MINISTRY OF EDUCATION POLICIES WINNING COVID-19 BATTLE AND LOSING TECHNOLOGY INTEGRATION WAR

https://doi.org/10.47743/jopafl-2023-30-06

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Abstract: The digital era was set to change education, with Israel's Ministry of Education making significant investments in technology integration. Despite these efforts, success has been limited. The COVID-19 pandemic rapidly sped up tech adoption in education but decreased after the pandemic, mirroring similar occurrences worldwide. This article is a case analysis of the past five decades, examining how government and global policies influenced technology integration in education. It uncovers various issues, including ministerial changes disrupting programs, resource shortages, and conflicting stakeholder agendas. Possible solutions include creating a national education council independent of ministry changes and giving more authority to local authorities, allowing them to customize solutions for schools and take responsibility for outcomes.
Keywords: Technology; Ministry-of-Education, Education-Policy, Education-Reform, Public-Administration.

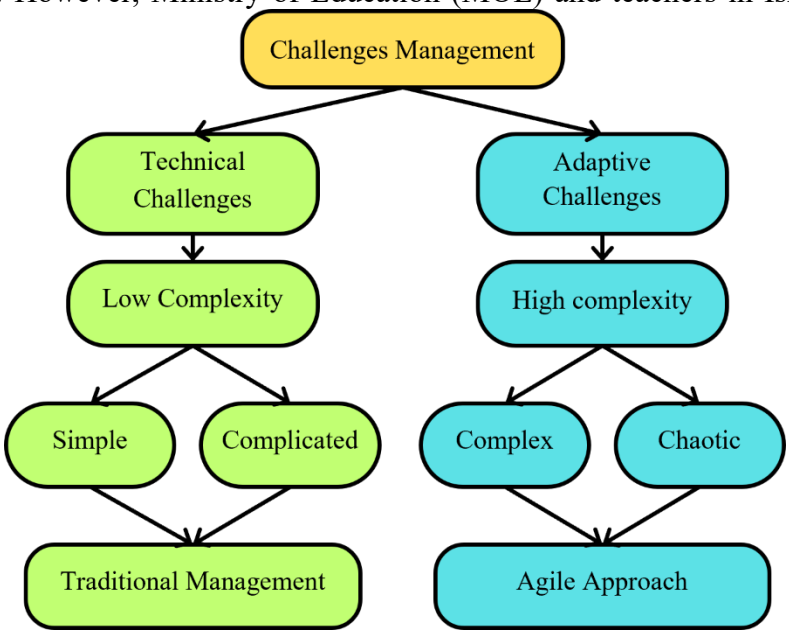
This Article was presented as a paper at the 15th edition of the Annual International Conference Globalization and Higher Education in Economics and Business Administration (GEBA 2023), which was held at the Alexandru Ioan Cuza University, Faculty of Economics and Business Administration in Iasi, Romania from the 19-21 October 2023.

Introduction

The digital era was expected to revolutionize education and enhance learning systems. Policy played a vital role in driving technology integration in education due to the rapid pace of technological change and teaching methods. Governments and organizations invested heavily in policies and research to incorporate technology into teaching, infrastructure, devices and software. Despite significant efforts, technology integration had limited success (Eickelmann, 2018; OECD, 2020a). However, COVID-19 pandemic unexpectedly accelerated technology integration into education systems in early 2020. With schools closed due to lockdowns, distance learning from home became the only option. Teachers quickly realized technology was the bridge to their students and began implementing technology in new and innovative ways. Training programs and instructions accompanied this shift; teachers even initiated professional groups on social media for

collaboration (OECD, 2020c). Davis's (1989) Technology Acceptance Model (TAM) can explain technology adoption quickly by teachers, as technology meets the TAM model's two parameters: usefulness and ease of use.

After two years, schools reopened, and teachers and students were delighted to return to the classrooms. However, Ministry of Education (MOE) and teachers in Israel believed technology was no longer necessary for face-to-face learning. Furthermore, recently equipped schools, MOE neglected technology policy, led to momentum loss, which has been challenging to obtain for years.



In the traditional management approach, higher-level management typically makes top-down decisions communicated to lower-level employees. This approach frequently utilizes change strategies such as the Theory of Change to identify threats, develop a strategic plan, and guide the education system through restructuring process, aiming to achieve a new equilibrium. These strategies prove effective for addressing Technical Challenges when the Complexity of the problem is Simple, where the relationship between action and result is well-understood, or Complicated, where this relationship can be determined in advance. However, the rapidly evolving landscape of technology presents Adaptive Challenges, which lack predefined solutions and demand agile approaches. Adaptive Challenges emerge when the Complexity of problems is Complex, meaning the relationship between action and result can only be understood in hindsight, or Chaotic, where no discernible connection exists between action and result as can be seen in Figure 1 (Heifetz & Linsky, 2017; Snowden & Boone, 2007).

Figure 1. Callenges management according to complexity level

Source: Processed by the authors

This article conducted a comprehensive case analysis of Israeli Ministry of Education policies spanning the last 50 years. It seeks to explore the impact of specific policies on technology integration in the education system, addressing the question: How have these policies shaped the technological landscape within education?

