



European Journal of Educational Research

Volume 11, Issue 4, 1911 - 1921.

ISSN: 2165-8714

<https://www.eu-jer.com/>

Adapting the Education System to 21st Century Skills: The Case of Israel

Ziva Sabag 

University of Babeş-Bolyai, ROMANIA

Shirly Ester Cohen* 

Talpiot College of Education, ISRAEL

Received: January 11, 2022 • Revised: March 8, 2022 • Accepted: July 15, 2022

Abstract: This article addresses the impact of accelerated technological development on the world of work, the main characteristics of the new expected generation of workers (Generation Z), and the unique demands placed on educational systems. The educational systems must adapt to society's expectations in the 21st century to remain relevant in a world with uncertainty regarding the labor market. Throughout the article, we present findings from the research literature on the new requirements of learners in the 21st century, highlight the main characteristics of the new generation of workers (Generation Z), and outline the importance of the education system in training and acquiring necessary skills. These requirements include skills for integrating learners into society and employment due to the new demands of the labor market.

Keywords: *Google generation, "phygital" learning space, Scholastic achievements, 21st century, Z generation.*

To cite this article: Sabag, Z., & Cohen, S. E. (2022). Adapting the education system to 21st century skills: The case of Israel. *European Journal of Educational Research*, 11(4), 1911-1921. <https://doi.org/10.12973/eu-jer.11.4.1911>

Introduction

The 21st century is characterized by many accelerated technological changes that are highly risky for today's working world. It appears that about 60% of current occupations will become extinct, change, or be replaced in the next 20 years, causing uncertainty about future careers. The observed changes in the market economy are based on human capital, entrepreneurship, and technological innovation. There is a growing need to empower the thinking and acting workforce to become skilled technologists (Frey & Osborne, 2013).

The globalization process, the brain drain, and the development of electronic communications all contribute to the realization that the power and strength of the state lie in the complex skills, competencies, and talents that can be "produced" within each society. There is controversy about the correlation between the learning rate and the country's growth rate. There is a positive correlation in the world between investment in education and the development of GDP (gross domestic product) in countries with the same conditions. Thus, it can be said that investment in education, in "human capital," has become an issue of national importance that is key to competing for the economic status of any country (Brands, 2003). School is the starting point for individuals to meet the expectations of society and the employment system. It serves as a cataloging mechanism for assigning people to the community. From the 1970s to the present, the number of students who have attained, or are attaining higher education worldwide, has increased substantially. Expectations for the future may increase worldwide as technological development sets new and higher standards and requires advanced skills that are becoming increasingly important in both developed and developing economies (Rosner & Nagdy, 2020).

This article aims to shed light on the futuristic teaching that is different from the old teaching and its importance in the education system of the 21st century. In this article, the influence of the accelerated technological development on the world of work, the main characteristics of the new expected generation of workers (the Generation Z), and the new requirements to adapt the education systems to the society's expectations in the 21st century are discussed. In the article, an academic knowledge picture of information literacy can help the educational factors in the education system in schools to assimilate the innovative teaching and to know the necessary implementation methods to carry out this teaching.

* **Corresponding author:**

Shirly Cohen, Talpiot College of Education, Israel. ✉ shirlyc570@gmail.com



Literature Review

The Future 21st Century Labor Market: The Future Direction in Global Market Economy

The 21st century is characterized by rapid change and great uncertainty about the future. Accelerated technological development has changed the world of work, and it seems that more professions are actually threatened with extinction because of this acceleration. These extreme changes lead to uncertainty about the nature of the future labor market: What will it look like? Which occupations will disappear, and which will continue to be needed? What skills and competencies will be required to be successful in the future?

Researchers Frey and Osborne (2013) examined the expected impact of computer technology on the labor market. They studied 702 occupations (such as business administration, finance, computers, engineering, science, education, law, community services, arts, media, medicine, customer service, sales, office work, agriculture, construction, maintenance, production, transportation, etc.) in the United States. They found that 47% are at high risk of being impacted by technology acceleration over the next 210 years and may even disappear. The results show that occupations requiring low social intelligence (such as transportation, logistics, office and administrative support staff, production professions, cashiers, etc.) will be replaced by computers. In contrast, occupations that require high creative and social intelligence (medicine, education, art, etc.) are at low risk.

