relevant to their teaching, in addressing their specific training and support needs required to fully implementing digital education instruments in their teaching and learning activities of their students. The participation of all stakeholders can be expressed, for example, when teachers, students and parents can identify failures in the program and assist in proposing solutions. The school manager and the implementation team must be attentive to stakeholders, willing to be flexible and make frequent adjustments, and work collaboratively and cohesively to create, update and continuously change the conduct, to maximize satisfactory results for all parties involved, with pedagogical success and the school community always a priority.

Successful implementations require planning and attention to key implementation factors mentioned earlier. Successful assimilation occurs over

several years, so patience and perseverance are required, and do not expect drastic changes in a short time, about a year or even less. Commitment must therefore be made to elaborate a strategic plan for implementation, updating and control and adaptation over time. It takes time to determine the success of an innovative program, and school managers should not expect sweeping results in less than a few years.

On-line learning is not a substitute for school managers, teaching staff and interpersonal connection but pours new content and ethos into their role, making them enablers of learning, mentors and educators (Shalem and Anderson, 2020).

The Ministry of Education in Israel, together with the National Council for Education, that is an advisory body for promoting reforms and broad strategic moves to improve education and the learning system, has recommended the following operational activities:

- Training education leaders, school principals and teachers, to develop thinking and learning abilities.
- Focus the efforts on developing the skills and abilities of the students, mediating and making the online and frontal content accessible and emphasizing the interpersonal connection, the emotional needs and the utilization of the student's abilities and skills according to his needs.
- Building learning communities of education leaders at both the principal and teacher level including peer learning within schools and among schools.
- Building an online tool that can serve as a platform for peer learning and mutual support communities.
- Opening diverse feeding channels for the training and appointment of school principals, including the conversion of academics to people with managerial experience in other sectors (business / military / public) who wish to move into the field of management in the education system.
- The benefits in education - expanding and improving the channels of nourishment for the teaching professions, including the conversion of academics from other sectors (business / military / public) who are interested in moving to the field of education.

During the COVID-19 crisis, educational initiatives, innovation and pedagogical creation that benefits the students grew and emerged from the field, led by principals and education staff. They should embrace the change that has taken place, take it one step further and allow the area to produce a new pedagogical approach that should be adapted to the pressing needs of the post-pandemic period. In any future strategic change program, emphasis should be placed on providing independence and managerial, pedagogical, and content-level flexibility to principals, schools, and networks. This does not require a large budget increase, but requires a increased mental flexibility of school staff coupled with a reduction in the regulations of the Ministry of Education. A change must be made in the perception of roles and the division of responsibilities between the

headquarters and the field. The independence and leadership of the learning program is decentralised to the field, to school managers and teachers.

In an emergency, the role of school principals is to ensure that the school system operates on a regular basis. It is their responsibility to comply with the guidelines of the Ministry of Education and to ensure that a learning routine is maintained even when the studies are not held in person in the school or in the classroom. The school principal has authority over the school staff: the ICT coordinator, subject coordinators, educators, the teaching staff and the educational counselor in accordance with the staff's guidelines. He has the authority to ensure that the school digital portal is up-to-date and allows for uploading academic content, and active communication between students, managers, educators and teachers during the education process.

Most school principals had previously attempted to change and implement digital technological in their school but were not assimilated for many reasons. School principals were enthusiastic at first and saw the COVID-19 crisis as an opportunity for school change, thinking it was time to implement change and ignore opposition from teachers and outsiders, but they really failed and faced obstacles related to society and the environment, including from parents of students, community, etc. (Said Ahmad & Yones, 2021).

3. Research methodology

After the Covid 19 crisis, the education system in Israel has swiftly shifted to distance learning, and schools had to adapt to the new teaching style. This process was accompanied by multiple problems: teachers lacking knowledge and skills about the use of digital technological tools, shortage of equipment, students without digital tools hardware (personal computers, laptop, smart phone) and software, students lacking knowledge and skills on how to use digital tools, frustrated parents, school principals who received instructions from the Ministry of Education regardless of the reality on the ground and other. Within this context, the Arab sector in Israel had to deal with these difficulties related to distance learning on-line education in addition to already existing socio-economic problems that are characteristic to Arab sector in Israel. Therefore, distance learning has become a significant challenge for most Arab schools. The situation forced school managers to change their way of working, to plan well for change.