The information presented is based on four sources:

- The Israeli MOE policies from the state comptroller report and reports commissioned by the Israeli government would tell the story of technology integration in the education system (Figure 2).
- Examining global policies documented by Organization for Economic Co-operation and Development (OECD) and United Nations Educational, Scientific and Cultural Organization (UNESCO) policies and policy analyses of their impact on local policymakers (Figure 2).
- The voices and insights of teachers serve as a crucial foundation for grounding the implications of policies within the education system. As one of the authors is a techno-pedagogy instructor, actively engages and listens to teachers describe their daily experiences with technology. Anonymous names were assigned to teachers, ensuring confidentiality of teachers' identities.
- The technology advancements context would shed light on MOE actions that have led to its failures.

Background Analysis

Technology Integration Policies in the 1970s

In the 1970s, technology moved from big analog mainframes to smaller digital computers, thanks to advancements in electronic components. These early computers were used in education for students to practice using tutorial programs and assessments. In 1969, ARPANET transmitted messages between two computers over a network and in 1971, the first Email was sent (Cox, 2018). UNESCO 1969 global challenges of technology integration into education. Technology's high and unpredictable complexity challenged education systems worldwide. Traditional teaching methods' persistent preference in schools underscored need for policy changes to facilitate transformation. Moreover, necessitated customizing software to meet local needs, required adjustments for language and curriculum to be useful (UNESCO Institute for Educational Planing, 1969).

Between 1968 and 1970, the MOE's Chief Executive Officer (CEO) sought a proposal to incorporate technology into the education system. Still, given technological limitations, the idea was considered impractical in those days. Subsequently, in 1971, the government established the Center for Educational Technology (CET), focused on software development in the local language, customization to the curriculum, and introduced PDUC system: Practice and Diagnosis Using a Computer (Elgali & Kalman, 2011). The CET center's approach aligned with the recommendations of the UNESCO IIEP from 1969.

Technology Integration Policies in the 1980s

In 1981, IBM made a significant breakthrough, unveiled the IBM PC, quickly established it as the standard for Personal Computers (PC) and paved the way for smaller, more affordable IBM-compatible PCs. This led to the creation of interactive tools like drill and practice software, significantly improved education and gained wide adoption among schools and educators (O'Regan, 2021; Cox, 2018). The 1984 introduction of Apple Mackintosh marked a milestone in bringing Graphical User Interface (GUI) to the forefront, replacing traditional text-based interactions with visual elements and improving

computer accessibility. Microsoft Windows' launch in 1985 further popularized this advancement (O'Regan, 2021).

In the 1980s, worldwide technology-integrated policies were classified as computer science and technology-enhanced teaching. First, teaching computer science in vocational schools was led by top-down management. Second, using technology to enhance teaching methods represented a form of self-organization within the education system, led by teachers. This innovative approach brought about a transformative shift in teachers' roles and contributed to modernizing the education system. Notably, UNESCO acknowledged that due to the high cost of technology, governments initially piloted its implementation in a selected few schools to assess its effectiveness. Over time, focus shifted from simply allocated resources to a more strategic emphasis on teacher training (UNESCO, 1990).

UNESCO's 1985 policy for strengthening science and technology education. Governments should implement top-down policies to strengthen science and technology education, providing teaching resources to empower technology users, establishing a national network, and offering teacher training to facilitate technology integration into instruction (UNESCO, 1985).

In 1982, MOE introduced the National Education System Computer Action Plan nationwide program to implement technology in education. This comprehensive plan included teacher training, infrastructure development, provision of computer equipment, and research guidance. The goal was to prepare students for the labor market and integrate computer sciences into the education system (Elgali & Kalman, 2011; Israel's National Authority for Measurement and Evaluation in Education, 2015). In 1984, the National Program for Computer-Aided Teaching Systems Development was proposed to prepare the country for computer-assisted teaching and compete in the global technology race (Elgali & Kalman, 2011). In 1986, MOE aligned with UNESCO's policy, introduced a five-year comprehensive plan entitled Technology in Education System: Policy Guidelines and Action Proposals to incorporate computers as teaching aids and standalone subjects into education. The committee members acknowledged technology's value as digital tools for teaching aids and study subjects but cautioned against overestimating its capabilities. (Elgali & Kalman, 2011). The adoption of top-down policies in the 1980s was likely influenced by the complex nature of technological advancements, the need for efficient resource allocation, global competitiveness, alignment with international standards, and the aspiration to bring a transformative change in the education system (Bannister, 2017).

Technology Integration Policies in the 1990s

Digital technology advancement accelerated in the 1990s with Internet's widespread availability. Mosaic, the first graphical web browser, was launched. Netscape Navigator further popularized web browsing with a user-friendly interface. Mobile phones have revolutionized communication, connecting people anywhere and anytime. The first short message service (SMS) was sent in Finland. The introduction of the first laptops marked another milestone in technology evolution. The Microsoft Windows 95 operating system, with features like the Start Menu and Internet Explorer web browser, contributed significantly to the growth of web browsing among Windows users. Learning Management Systems (LMS) were established, and Wi-Fi technology was officially standardized with the first wireless networking standard, IEEE 802.11 (Cox, 2018; O'Regan, 2021).

In the 1990s, UNESCO took a comprehensive and inclusive approach to challenges and opportunities of technology in education. Their policy, discussed at the second congress in 1996, went beyond technical considerations, addressed national plans, technology, teachers, students, and the social, economic, and cultural aspects of technology-enhanced education. This holistic perspective marked a shift from the specific challenges of computerization in the 1970s and network development in the 1980s. UNESCO's multifaceted examination aimed to understand the broader implications of technology integration, recognized the diverse stakeholders involved and emphasized the need for a nuanced understanding of education technology's social, economic, and cultural dimensions. (UNESCO Institute for Information Technologies in Education, 1997).