The global Manpower Group company confirmed these claims in 2017 and explained that 65% of future Z Generation jobs do not exist yet. Future technology will probably replace routine (cognitive and manual) tasks and require employees to engage in unconventional tasks and more satisfying careers. Such positions require teamwork, communication skills, creativity, expression, mental flexibility, and learning skills. In addition, auto-didactics will be essential for the future employee because due to the accelerated dynamics, the work no longer depends on what the person already knows but on what s/he may be willing or able to learn. A survey found that a 26% increase is expected in the IT area, a 20% increase in human resources, and 15% in customer relations. In addition, growth is expected in professions requiring data analysis and expert service representatives who will trade the digitization products (Manela, 2017).

The education system has to rearrange due to these changes and mediate how students live and learn by adopting new ways of thinking. The school's educational basis for its graduates suits the needs that existed during the Industrial Revolution [...]. The knowledge and skills required for its performance were defined and fixed. Today, in the 21st century, completely different skills are needed. Therefore, the education system needs to stop focusing on memory-based information available today in button click or search engines. They must develop deep thinking in the changing technological world (Eisenberg & Selivansky Eden, 2019).

The Programmer for the International Assessment of Adult Competencies (PIAAC) conducted a study that examined approximately 166,000 adults ages 16-65 in 39 countries (including Israel). The study examined working-age adults' literacy, numeracy, and problem-solving skills in a technology-intensive environment. The study also included a Background Questionnaire (BQ) and information on four elements of well-being: confidence, political efficacy, volunteerism, and self-reported health. The study results showed that Israel ranked low (Martin, 2018; Kankaraš et al., 2016).

One of the most important goals of the education system in the information age is to train students for life in modern and information-intensive society. The students must develop a strategy to find the information, sort, filter, organize, process, find more information, confront it with prior knowledge, critically evaluate it, draw conclusions, and continue until they find a creative, sound, and reasoned solution. The role of the teachers is to teach their students a range of skills and develop their high-level thinking skills. This role includes critical evaluation and intelligent analysis, asking questions and formulating dilemmas, seeking creative solutions, and acting independently to find sound answers (Yoad & Melamed, 2009)

In this article, we will address these questions:

1. What are the standard requirements for the education system in the 21st century?
2. Who is the future generation of workers, and what are their characteristics?

Future 21st Century Skills

Education needs new goals that reflect the demands of the future. These goals are called 'future skills', meaning the knowledge, attitudes, values, and skills designed to prepare future learners. The need to teach future skills is justified by the perception that the future presents new challenges to society. However, the various frameworks discuss future skills, often referring to these skills and competencies as a discussion of the future of the world of education and its impact on the labor market. We know that digital and artificial intelligence technologies are changing the world of work and that today's workforce will have to learn new skills and constantly adapt as new professions emerge. We also know that the COVID-19 crisis accelerated this change. (Kotsiou et al., 2022). A study by the World McKinsey Institute (Dondi et al.,

2021a) examines the types of jobs that will be lost and those that will be created when automation, artificial intelligence, and robotics take hold. The variety of skills is important. As a result, the need for manual, physical, and basic cognitive skills will decrease. However, the demand for technologies, social and emotional, will be higher, and thus cognitive skills will increase.

Over the past five years, business and education groups have published reports (National Research Council, 2008). Due to rapid technological change and increasing global competition, job skill requirements are rising. Researchers have begun to explore the changing skill requirements in the workplace. Many economists have found that technological change is "skills-biased," increasing the demand for highly skilled workers and contributing to a growing pay gap between college-educated and lower-educated workers. The term "future skills" is defined as 'the ability to act successfully on a complex problem in the future in an unknown context of action' (National Research Council, 2008). This term refers to the tendency of individuals to act in externally visible self-organization as performance. Preparing for the future labor market presents many challenges but no fewer opportunities for growth and innovation. Experts predict far-reaching changes in the structure and characteristics of the labor market over the next decade, which we are already witnessing today. This change includes technological developments, demographic changes, the deepening of the globalization process, and perceptual differences in the world of work. Poor preparation for the expected changes can create significant difficulties, including a severe shortage of professional human resources, high unemployment among certain populations, and an uneasy working relationship. However, an informed preparation for the challenges of the future labor market can substantially reduce these dangers, contribute to the expansion of employment opportunities, allow greater employment flexibility for employees and employers, and improve the competitiveness of the Israeli economy (Aviram Nitsan & Margalit, 2017).

Governments and organizations worldwide have realized the need for informed preparation for the conditions of the developing world employment. The Future Labor Market Team initiative, headed by the Israel Democracy Institute (Aviram Nitsan & Margalit, 2017), aims to bring together all the major players in the Israeli labor market before a "round table". The team examines the data and trends derived from the expected changes and deals with formulating common conclusions for proper preparation for future labor market challenges.