The research problem was: What is the most effective model for assimilating digital technology change in Arab schools in Israel? The goal of the research is to deliver an optimal model for school managers to assimilate digital technological means in the learning process with the participation of teachers and students. The model should help managers in Arab schools to carry out a learning process appropriate to the needs of the most important stakeholders in the system (teachers, students, parents), and the learning environment in the Arab sector.

The study examines how managers deal with change, assimilating new technological means in the schools, the use of innovative technological tools,

whether the learning process is suitable for them and provides a solution for both teachers and students. Thus, the objectives of the study are:

- to examine managers as leaders in a changing environment, and how do they plan to implement changes in the learning process.
- to discern the habits of using technology by Arab schools before and after the Covid 19 crisis.
- to examine the extent of the impact of technology on students and their achievements.
- to examine the teachers' readiness for distance teaching, their adaptation to the needs of the new climate, how the assimilation was carried out, and seek to understand the obstacles that stood in their way.
- to examine the involvement of parents in the distance teaching process and the extent of their impact on the learning process.

The study combined quantitative and qualitative tools, five online questionnaires through Google Forum distributed in 40 Arab schools in the northern region, which examined 40 Information and Communication Technology (ICT) coordinators, 40 school managers, 127 parents, 400 students and 100 teachers. The research conducted in-depth interviews in 5 Schools, the interviews were from two circles, the internal circle included 5 managers and 5 ICT coordinators, and the external circle at the community level: 5 mayors, 5 heads of the education department, 5 ICT centers, at the national level supervisors and program makers from the Ministry of Education.

The questionnaire is based on John Kotter's change model and examines the role of managers in the learning process using technological means. The questionnaire examines school manager's readiness to use digital technological means, and how he is planning for change.

4. Findings

The sample included 40 managers, 77,5% of them are male. The age of the managers from 50-60 years, most of them have experience in teaching for around 30 years, most of them have a master's degree.

Regarding the use of technology in the learning process the researcher has found that the degree of use of technology was low, and sometimes there was no use of technological means in the learning process. All testified to an increase in the use of technological means in the learning process after the Covid 19 crisis, and managers were forced to change the way they worked and make a change, and redesign. Another finding is related to the fact that most schools were not ready for distance learning, that made it difficult for school managers to undergo rapid technological change, 45% of managers indicated that the school was not ready.

Managers experienced several difficulties in using digital technological means in their schools, such as: inexperienced teachers, lack of digital technological tools, infrastructure problems, students without computers, budget problems, failure to move to distance learning. The findings indicate that most

school managers involved outsiders in the decision-making process, that there was usually no orderly plan for moving to distance learning, that they have taken into account to a large extent the needs of the teaching staff, and the students' needs to a very large extent Regarding adapting the environment to distance learning the researcher has found that opinions are divided. The dispersion is high, but on average, they agreed that distance learning has affected the role of school managers:

Among the difficulties faced by managers when switching the educational activities of the school to distance learning (see Figure 1), the highest score in terms of prevalence was for adjustment problems, in the second - lack of suitable equipment for students, in the third place - lack of teacher digital knowledge and skills. The next three difficulties had lower scores compared to the first three, for example, parents not being ready and willing to assist their children at home, missing needed digital equipment in place in the school and lack of budget.