In 1999, OECD identified pressing policies to integrate technology into schools' challenges. First, reevaluating funding to balance evolving technology costs with traditional education needs. Second, adapting education policies to technology changes, emphasizing quality assurance and resource responsibilities. Third, comprehensive regulations were required for taxation, copyright, and privacy. Lastly, balancing quality and accessibility in Internet-based learning, especially in lower-grade education. Additionally, developing educational technology expertise was crucial to address these challenges (OECD, 1999). In 1994, MOE program Tomorrow 98 invested in science and technology education with a five-year lottery and local authorities partnership. The focus was on increasing technology budget and integrating computers into teaching. Phase II was approved in 1998 but faced challenges in teacher training, curriculum integration, and infrastructure improvements (Eisenberg & Selivansky Eden, 2019; Vorgan, 2010).

Technology Integration Policies in the 2000s

Technology burst in the 2000s, with founding of Google in 1998 and improved online search (O'Regan, 2021). MIT OpenCourseWare launched and pioneered the open educational resources (OER) movement (King & Lee, 2023). Various technological innovations, such as Skype, transformed communication by offering voice and video calls over the Internet (Kohne et al., 2022). Facebook was launched, transforming online social interactions (O'Regan, 2021), while YouTube changed how video content is shared and consumed (Strangelove, 2010). Khan Academy offers self-learning, free educational videos and exercises (Plasencia & Navas, 2014). The iPhone's introduction in 2007 sparked the smartphone revolution, bringing internet access and digital services to a broader audience. Smartphones, including Android devices, transformed communication and daily tasks through mobile computing and connectivity (O'Regan, 2021). WhatsApp was launched, providing a user-friendly platform for instant messaging. Instagram also shaped social media's visual aspect (Kohne et al., 2022).

OECD policy of 2001 emphasized strengthening public positive attitudes and agreement. Policy recognized balancing accountability with educational quality and flexibility challenge. Explored innovative resource allocation strategies and emphasized the critical role of teachers. Further, encouraged a deeper understanding of integrating insights for more equitable and effective learning environments (OECD, 2001).

Additional OECD policy addressed reducing students' digital divide. Reducing disparities in technology access and usage, commonly referred to as the digital divide, was the primary objective of the policy. Focused on expanding internet access and digital education

programs. Identified needs for better fundamentals and digital literacy skills for students. Emphasized the necessity for substantial changes in teaching methods (OECD, 2001).
In 2003, OECD published scenarios for the School of Tomorrow. The OECD concluded many countries struggle with the need for constant budgeting technology updating. Thus, the first scenario suggested school computer centers, minimizing infrastructure and equipment budgeting and limiting technology use. Although national programs invested in schools' initial acquisitions, their maintenance was not included (OECD, 2003).
UNESCO 2008 policy encouragement of national technology policies. Encouraged governments to initiate national technology policies, provide clear goals and vision for using technology in education, and encourage efforts to advance educational purposes. It should emphasize technology's efficient use for online content, student tracking, personalized instruction, and accountability while promoting engaging and active learning (Kozma, 2008). In 2000, a committee report evaluated Tomorrow-98 program, emphasizing three key elements: investment in infrastructure, equipment, and pedagogical assimilation. Educational goals, leading initiatives like distance learning and school websites. In September 2003, Phase III of the program, focusing on the innovative use of technology in education, was launched. The program emphasized organizational aspects, including training and committee oversight, rather than introducing new ideas (Vorgan, 2010).

Technology Integration Policies in the 2010s

Technology has evolved significantly in recent years. Cloud computing services like Google Drive revolutionized data storage and collaboration, while MOOCs gained traction through platforms like Coursera and edX (Stracke & Trisolini, 2021). Microsoft introduced Skype for Business to enhance enterprise communication and collaboration. The introduction of Google Glass and Oculus Rift blurred the line between the natural world and the digital world, showcasing the potential of Augmented Reality (AR) and revitalizing interest in Virtual Reality (VR) (Greengard, 2019).
In 2010, coinciding with Israel's accession to OECD (n.d.) MOE launched the National Technology Program for 21st-Century Education. This strategic initiative aimed to modernize teaching by integrating learning sciences and technology. Its primary objectives were to narrow the digital gap with OECD counterparts, adhere to global technology standards, and foster connectivity between schools and the broader external environment. Approaching technology as a technical challenge with either simple or complicated complexity, MOE formulated a comprehensive theory of change to guide the transformation. A well-defined vision of the desired outcomes drove the top-down change management approach. However, the initial budget request of 1.5 billion USD saw only 52 million USD, equivalent to 4%, receiving approval for the inaugural year. The program commenced with pilot schools in peripheral settlements in the north and south.
The established technology standards encompass essential infrastructure, a dedicated computer class, and a teacher station in each classroom, thereby improving the student-to-computer ratio. Key program emphases included skill development, fostering active student engagement, and redefining the teacher's role as a learning mediator. Success hinged on strong leadership, a coherent technology strategy, sustained funding, universal technology access, and practical evaluation. In its initial year, the program enrolled 200