In the PIAAC (Program for the International Assessment of Adult Competencies) survey conducted in 2018, there are among 39 countries around the world that tried to assess the level of expertise of people in the job market, Referring to 21st Century Skills as part of the International Graduate Skills Assessment Program. According to the PISA tests, the Israeli respondents received a significantly lower score and a similar distance from the overall average (Peretz, 2020). The main barriers to the education system in Israel today, according to Eisenberg and Zlibansky (2018), are:

- A. The knowledge and skills required today in the matriculation exams and, accordingly, the classification system of higher education in Israel do not reflect the skills of the 21st century.
- B. Teachers and principals do not master these skills enough.
- C. In the education system in Israel, there is little freedom of action for the schools themselves or the authorities.
- D. Great emphasizes evaluating achievements through standardized tests and uniform exams for all.
- E. The great heterogeneity of Israeli society and difficulty in performing sweeping reforms.
- F. Frequent political changes that lead to policy change. However, the Ministry of Education deals extensively with this issue. It attempts to make a significant change, adapt the curricula and teacher training, and equip the school for changing times and requirements.

The qualification programs are divided into programs aimed at qualifying directly, as opposed to others in which the qualification is done indirectly. According to the Organisation for Economic Co-operation and Development (OECD), skills are acquired through experience, guidance, or training. They represent the individual's ability to turn knowledge into productive activity at work or in everyday life. (Schwartz et al., 2020).

The model of future skills and competencies divides future skills into three interrelated dimensions:

The first skill dimension of the future is the subjective dimension of the future, individual skills profile, personal abilities, and personalities to learn, adapt, and evolve to enhance opportunities and participate productively in tomorrow's workforce. It results in actively shaping the future of work and the environment and involving themselves in creating companies that face future challenges.

The second future skill dimension is the object dimension (instrumental skills) which refers to the individual's ability to act on their own concerning a particular task, object, or subject related to the object. It emphasizes the new approach rooted in the stream of understanding of knowledge. Nevertheless, it is suggested that knowledge be taken up a few notches, linked to its motivation, values, and purpose, and instilled with the tendency to act organized even within the realm of knowledge being spoken of. It is not just a search for more knowledge, but for dealing with it differently that results from professionalism and not just expertise.

The third future skill dimension is the social dimension. This dimension is an individual's ability to act in an organized manner on his own and with his social environment, society, and organizational environment. While emphasizing the dual role of the individual as the treasurer of his membership portfolio in many corporate areas, he has the role of rethinking administrative spaces and re-creating organizational structures. To do so, it contains an array of skills and profiles.

Within these three dimensions, a skills profile was defined.

- A. Regarding personal development: autonomy, self-initiative, self-management, need/motivation for achievement, personal agility, independence and learning ability, and self-efficacy.
- B. Object-related skills (instrumental skills): agility, creativity, tolerance for ambiguity, digital literacy, ability to reflect.
- C. Skills related to social world/organization: creating senses, future thinking, collaboration skills, communication ability.

To be successful in the next decade, people will need to demonstrate foresight in navigating a rapidly changing landscape of organizational forms and skill requirements. They will be required to constantly re-evaluate the skills they need and put together the right resources to develop and update them. Future employees will need to be lifelong learners. Academic and higher education institutions must understand that their current structure is a product of the technological infrastructure of the past. The landscape has changed, and they must consider how to adapt quickly in response. Finally, businesses must also be alert to the changing environment and adjust their workforce's planning and development strategies to ensure suitability for future skill requirements. They need to identify critical skills and select and develop talents. The disruptions that may reshape the future will enhance the ability of businesses to ensure that organizational talents continually possess and constantly innovate the skills needed for business sustainability goals. It is important to remember that the future is not yet written and that the best way to meet the future head-on is to help shape it.

The Link between the Future Labor Market, The Education System, and 21st-Century Skills

Eisenberg and Selivansky Eden (2019) note that in the 20th century, jobs requiring repetitive skills were reduced and replaced by specialized machines, while the need for employment requiring non-repetitive tasks increased. As a result, the new worker and their employer had to adjust to the latest technological environment and adapt to a different skill system than the one they knew. This process has continued into the 21st century. They also note that in an analysis of about 75 academic articles and books written between 2000 and 2016, they found 12 main skills needed in the 21st century, divided into three main types:

ONE. Skills where humans have an advantage over machines - skills that require deep thinking: critical thinking, creativity and innovation thinking, and problem-solving.