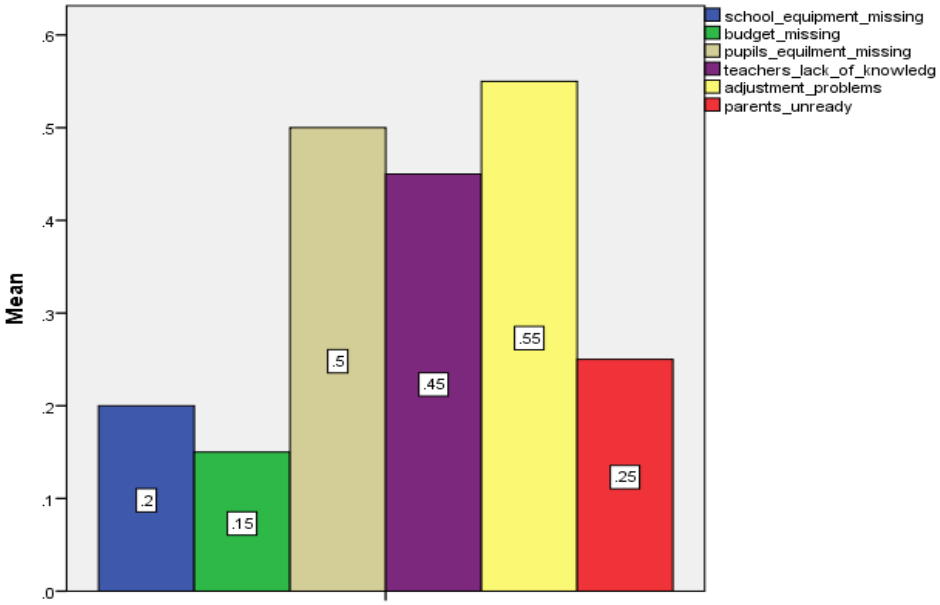

Figure 1. Distance learning difficulties by managers

As shown in Figure 2, among the ways to succeed in implementing a distance learning process, there are two groups of actions: the first three have very high scores with a mean of 5.25 for teacher training, next, social support and training for parents with a mean 4.75, the third being control and cooperation among the staff with a mean of 4.75. The second group of actions have lower scores, being therefore evaluated as less important. In this group the supply of equipment for students was ranked the fourth with a mean of 2.25, followed by ensuring special school staff with a mean of 1.75 and external budgeting for schools with a mean of 1.75.

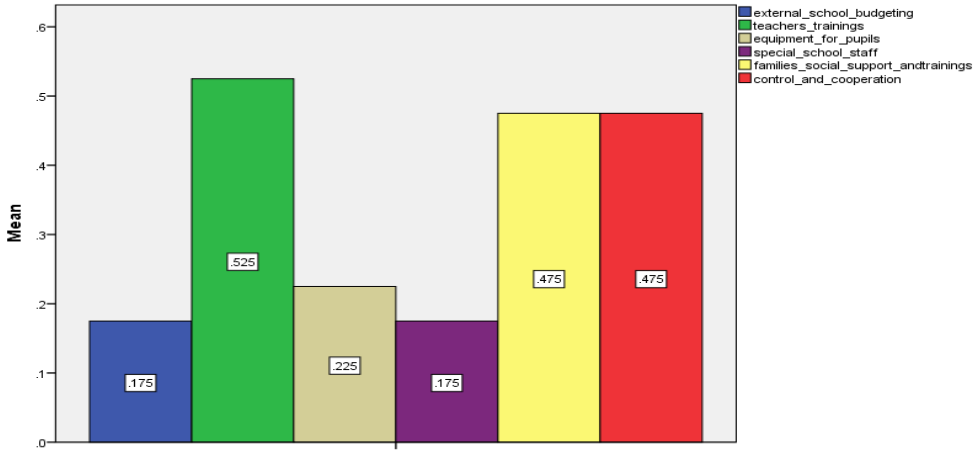

Figure 2. Measures for distance learning success

Related to the methods that were used to check the distance learning process (see Figure 3), the findings are the following: the most used method was daily updates using IT tools with a very high mean of 6.25, followed at a large distance by a group of three control methods: the first, control by coordinators with a mean of 2.75, next, control by the school principal (mainly checking the attendance of teachers and students), and finally, the control by staff cooperation, with a mean of 1.75, indicating that was rarely used.