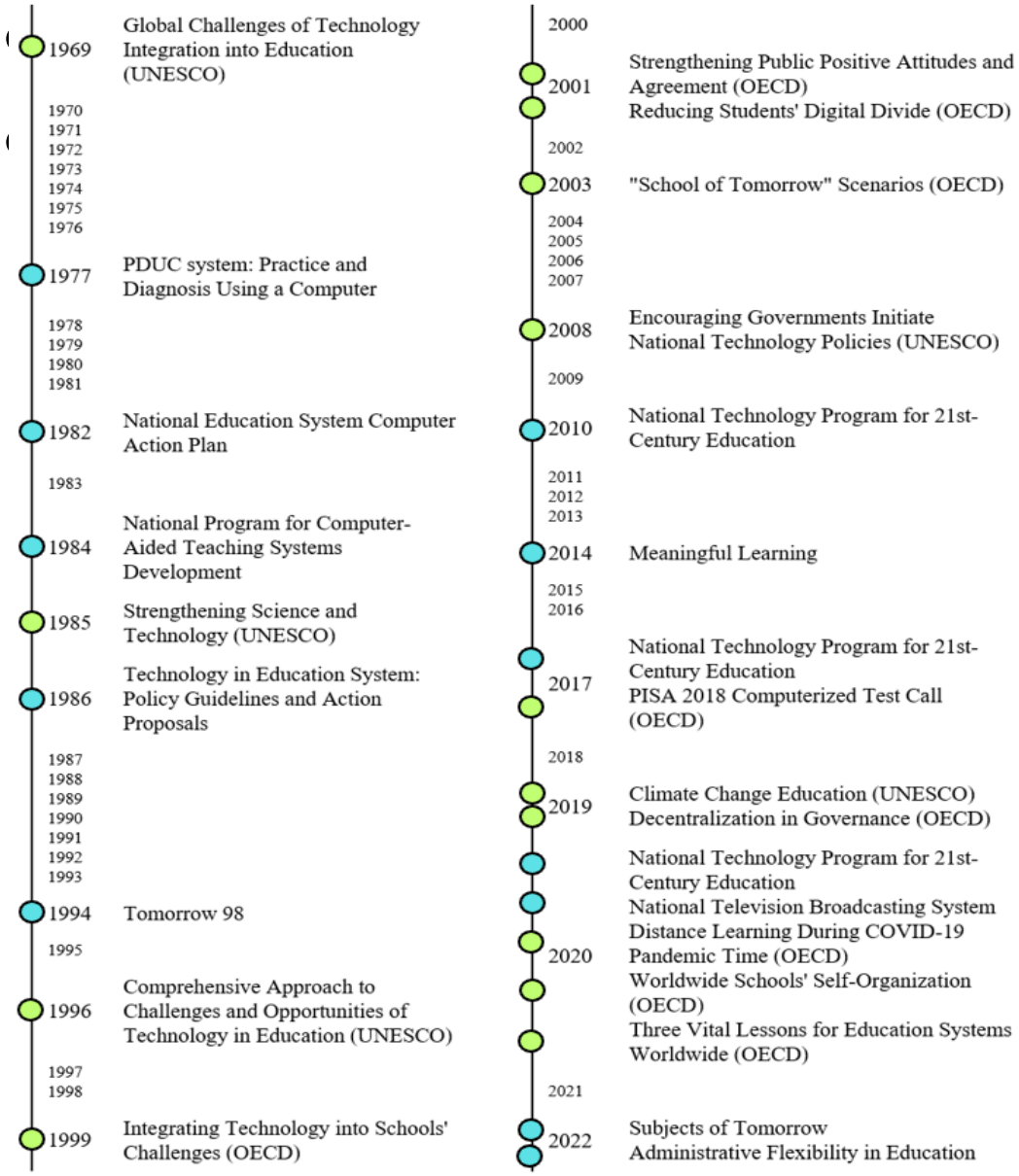
out of 4300 schools, experiencing substantial growth to 650 schools within the subsequent year (Israel's National Authority for Measurement and Evaluation in Education, 2015).
While receiving positive feedback, the program faced complexities, highlighting the importance of robust technological infrastructure. After three years, teachers noted motivation boosts but reported increased workloads and burnout, underscoring the need for better support. Unfortunately, the program could not continue beyond the first two planned years due to budget constraints, preventing achieving its goals (Israel's National Authority for Measurement and Evaluation in Education, 2015; Lindenstrauss, 2010).
In 2014, the Minister of Education launched Meaningful Learning reform to modernize education and equip students with the skills required in the 21st century. The reform focused on fostering critical thinking, creativity, self-learning, teamwork, and the use of technology among students to promote cognitive, emotional, and social growth. However, due to inadequate funding and an emphasis on teaching processes rather than devices, National Technology Program for 21st-Century Education was eventually suspended (Shapira, 2018). Five years later, the reform had little to no impact on students' 21st-century skills (Englman, 2021). The top-down approach of the reform angered teachers who felt that the program's name implied that their previous teaching practices were not meaningful.
In 2017, responding to OECD's PISA 2018 computerized test call, a globally recognized assessment for 15-year-olds in reading, math, and science, MOE aimed to enhance school readiness. Despite incorporating new schools in 2018, only 23% of secondary schools (7th-9th grades) had updated their technological infrastructure (Englman, 2021).