Critical thinking is thinking in which a person strives to rigorously analyze their assertions, look for evidence, and wisely choose positions and values to reach sound conclusions. A person who uses critical thinking to challenge their point of view is practicing strong thinking. Developing this type of thinking helps build knowledge in a deep and meaningful way (Branco Weiss, 2015a). Creative thinking is the ability to look at things differently, find new ways to come up with solutions and complement critical thinking. Innovation is a change, improvement, or optimization of a product, process, service, technology, or idea. Unlike the definition of creativity, in innovation, the product is not only new or original to the inventor but society in general. It often has economic value (Branco Weiss, 2015b). Solving problems in an environment where uncertainty is possible requires the problem solver to combine all three thinking skills through branched and convergent thinking. The problem-solving process begins, on the one hand, at a point of challenge seeking a solution by extending the search in different directions that have created new, diverse, and original possibilities (branching thinking). However, on the other hand, examining, critiquing, assessing, and evaluating all options that arise to find a solution to the problem (convergent thinking).

Skills related to technology and technological innovation required in digital and information technology-based environments: Information management and digital technology skills.

The Expert Committee of the Israeli Academy of Education for Science has published a comprehensive report for 2020 on adapting the curriculum and learning materials to the 21st century (Bushrian & Zohar, 2020). This report asserts that the required digital technology in the future world will demand from the learner a set of skills divided into six main components (Eisenberg & Selivansky Eden, 2019; Ministry of Education, 2015)

Information and data literacy skills

These skills include identifying problems that require information and defining it, finding the needed information, evaluating it, merging it with various information sources, presenting it, and distributing it. This type of literacy is important to students for lifetime learning and deals with the considerations of using digital materials to promote autonomous learning.

Skills of communication and cooperation in the digital environment

These skills include learning and developing social norms to use in digital technology. These social skills allow efficient use of technology that promotes interaction and cooperation between people. In this section, you will find cooperative learning - peer learning, use of social networks, multi-participant conversations, etc.

Digital content creation skills.

These skills include recognizing the limitations of copyrights and licenses and creating digital content that allows self-expression. This content could mean developing and sharing new ideas by writing a Facebook post, opening a blog or video blog, creating a YouTube video, developing apps and games, integrating digital programming with physical materials, etc.

Citizenship skills and digital ethics

These skills include the ability to take an active part in a democratic society and have the accessibility to civil and social services, communication with civil and public bodies, social involvement, and taking an active role in the community while maintaining ethical rules online (avoiding bullying and violence, avoiding incitement, disseminating false information, protecting copyright, maintaining other's privacy, etc.).

Welfare and security skills in a digital environment

These skills include the ability to use digital tools while retaining the digital space privacy and security of digital tools and information (as protection from online attacks and mutual data security.) The skills are in addition to maintaining health and psychological well-being - preventing cyberbullying and also the ability to cope with it.

Problem-solving and decision-making skills in a digital environment.

These skills include the ability to identify and solve technical and fundamental problems. It consists of the user's digital expertise in finding help regarding problem-solving while understanding its digital limitations. The learner must develop thinking that will allow him to identify his options and critical thinking that will enable him to disqualify wrong choices.

1. Emotional and social skills required for personal and interpersonal conduct in changing world: collaboration, communication, self-direction, lifelong learning, ethical awareness, cultural awareness, and flexibility. We live in a changing reality where the main characteristics are accelerated technology accompanied by cultural and social changes in an uncertain world. Nurturing social and emotional skills is integral to the educational learning process. Including positive social functioning learned by acquiring social skills, adapting to complex situations, adaptability, nurturing high cognitive abilities (as high verbal ability, using foreign languages), ability to manage time, efficient tasks division, group cooperation, and interpersonal communication can contribute to the learner's personal social and occupational functioning success. It is also important to note that there are ethical challenges online, and one should be able to independently identify ethical issues and discern ethically, socially, and legally problematic behavior. Due to the globalization process, global corporations are forming. Therefore, there is a demand for cultural awareness and understanding of the right ways to communicate between people from different countries and cultures (Eisenberg & Selivansky Eden, 2019).

The 21st-century learning report (Battelle for Kids, 2019), presented in Figure 1, confirms the claim of Eisenberg and Selivansky Eden (2019) and offers a unified vision for learning. This learning details the skills, knowledge, and abilities required for students to integrate into the future labor market.



Figure 1: Framework for 21st Century Learning: A Unified Vision for Learning to Ensure Student Success in A World Where Change is Constant, and Learning Never Stops. Partnership for 21st Century Learning a Network of Battelle for Kids. (Battelle for Kids, 2019).

The report indicates that interdisciplinary studies must be emphasized and promoted in financial literacy, global awareness, economy, entrepreneurship, civic literacy, health literacy, and environmental literature. In addition, learning skills should be implemented in three categories: thinking, technological, emotional, and social. All skills have to be combined during the teaching process. The students should also be taught essential tools for the digital world to help them in daily life. Learning and teaching in context will make learning relevant to real-world life and set new standards for student evaluation according to 21st-century skills (Battelle for Kids, 2019). Such teaching requires the learner to have thought of higher-order and a deep and broad understanding of the studied subject while addressing and emphasizing the related subjects.