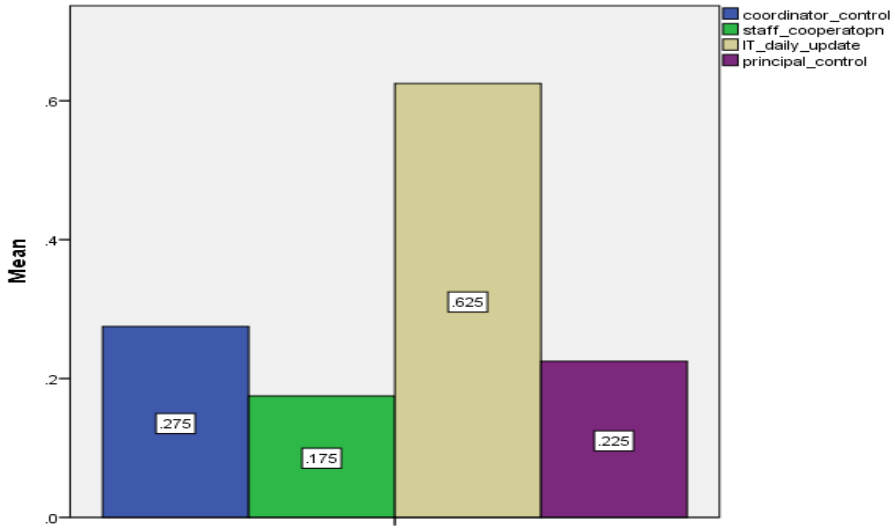

Figure 3. The methods used to check the distance learning process

5. Discussion

The research findings indicate a close link between the manager's role in technological environment and bringing digital technological change to school. In addition, school managers have responsibility towards external factors as the Ministry of Education and the municipality, they must adjust their school to its environment to overcome the challenges the school confronts.

School principals find it difficult to deal digital technological change. They noted that the distance learning process was difficult to implement, and that they were unable to work alone, so they collaborated with outside's and inside the school stakeholders.

The research findings show that most school managers are men, senior, with high occupational experience, most of them have M.A. degree (role requirements). Regarding the use of digital technical means, most of them reported medium level of use and sometimes no use at all of digital technological means. This is contradicting the relevant academic literature that reported extensive use of digital technological means before the Covid-19 crisis and that using technological means became routine in educational discourse in general and in significant learning. This finding raises the need for developing the digital literacy of school managers that is not only about the skills to use digital tools and computers, but is also about personal direction and ability to use a variety of tools and technological services through end means as computer, terminal, laptop, smartphone and tablet.

The research findings showed that most schools in Arab sector in Israel were not ready to switch to distance learning from various reasons, such as lack of budget, infrastructure problem, teaching staff and student’s unpreparedness for change. These schools had major problems to implement distance learning, because the programs made did not suit their school culture and environment. This emphasizes John Kotter's (2003) important conclusion about leading an organizational change: organizational culture has great influence on people behavior, it is almost invisible and hard to be changed. If the new assimilated procedures will contradict the organizational culture they will begin to be abandoned, therefore it is important to embed them in the existing norms and values of the organization. This representing a major difficulty for most school managers in Arab sector in Israel.

Some managers experienced difficulties in the implementation process because they did not adapt the programs This is in accordance with the first stage of the change model of Kotter (2003) about creating a sense of urgency for a change: to make a change there is a need in wide cooperation, commitment, initiation and willing to sacrifice. Complacency is a hindrance, and it is essential to instill a high sense of urgency in several ways among school staff at all levels. Urgency may be created by exposure to the competitive reality, to identifying crises, and sometimes even cause a crisis, set higher goals. None of this happened mostly because the Covid-19 pandemic was not anticipated and the emergency happened very quickly without warning. This is supporting the school managers claim that Arab schools were not ready for executing the organizational change

imposed on them by the public health government policies to prevent the spread of COVID-19 virus into the society at large and prevent a pandemic.

Unpreparedness for the crisis led most school managers to having major difficulties when transitioning to distance learning, most of them cooperated with external factors in decision making, usually there was no ordered plan for the transition to distance learning and the manager was required to consider the staff needs (training), the student needs (including accessibility to technology) and parent needs. Parents' involvement and students' special requirements forced the school manager to consider the socio-economic status and the student learning environment (at home) matching to distance learning. In this aspect, the researcher has identified an important change in the school manager's role, since there was a need to be more involved in the student's learning conditions at their home.

About the changes in the level of academic achievement of students, more managers indicate that it has worsened, while some others claim it is the same. However, no managers indicated that the scholastic achievements of their school has improved during this period of time.

The most common difficulty managers faced while transferring school to distance learning was adjustment difficulty. Said Ahmad & Yones (2021) also claimed in their article about distance learning in Arab society but failed to assimilate it as a result of teacher resistance, but when the COVID19 crisis broke out, the new reality required the teachers to adopt technological means and develop distance teaching tools regardless their opinion about distance learning.

Teachers' lack of digital knowledge and skills influenced also the transition to distance learning, and it is consistent with the literature that notes that technological change that integrate ICT and computing in school teaching, should consider additional factors that may influence ICT efficiency and indirectly the success or failure of change process.