Technology Integration Policies in the 2020s

In 2020, the onset of COVID-19 pandemic plunged the world into an unprecedented and chaotic situation, inducing widespread fear and panic as the novel virus rapidly spread, leaving people grappling with the unknown, the surge in illnesses, and the absence of a cure, marking a global event of unparalleled proportions.
In March 2020, the Israeli government initiated a comprehensive lockdown in response to the escalating COVID-19 pandemic as part of global efforts to constrain the virus spread. As part of this lockdown, all educational institutions were temporarily closed, reflecting the growing concern over the rising number of cases (Englman, 2020). Consequently, the period between March 2020 and February 2021 was characterized by extended periods of partial school closure. During this time, most school days did not witness the physical presence of all students. An overwhelming 94% of students in grades 5th-12th learning activities occurred through various distance or integrated methods. Middle school students experienced the highest proportion at 43% (Englman, 2021). This closure of educational institutions affects about 1.5 billion students worldwide, including about 2.3 million in Israel (UNESCO, 2020).
Initially, MOE struggled to manage education system effectively. Adding to the difficulty, MOE was under the guidance of the Ministry of Health, whose directives changed frequently, making it challenging to adjust to the needs of the education system. Two weeks before schools' closure, an emergency learning exercise was conducted by MOE, but the results were never made public. Previous exercise results were also unsatisfactory. Additionally, during the exercises, teachers often did not hold synchronous lessons. These factors may have contributed to MOE's lack of faith in teachers' abilities to teach online.

Facing the challenge, MOE initiated National Television Broadcasting System, suggested indirectly replacing teachers. Thus, the Treasure Ministry suggested unpaid teacher leave. However, after a brief pause and teachers' union pressure, agreements were reached to resume distance learning (Waisblau, 2020). Despite investing significantly in expanding the broadcasts, a few students watched it, and their number declined daily due to content adequacy, pedagogical quality, and teacher scheduling conflicts (Englman, 2020).

Figure 2. Technology integration in education policies



In response to COVID-19 pandemic, the educational landscape has undergone a significant transformation. Surprisingly and rapidly, schools autonomously reorganized, adjusted their schedules to the situation, and established support and professional development groups, all without explicit guidance from the Ministry of Education. Amidst these changes, teachers swiftly enhanced their technological proficiency. Nevertheless, their innovation did not stop there; they pioneered diverse experiential, creative, and innovative teaching methods, notably embracing project-based learning with students at the forefront. This shift rendered the education system more adaptable and significantly heightened student engagement in lessons (Israel's National Authority for Measurement and Evaluation in Education, 2021). Teacher Ella misses the teaching opportunities she had using the abundance of technological means available during distance teaching: "If I could, I would replace the books and notebooks with computers".

The government allocated 4.5% of the budget to education in response to COVID-19, the highest among OECD countries average of 2.1% (OECD, 2023). The MOE took a significant initiative to bridge the digital divide among students. About 2450 schools joined the National Technology Program for 21st-Century Education during the pandemic, resulting in all schools being part of the program and receiving budgets for resources and infrastructure to support distance learning. In addition, 150,000 computers, modems, and communication packages were provided to students and teachers, costing approximately 105 million USD. Comprehensive professional development was provided to equip educators with essential skills for effective digital teaching and distance learning. The training was tailored to various audiences, including supervisors, school principals, teaching staff, and individual teachers. MOE developed diverse distance teaching and learning practices, including remote contact with parents, research, assessment, and teachers' staff meetings (Englman, 2021).

OECD (2020c) observed self-organization of schools has become a worldwide phenomenon, particularly evident during COVID-19 pandemic. Education systems globally demonstrated adaptability, embracing innovative teaching and learning methods, highlighting achievability of educational reform, and emphasizing education can evolve to become more innovative, distinct, and improved than ever before. OECD's 2020 strategic education policy outlined three vital lessons for education systems worldwide. First, it emphasized the need to embrace diverse modes of educational delivery, nurture resilient mindsets, and move beyond the binary online or offline learning model. Second, it highlighted the importance of equipping educators with new knowledge and skills through effective professional development. Lastly, the policy called for urgent action to address learning gaps exacerbated by crises by implementing personalized learning interventions and providing targeted resources. (OECD, 2020c).

Returning to school regularly was in September 2021, the MOE focus shifted from digitally enhanced learning to the well-being of students as OECD (2020c) recommended and narrowing students' learning gaps due to distance learning. In addition, MOE implied OECD's (2019) policy on climate change education was postponed due to COVID-19 pandemic. Moreover, OECD (2020b) PISA report showed a negative correlation between the number of computers in school and PISA reading scores, reinforcing MOE's neglect of technology funding. Teacher Anna was sorry using technology regularly stopped: "I loved it. Too bad it didn't stay". Teacher Nicole enjoyed integrating technology into her lessons.

Still, she wanted to use it in class under regular circumstances: "I was highly active during the pandemic, but if distance learning resumes, I'll consider resigning".

In 2019 OECD published on decentralization in governance policy. Decentralization is defined as transferring a range of powers, responsibilities, and resources from the central government to local authorities, which is defined as a legal entity elected in elections and enjoying a certain degree of autonomy. OECD report emphasized decentralization as a crucial reform, hinges on its well-planned and executed design, influencing governance, national wealth, and citizen well-being. Moreover, the report indicated the Israeli government was highly characterized (OECD, 2019). Given this, in November 2021, government resolution 675 was adopted: Decentralization of Powers to the Local Government and Reduction of Excess Regulation (Lerer, 2023).