Harpaz (2016) adds that understanding contributes a lot to deep thinking. There are three main perceptions for understanding: Understanding as a location is understanding the concept in the context of other relevant concepts - the larger the person's concept network in the "new" concept context, the better and deeper his understanding of the concept. Understanding as an application is the ability to apply a concept to new contexts different from those it is learned. Understanding as a performance is the ability to make thought moves with the learned concept. There are about 18 understanding performances that if a person can perform all understanding performances for a newly acquired concept, it may be said that the concept is understood (see Table 1).

Table 1. Eight Understanding Performance (Harpaz, 2016)

Present knowledge	Act on knowledge and with knowledge	Criticize and create knowledge
Express knowledge in your own words	Break down knowledge (analysis) and assemble knowledge (synthesis)	Justify and explain knowledge
Explain knowledge	Provide example	Discover tensions in knowledge
Exhaust knowledge	Generalize knowledge items	Ask questions about knowledge
Describe different views on knowledge	Predict results or knowledge implications	Expose knowledge of basic assumptions
Represent knowledge in varied ways	Place knowledge in the context	Formulate knowledge contradicts the knowledge
Interpret knowledge	Apply knowledge in new contexts	Create knowledge based on knowledge

There is a link between the three understanding perceptions (location, application, and performance) because understanding as a location (understanding in context) allows application (applying the concept in new contexts) and performance (the ability to perform thinking with the newly acquired concept). A person thinks well when he understands 1) the subject he thinks about and its field; and 2) the thinking itself – the factors assisting good thinking and sabotaging it (Harpaz, 2010).

One of the latest approaches examines the new direction of the learning environment and is considered the future classroom, the "phygital" space – which combines the physical and the digital world. This approach can open the door to future learning innovations that equip students with skills and knowledge better connected to the 21st-century requirements.

This new approach combines the physical and digital spaces to enhance each student's abilities in each area.

The goal of "phygital" space is to allow learners to be "sucked" into the digital learning experience. This goal is not necessarily by disconnecting from the physical environment but by blurring the physical and digital boundaries. As technology becomes more sophisticated, the boundaries between the physical and digital dimensions will become more blurred, and the connection between them will be completely smooth to invisible.

"Phygital" learning space has three main characteristics that create a unique learning experience:

1. Space simulates a physical place and time of exploration.

The physical space affects a physical place (real or imagined), which consists of different areas. Each of these areas has another activity. Learners move independently between the various spaces according to a predetermined schedule or personal choice. This space also keeps a sense of play - not everything is clear as soon as we enter the physical space. Just like in a physical learning space, learners are asked to explore the area, navigate it, and actively discover what learning possibilities it embodies within it. In this space, learners are largely responsible for their learning process and assembling the personal learning experience from the range offered. This experience, of course, connects to personalization aspects and encourages independent learning abilities.

The space combines individual activities with a group or plenary activities. Some activities occur based on synchronous technology, such as ZOOM, and others with other technological tools. These activities enable a wide range of learning activities and optimal use of space. (Boym-Swarts, 2020).

2. The space combines place-based learning activities.

"Phygital" learning activities are elements in the learners' physical environment. This learning creates a stronger connection between the digital and physical environments and allows the boundary between the two dimensions to be blurred. Sample activity types can be a virtual tour of a physical complex that combines digital activities (like in a museum, for example) and digital actions that each learner can perform independently during the time.

3. Space refers to the socio-emotional aspect of learners.

This approach addresses social-emotional learning aspects in the learning process. The "phygital" location of the learners also affects the degree of emotional reference to learning. Therefore, it considers the differences between the learners' locations and addresses this both in the context of the learning day structure and in the context of learning activities in space.

The special shape of the "phygital" space makes it possible to separate the activities' spaces and nature. Therefore, it is possible to create activities aimed at "ventilation", meeting with friends, personal meetings with the teaching staff, and more. Examples of activities include Virtual Cafe by using the ZOOM system, cooking together via video or through the ZOOM system, or a personal area where you can choose from a variety of respite and relaxation activities, such as assembling puzzles on the subject of the meeting.

The "phygital" spaces blur the boundaries between the various spaces and create new teaching and learning situations that challenge ingrained assumptions that have been established over the years, such as - what do you learn, how do you understand, with whom and from whom do you know, what does a lesson look like, what is the role of the teacher in the space, and more. (Boym-Swartz, 2020).