The transition to distance learning in the Arab sector had encountered several difficulties and struggles including lack of equipment in school, low budget (managers reported they did not get any budget al all or it was delayed for long time), lack of ICT centers in schools, lack of computers in student homes, unpreparedness of parents. Therefore, school managers looked for alternatives and methods to assist their students overcome the difficulties.

The methods used to control the distance learning process: first – daily update using IT tools, second –by coordinators, third – control by the principal (mainly attendance check), are consistent with studies regarding the importance of the ICT coordinator in the control process, according to the director general in the Ministry of Education (Ministry of Education director general, Emergency protocol in the education system, 3 January 2019).

An important and interesting finding is that the variable occupational experience (teaching seniority) has significant positive correlation with age, and negative correlation with variables: school preparedness, teacher cooperation, parent involvement. This indicates that experienced school managers with many years of seniority show lower integration in distance learning process, they are less

experienced in cooperating with other teachers, expressed less readiness to transfer to distance learning and they are less experienced in cooperating with parents.

In general, it may be concluded that senior school managers manage less effectively the integration of distance learning in their school, expressed less capability to change the teaching method, less cooperation with coordinators and teachers, and agreed less about the efficiency of IT assimilation in their school.

6. Conclusions and recommendations

The study findings highlight that there has been a change in schools following the crisis generated by COVID-19 pandemic. Due to the shift to distance learning, school managers changed their schoolwork environment and changed the planning of the learning process. Schools have seen an increase in the use of technological means, students have used new digital tools and experienced difficulties using them. A majority of the school principals agreed that distance learning has negatively affected students' level of academic achievement. Teachers also experienced difficulties in this transition. The involvement of the parents had an impact on the learning process of their children. Most school managers are in favour of hybrid teaching (frontal and distance integration), and many point out that schools need to go through a process of adaptation and preparation for distance teaching. Many school principals also point out to the importance providing of teacher training, some of them are offering to train both teachers and parents, are willing to open IT centres in schools, and encourage providing training in digital educational tools to student's parents, too.

The findings can help the managers function in a holistic and effective work environment and allow for an appropriate assessment to manage future school change. Decision makers need to know the system, its needs, this familiarity helps us as people involved in education to better prepare for moves that may occur within the organization. This familiarity with phenomena, crises help the school manager manage change in the school.

The school manager and ICT coordinator should involve the teachers, train them, help the needy. Teachers' participation indecision-making gives them feeling confident and effective. The school manager must improve the relationship between teachers and parents, in order to convince them of the importance of change and its contribution to both students and teachers living in a modern and technological age, and how much parental involvement affects the learning process.

Before assimilating change, managers need to provide social support to school staff, in order to reduce the level of stress and anxiety among teachers, appoint and empower external and internal change agents to facilitate change, increase self-confidence, recruitment resources, learn from successes, utilize strengths and strengthen small successes.

There is also a need to strengthening the role of school managers, by expanding their powers and responsibilities, providing more pedagogical and managerial independence, including at the content level, reducing regulation and

setting standards, how the hours are divided, curriculum development and choice of disciplines. Increasing the budgetary flexibility by giving independence and flexibility to school managers in employing personnel, managing standard hours, human resources, developing the teaching staff, remuneration and bonuses for teachers, financing parent training.

School principals should be allowed more pedagogical flexibility to design the educational act in their school, in determining how many subjects will be taught in the school, how many hours will be allocated for teaching each subject, and what the ways of learning and content will be. The curriculum and contents are the responsibility of school managers, except for compulsory studies under the responsibility of the Ministry of Education and will include studies of "languages" (Hebrew, English, mathematics, science and Arabic for native speakers) and one humanistic subject for school selection.

Albert Einstein once said that "*education is what we have left after we have forgotten everything we were taught in school*" and what remains is probably used by people for achieving success in their life. "The school of the future" should release education from its closed world: to help it break through the boundaries of the place, flexing the time frames, open its gates and share with the community, connect to the world of economics and business and become a dynamic component in 21st century society. Today, more than ever, the role of school principal is to lead teachers and students to a reality of learning at any time and place, a reality that will reduce the gap between life in the world and school life and return education to the forefront of society, the place it rightfully deserves.

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