In August 2021, the government approved Administrative Flexibility in Education reform to regulate decentralization aimed to empower school principals, giving them direct funding and budget authority, and the reform started in September 2022 (Wininger & Moshe, 2023). Consequently, technology infrastructure and resources responsibility shifted to schools' administrative responsibility, bringing the end to National Technology Program for 21st-Century Education. Administration perceptions set prioritization of technology integration. Teacher Michael, who is a technology enthusiast, was worried:

I'm concerned about school administrators' new budget responsibilities. Those prioritizing other areas might neglect technology, leaving them without essential resources.

In 2022, MOE initiated Subjects of Tomorrow reform in high schools, planning to combine humanistic study subjects like History, Literature and the Bible, allowing students time to learn through research and gain 21st-century skills. Before the program started, a new minister was appointed, and the reform that could once more boost digital technologies was stopped (Noi, 2023).

The OECD (2023) report barely mentions technology integration beyond school assessments. This suggests that other countries may be similar to Israel.

Identification of problems

The numerous policies implemented by MOE and their frequency indicate education system's failure to embrace technology may be attributed to several problems:

- Frequent exchanges of education ministers who seek to leave their mark prevent plans for assimilating technologies in the long term. Meaningful Learning and Subjects of Tomorrow reforms demonstrated how new ministers apply new reforms, while former reforms were not completed. Reforms in education are changes initiated at the systemic level. Most reform changes miss long-term planning in a situation of uncertainty, and they disappear within five years. Also, most reforms imposed top-down fail to create change because they create resistance at the field level (Brandes & Strauss, 2013). Moreover, Policy implementation requires resources. A lack of adequate resources would prevent effective policy implementation (OECD, 2020a).
- The influence of many stakeholders complicates the establishment of in-depth processes for implementing reforms. The Treasure Ministry approved only 4% of the budget needed to include all schools in the National Technology Program for 21st-Century Education. Likewise, during COVID-19 pandemic, the Treasure Ministry intervened in the education budgeting and decided that National

Broadcasting replace teachers and they could be dismissed. Hence, the Treasure Ministry has control over budgeting technology. Additionally, local authorities and school networks funded schools' technology; less-established authorities invested less (Brandes & Strauss, 2013).

- Administrative Flexibility in Education program shifted technology promotion responsibility to school principals. Their perceptions of technology's contribution determine their actions and consequences in schools. Moreover, teachers are the primary change agents as they integrate technology into lessons. Teachers who could not effectively use computer applications showed resistance and posed significant obstacles. Parents expect advanced technology-enhanced learning (Brandes & Strauss, 2013).
- Aligning the education system with frequent technological changes demands swift responses despite its bureaucratic nature. Technology improvement opens new possibilities. Internet and Email, for example, enable connectivity. Cloud storage enables collaboration. Browsers provide access to information. Artificial intelligence (AI) can support and adapt learning to students' preferences. Technology needs modifications to enable teachers to benefit from its advantages. Moreover, learning the educational uses and dangers inherent in using new technologies is needed to integrate them properly (Brandes and Strauss, 2013).

Alternative solutions

Long-term plan and adequate budgeting: Frequent exchanges of education ministers who seek to leave their mark prevent plans for assimilating technologies in the long term. There is a need for a budgeted and coordinated long-term action plan. In addition, reform should include all goals, a timing that will support one goal at a time. For example, National Technology Program for 21st-Century Education could have been a key element in Meaningful Learning reform and should have been included. Moreover, policy should build on existing practices and structures where possible (OECD, 2020a).

Creating a stakeholders coalition: Influence of many stakeholders complicates the establishment of in-depth reform implementation processes. The key to success is knowing the forces driving change together: interest groups, parents, the wider community and organizations operating in it, acquainting the reform operators with the factors and achieving co-operation, including setting an agreed and common agenda for policymakers, managers, teachers and academics (Brandes & Strauss, 2013).

Self-organization to face challenges: Aligning education system with frequent technological changes demands swift and agile responses despite its bureaucratic nature. Operative action plans and policies must be flexible enough to consider changes and technological developments in different time frames (Brandes and Strauss, 2013). Moreover, teachers' self-organization proved effective in coping with changes. Self-organization started long before COVID-19 pandemic, as UNESCO (1990) recognized development of teaching methods using technology to enhance learning. These

Recommended courses of action

Establishing National Council for Education: An independent entity will oversee education with adequate stakeholder representation and no advocacy coalitions. The council will collaborate with MOE but remain autonomous, enabling long-term decisions and

neutralizing ministerial whims. (Brandes & Strauss, 2013). The flaws may be creating a large and bureaucratic institution driven by stakeholders' political interests over the benefit of the education system. Moreover, disagreements may arise if there is a significant gap in the stakeholders' perceptions, and the council may become paralyzed.

Decentralization MOE authority: Decentralization of school budget control has resulted in administrative flexibility, requiring adequate funding. Consequently, by breaking down the extensive education system into smaller, agile school units, administrative flexibility allows schools to swiftly respond to innovative technology compared to the Ministry of Education (MOE). Moreover, teachers can gain firsthand experience with innovative technology, enabling them to grasp its benefits and shortcomings rapidly, accelerating their learning of optimal integration practices. One potential drawback is possibly losing a broader perspective as school administration becomes localized focused. Additionally, school principals may prioritize avoiding failure over innovation, inhibiting progress.