The unique characteristics of the "phygital" spaces make it possible to break through the walls of the classroom and combine a variety of learning modes and target audiences - individual or group learning, connecting classes/schools/authorities. Educators can develop the spaces, but students can also take an active part in building and operating the spaces. (Boym-Swartz, 2020).

Since this trend is in the development stage, mainly pushed by the COVID-19 crisis as a solution to "hybrid learning", we can assume that this approach will create new interdisciplinary pedagogical content that will encourage personal learning experiences and eventually contribute to preparing learners to the 21st century required skills. *Know the Future Labor Generation – The Z Generation*

Those born in the late 1990s to the mid-2010s are called "The Z generation" or "Google generation" and are the first generation born and raised in a global world - in the consumption of music, fashion, food, entertainment, and culture. Some are already integrated into the higher education system and will be integrated into the employment market. This generation was born in a technologic-digital era that processes data differently and faster than previous generations, speaks the digital language at the native language level, and prefers to consume information online (and less in books), visually and graphically rather than reading (the messages are based on symbols and images and less verbal), have fast response-ability, striving for continuous and immediate interaction, has high expectations from technology, tend to self-search, self-learning or autodidactic and excels in multitasking. This generation is the most material, technologically flooded, globally-connected, and has the highest global education of all previous generations. This peer group is an ambitious, enterprising, creative generation that values personal learning. It is not intellectually dependent on teachers, but values teachers who show credibility and fairness, respect for others, and honest and open communication. One of the most prominent characteristics of the Z Generation is the need to lead a significant change in society. They believe in the importance of higher education but know its limitations (due to the economic costs of acquiring it). They aim to select a professional path that will lead to cultural and social change and activities that greatly influence society. In the social aspect, they are a generation with twice as many members in social networks as the X generation. This aspect encourages global connections across geographic borders. This generation is predicted to work longer, live longer, and finance its retirement for a longer time, growing into uncertainty, volatility, complexity, and ambiguity (Ran et al., 2019).

Conclusion

This article aimed to shed light on futuristic teaching that differs from the old teaching and its importance in the education system of the 21st century. Our world is undergoing a global transformation with new technologies coming in and out very quickly and changes in the world of work (see Table 2). The number of lifelong jobs, professional competitiveness, job requirements, work model, and organizational culture is changing in the 21st century, and so is the global education system (Semmel, 2009).

In 2019, the OECD published a recommendation report on future education and skills required for 2030, stating that the future generation needs to be educated to become skilled workers who adapt to the system requirements of the 21st century. This report contributes effectively to changing its environment, which can predict long- and short-term outcomes, acquire knowledge and skills, evaluate and critique existing knowledge, confront complex problems, and offer essential solutions to economic, social, and cultural dilemmas. The report suggests planning the curriculum to focus on

students, motivate them, and learn about their prior knowledge, skills, attitudes, and values. Learning topics must be challenging and allow for deep thinking. Therefore, a relatively small number of learning topics must be covered in each class to ensure depth and quality of learning. Lessons need to be sequenced logically and combine different learning topics to provide effective logic-based education and prioritize knowledge, skills, attitudes, and values learned in a different context. We should also offer students a variety of topics and projects and let them propose their subjects and projects with teacher support to make informed choices. It is also important to note that new assessment methods must be developed for this learning style (OECD, 2019). The education system needs an educational revolution where students learn limited subjects in combination with different disciplines in-depth, emphasizing learning skills.

Table 2. Differences in the Labor Market Between the 20th and 21st Centuries (Semmel, 2009)

	The 20th century	The 21st century
Number of jobs	1-2 jobs	10-15 jobs
Job requirements	Mastering one field	Simultaneous mastering of diverse changing fields
Occupational competitiveness	Local	Global
Work model	Routine, using craft and fact-based	Not routine, technical, creative, interactive
Educational model	Formal learning and acquiring a degree as the main goal	The learner is in the center, and the goal is lifelong learning
Organizational culture	Top to bottom	Multi-dimensional (top to bottom, bottom to top, and side to side)

Discussion

Results of Studies of 21st Century Skills

The epidemic COVID -19 has changed the world of work and the field of learning and development in a matter of weeks. It has challenged people, employers, employees, and training and higher education institutions to adapt to distance and isolation in all aspects of life through online methods. The task of the ILO (International Labour Organization) in these critical times has been to mobilize its capacities and unite the efforts of its members to meet the enormous needs of the moment and the commitments set out in the ILO Century Declaration and the 2030 Agenda.

The ILO has taken a leading, or coordinating role, in the development of effective national training systems, institutions, and programs through activities such as analytical reports and studies, guidebook development, capacity building and development, technical advice and support, advocacy, awareness-raising workshops, knowledge and information sharing, and the design and implementation of new programs. The ILO Strategic Plan for 2022-25, the Plan and Budget for 2020-2021, and the proposed Plan and Budget for 2022-23 focus on lifelong skills and learning relationships. For example, by increasing the capabilities of ILO components, it has been possible to:

- A. Identify a current skills mismatch and anticipate future skills needs.
- B. Strengthen lifelong learning and skills policies. This policy includes governance models and funding systems.
- C. Develop and provide innovative, flexible, and inclusive learning options, including work-based learning (WBL) and high-quality mentoring programs.

***(From International Labour Organization, 2021)

The ILO has established a broad, people-centered framework for responses to social and economic recovery that supports business, enterprises, workers, and social dialog to maintain skills and competencies. They have developed an information center based on governments and social partners in 187 ILO member countries. They have developed and released a list of interventions in 20 languages, including Specific Training and Tools for Risk Assessment and Mitigation, Policy Summary and Practical Training to Ensure a Safe Return to Work, A Guide to Managing Work-Related Psychosocial Risks, A Guide to the Practical Application of Work and Distance Learning as Part of a Solution to the COVID 19 epidemic and the Development of Future Skills. (International Labour Organization, 2020). The first part is aimed at policymakers and highlights effective strategies and innovative solutions for mentoring systems, development, and policy. The second part is for practitioners and focuses on operational-level practice. This practice includes planning, designing, implementing, monitoring, and evaluating mentoring programs. There is a database of online courses and digital resources for sharing. At the state level, ILO supports Technical Vocational Education and Training (TVET) systems and agencies, national for establishing programs for distance and online learning situations, providing advice on available tools and platforms and examples of how countries are responding to challenges, providing support to national ministries, and updates on national employment strategies and policy advice, technical assistance and support, promoting social dialog as a key tool for program development and a channel that provides resources for distance and online learning for TVET of skills development. These measures support the operation of education and training systems and have employment retention programs, incentive packages, and enhanced social protection measures. They also

endorsed stakeholders to become truly unique partners in the joint development of lifelong skills and learning. They are strategically expanding their partnerships at the global and regional levels and with national partners that support their constituents, advisory, and knowledge partners to build effective and inclusive systems for skills and lifelong learning. With primary responsibility for education, pre-employment training, and training for the unemployed, the ILO is engaging with countries and 263 new partnerships and methods of collaboration that provide opportunities for both constituents and the ILO to address the challenges of the 2030 Agenda through global advocacy, alliances, and collaboration with other international organizations, Member State development agencies, international financial institutions, regional groupings of Member States, and private entities.

Where Education has A Place and What it Can Do

Although education cannot solve the problems of low demand, it can perform other important social and economic functions. It has three particularly important functions. The first is to create a population of educated people. Educated people benefit both the economy and society. The second is education's role in supporting and building new and established fields of expertise. The third is the provision of quality credentials that contribute to coherent educational and employment progress (Buchanan et al., 2020).

The global campaign focuses on the '21st Century Curriculum'. It can be seen that such a dynamic is recurrent in education reform. This campaign is partly because of the recurrent limited approaches based on rote learning for subject teaching and partly because of the belief that grading the required 'skills' will lead to their integration into the curriculum. These proponents (usually consultants and economic policymakers) tend to have limited expertise in education. The focus is then on endlessly identifying the latest type of skills, which generally turn out to be very similar to the skills identified in the previous round. Traits of interest (e.g., creativity, collaboration, problem-solving) are best acquired by developing competencies in specific domains and areas of academic or professional knowledge. They cannot be managed in the abstract.

Moreover, the practice of 'identifying skills' neglects the hard work of building curricula to promote broad disciplinary understanding (holistic and diverse education). Conceptual capabilities ignore issues of building vibrant institutions. These include professional staff and the more general social conditions that make teaching more successful (nutrition, clean air, etc.) In short, frustrations resulting from the negative consequences of the liberal meritocratic order need not lead to 'educational reform' and produce confident, creative, critical, and independent-minded people.