Conclusion

"The road of education reform is littered with good ideas" (OECD, 2020a).

MOE acknowledged the significance of technology early on, investing considerable efforts and budgets in program development and implementation. However, being a large and bureaucratic entity, it grappled with the challenges posed by the dynamic nature of technology over the years. In contrast, teachers demonstrated adaptability to evolving technology, though constrained by inadequate conditions. With COVID-19 pandemic outbreak, conditions ripe for change emerged: matured technology, available resources, and the imperative to incorporate technology in teaching. The lack of MOE leadership allowed schools to self-organize, leading to improved teaching methods. As normalcy returned, MOE's bureaucratic mechanisms resumed, halting the progress of technology integration. However, analyzing the events that spurred success, albeit temporary, provides insights into necessary actions. Despite the focus on Israeli MOE policies, the global context in UNESCO and OECD publications suggests that this local phenomenon could be an example of a global trend with potential insights applicable to other countries.

References

1. Bannister, F. (2017). In Defence of Bureaucracy: Governance and Public Values in a Digital Age. In: A.A. Paulin, L.G. Anthopoulos and C.G. Reddick, eds., Beyond Bureaucracy, Public Administration and Information Technology (pp. 27–46). Cham: Springer. https://doi.org/10.1007/978-3-319-54142-6
2. Brandes, O. and Strauss, E. eds. (2013). Educating for a Society of Culture and Knowledge: Changes in the 21st Century and Their Implications. Jerusalem: The Israel Academy of Sciences and Humanities.
3. Cox, M. (2018). Researching Information Technology in Education: Meeting the Challenges of an Ever-Changing Environment. In: J. Voogt, G. Knezek, R. Christensen and K.W. Lai, eds., Second Handbook of Information Technology in Primary and Secondary Education (pp. 1–20). Cham: Springer. https://doi.org/10.1007/978-3-319-53803-7_77-1
4. Davis, F. D. (1989). Perceived usefulness, Perceived Ease of use, and User Acceptance of Information Technology. MIS Quarterly, 319–340. https://doi.org/10.2307/249008

5. Eickelmann, B. (2018). Cross-National Policies on Information and Communication Technology in Primary and Secondary Schools: an International Perspective. In: J. Voogt, G. Knezek, R. Christensen and K.W. Lai, eds., Springer International Handbooks of Education (pp. 1227–1238). Springer International Publishing. https://doi.org/10.1007/978-3-319-53803-7_84-1
6. Eisenberg, E. and Selivansky Eden, O. (2019). Adapting Israel's Education System for the Challenges of the 21st Century Abstract. Jerusalem: The Israel Democracy Institute. https://bit.ly/3Q7LmHv
7. Elgali, Z. and Kalman, Y. M. (2011). Three Decades of National ICT Programs in the Israeli Education System. In: The Study of Innovation and Learning Technologies: Learning in the Digital Era. The 6th Chais Conference (pp. 31–37). Ra'anana: The Open University.
8. Englman, M. (2020). The State of Israel Response to the Covid-19 Crisis Special Interim Report. (pp. 157–168). Jerusalem: The State Comptroller and Ombudsman.
9. Englman, M. (2021). State Comptroller Annual Report 71B. Jerusalem: The State Comptroller and Ombudsman. https://bit.ly/3PXHNU5
10. Greengard, S. (2019). Virtual Reality. The Technology Behind the Reality, Cambridge, MA: The MIT Press.
11. Heifetz, R. and Linsky, M. (2017). Leadership on the Line, with a New Preface Staying Alive through the Dangers of Change. Boston: Harvard Business Review Press.
12. Israel's National Authority for Measurement and Evaluation in Education. (2015). Hatochnit Hale'umit Lehatamat Ma'arechet Hachinuch La'ma'ah Ha-21, Betom Shalosh Shanim Leyisuma Ba'chinuch Hayesodi [Evaluation of the National Plan for Adapting the Education System to the 21st century: at the End of Three Years for its Implementation in Elementary Education].
13. Israel's National Authority for Measurement and Evaluation in Education. (2021). Ha'arachat Hahora'a Vehalemida Merachok Bemaarechet Hachinuch Bemahalach Magefat Hakorona [Evaluation of Distance Learning and Instruction in the Education System during the COVID-19 pandemic].
14. King, I. and Lee, W. I. (2023). A Decade of MOOCs and Beyond. Springer eBooks. Cham: Springer. https://doi.org/10.1007/978-3-031-15241-2
15. Kohne, J., Elhai, J. D. and Montag, C. (2022). A Practical Guide to WhatsApp Data in Social Science Research. In: C. Montag and H. Baumeister, eds., Digital Phenotyping and Mobile Sensing: New Developments in Psychoinformatics (pp. 171–205). Springer Nature.
16. Kozma, R. B. (2008). Comparative Analysis of Policies for ICT in Education. In: J. Voogt and G. Knezek, eds., International Handbook of Information Technology in Primary and Secondary Education (pp. 1083–1096). Boston, MA: Springer US. https://doi.org/10.1007/978-0-387-73315-9_68
17. Lerer, M. (2023). Bizur Samchuyot Hashilton Hamekomi - Reka, Hamlatzot Ha-OECD Banose Vestatus Mahalach Habizur be Israel [Decentralization of Powers to the Local Government - background, OECD Recommendations on the Subject and Status of the Decentralization Process in Israel]. Jerusalem: The Knesset Research and Information Center.
18. Lindenstrauss, M. (2010). ICT Administration and Information Systems at the Ministry of Education [Hebrew: Minhal Tikshuv Vema'arachot Meida Bemisrad Hachinuch]. Jerusalem: The State Comptroller and Ombudsman.
19. Lupu, D., & Tiganasu, R. (2024). Does education influence COVID-19 vaccination? A global view. Heliyon, 10(3).
20. Noi, M. (2023). Reformat Hitchadshut Halemida Bemiktzo'ot Hamachar Moreshet, Chevra Veruach [The Renewal of Learning Reform in the Study Subjects of Tomorrow Heritage, Society and Humanities]. The Knesset. Jerusalem: The Knesset Research and Information Center.
21. OECD. (n.d.). Israel and the OECD. Oecd.org. Retrieved from https://bit.ly/3rr973J
22. OECD (1999). Education Policy Analysis 1999. Paris: OECD Publishing, pp.61–63. Retrieved from https://doi.org/10.1787/epa-1999-en
23. OECD. (2001). Education Policy Analysis 2001. Education policy analysis, Paris: OECD Publishing. https://doi.org/10.1787/epa-2001-en
24. OECD. (2003). Background OECD Papers: ICT in the Schooling Scenarios. OECD. A Retrieved from https://www.oecd.org/education/school/32503182.PDF

25. OECD. (2019). Making Decentralisation Work: a Handbook for Policymakers, OECD Multi-level Governance Studies. OECD Multi-level Governance Studies. Paris: OECD Publishing. https://doi.org/10.1787/g2g9faa7-en
26. OECD (2020a). An Implementation Framework for Effective Change in school.ls. OECD Education Policy Perspectives, 9. https://doi.org/10.1787/4fd4113f-en
27. OECD. (2020b). Learning Remotely When Schools close: How Well Are Students and Schools prepared? Insights from PISA. OECD Policy Responses to Coronavirus (COVID-19). https://doi.org/10.1787/3bfda1f7-en
28. OECD. (2020c). Lessons for Education from COVID-19: a Policy Maker's Handbook for More Resilient Systems. Paris: OECD Publishing. https://doi.org/10.1787/0a530888-en
29. OECD. (2023). Education at a Glance 2023: OECD Indicators. OECD iLibrary. Paris: Organisation for Economic Co-operation and Development. https://doi.org/10.1787/d7f76adc-en
30. O'Regan, G. (2021). A Brief History of Computing. 3rd ed. Cham: Springer.
31. Plasencia, A. and Navas, N. (2014). MOOCs, the Flipped Classroom, and Khan Academy Practices: the Implications of Augmented Learning. In: M. Peris-Ortiz, Garrigós-Simón F. J. and PechuánI.G., eds., Innovation and Teaching Technologies. Cham: Springer International Publishing.
32. Shapira, Y. H. (2018). Promoting Meaningful Learning in School, Annual Report 68c. Jerusalem: State Comptroller's Office, State Comptroller's Office and Public Complaints Commission, pp. 753–818.
33. Snowden, D. J., & Boone, M. E. (2007). A leader's framework for decision making. Harvard Business Review, 68–76.
34. Stracke, C. M. and Trisolini, G. (2021). A Systematic Literature Review on the Quality of MOOCs. Sustainability, pp. 5817–5817. https://doi.org/10.3390/su13115817
35. Strangelove, M. (2010). Watching YouTube: Extraordinary Videos by Ordinary People. University of Toronto Press.
36. UNESCO. (1985). UNESCO's General Information Programme for the 80's. UNESCO. Retrieved from https://bit.ly/3ZB1Rii
37. UNESCO. (1990). Computers in Schools National Strategies and Their Extension to the International Level. UNESCO Prospects: Comparative Journal of Curriculum, Learning and Assessment, pp. 166–168. Retrieved from https://unesdoc.unesco.org/ark:/48223/pf0000087138
38. UNESCO. (2020). Education: from Disruption to Recovery. UNESCO. Retrieved from https://bit.ly/3taHwUN
39. UNESCO Institute for Information Technologies in Education. (1997). Proceedings. In: Unesco.org. International Congress on Education and Informatics: Educational Policies and New Technologies, 2nd. Moscow. Retrieved from https://bit.ly/3rxlWJC
40. UNESCO International Institute for Educational Planning. (1969). Qualitative Aspects of Educational Planning. Paris: United Nations Educational, Scientific and Cultural Organization (UNESCO), Retrieved from https://bit.ly/457c0nW.
41. Vorgan, Y. (2010). Michshuv Beveit Hasefer - Tmunat Matzav [ICT in Schools - Update]. Jerusalem: Knesset Research and Information Center. Retrieved from https://bit.ly/45dIbC0
42. Weissblau, E. (2021). "Ma'arachat HaChinuch b'mashever ha'korona [The Education System in the COVID-19 crisis]. Jerusalem: The Knesset Research and Information Center. Retrieved from https://bit.ly/3PvgUoQ
43. Wininger, A. and Moshe, N. (2023). Reformat Hagefen Bema'arechet Hachinuch [Administrative Pedagogical Flexibility Reform in the Education System]. Jerusalem: The Knesset Research and Information Center. Retrieved from https://bit.ly/45fVp1j