Education should maintain its institutional and conceptual coherence as a system of social structures created for developing, acquiring, and applying knowledge and learning tendencies. This coherence requires professional working conditions for vital educators through arrangements that provide educational professionals with the time, resources, support structures, and employment conditions to develop and function as inspiring professionals. Also needed are employment conditions for pedagogical professionals that support their work. For example, stable employment contracts with adequate wages and conditions for professional, technical, and professional development, as well as a variety of teaching formats that develop professional skills that must be integrated into industrial, social, and especially professional development. Transformation and industrial skills choices are interrelated and cannot be viewed as developing exogenous vocational skills for a broader view of industrial development and growth policy. Professional organizations promoted vocational education based on the knowledge and traditions of scholarship developed over centuries. Education and vocational training systems must do the same. Vocational skills development in all its various forms should be a concept that is part of a broader industrial, social, and employment/occupational development approach that considers the general orientation of particular industrial sectors and the specific dynamics of jobs. These capabilities may result in very small TVET systems - where there is a very limited real demand for workers with technical training in the economy. Policymakers may need to move away from mass vocational training as a solution to unemployment. They need to develop high-quality vocational skills development centers for effective communities that engage all stakeholders in specific work groups-or as "occupational streams." At a minimum, such communities of trust should include employers, worker representatives, unions, educators, and relevant government officials (Buchanan et al., 2020).

Recommendations

In this generation, the education system needs to promote information literacy (i.e., the ability to evaluate and critique information) and digital media literacy by teaching teachers how to properly and effectively use students' digital tools (such as laptops, cell phones, etc.), raise awareness of online safety, and build student competence. There seems to be a growing need for curricula that addresses information literacy, creative thinking, intellectual curiosity, critical thinking, problem-solving, decision making, and technological understanding (Goldberg, 2017). The Israeli education system is still caught in the "*centralization trap*" that prevents significant change, along with the continuous failure over the years to create pedagogical change (Nir et al., 2016). A study conducted by the Hebrew University of Jerusalem among educators (Ben-David Kolikant, 2019) reinforces these claims, showing that although developing thinking skills, research, and working with data are important to educators, most of them perceive their schools as lagging behind and not keeping pace with global progress. Further, the majority of them believe that schools are not orienting students to the future.

Therefore, a comprehensive strategy is needed to close this gap. Consequently, we recommend conducting additional studies examining the 21st-century skills of students in Israel in a way that leads to the creation of curricula adapted to the Israeli education system and move students forward.

Limitations

This review is based on previous literature that addresses the skills and tools needed to prepare learners for the future labor market. International organizations (Kim et al., 2019), governments, and ministries of education worldwide are currently grappling with how to prepare the younger generation for the demands of the future. They are investing in establishing working teams and national committees, developing strategies and programs to reach young people, and providing them with the infrastructure to help them acquire future skills, knowledge, and abilities. Therefore, this review can be limited to the specific sources mentioned in this paper, as various opinions, models, and other databases present different or complementary orientations.

Authorship Contribution Statement

Sabag: Writing, analysis, conceptualization, editing. Cohen: Writing, analysis, design, supervision.

References

- Aviram Nitsan, D., & Margalit, Y. (2017). *Preparing for the future labor market- Interim Report*. The Israeli Democracy Institute. <https://bit.ly/3NX9etL> [In Hebrew]
- Battelle for Kids. (2019). *Framework for 21st century learning*. <https://bit.ly/2HgDq4q>
- Ben-David Kolikant, Y. (2019). Adapting school to the twenty-first century: Educators' perspectives. *Technology, Pedagogy and Education*, 28(3), 287-299. <https://doi.org/10.1080/1475939X.2019.1584580>
- Boym-Swarts, S. (2020). *Is the school closed? The physical space is open! It's time for education*. <https://bit.ly/3xuhn1Q> [In Hebrew]
- Branco Weiss. (2015a). *What is critical thinking - introductory article*. <https://bit.ly/3NXTxSS> [In Hebrew]
- Branco Weiss. (2015b). *Evaluation of creative thinking- introductory article*. <https://bit.ly/3aSdMmm> [In Hebrew]
- Brands, O. (2003). *The third jump*. Ministry of Education and Culture
- Buchanan, J., Allais S., Anderson M., Calvo R. A., Peter S., & Pietsch T. (2020). *The futures of work: What education can and can't do*. Paper commissioned for the UNESCO Futures of Education report (forthcoming, 2021). <https://bit.ly/3OeSpds>
- Bushrian, E., & Zohar, A. (2020). *Adapting the curricula and study materials to the 21st century Summary of the work of the Committee of Experts, situation and recommendations*. The Initiative - Center for Knowledge and Research in Education and the Israeli National Academy of Sciences.
- Dondi, M., Klier, J., Panier, F., & Schubert, J. (2021a). *Defining the skills citizens will need in the future world of work*. McKinsey & Company. <https://mck.co/3OjdMKA>
- Eisenberg, A., & Zlibansky, A. (2018). *Adapting the education system to the 21st century*. The Israeli Democracy Institute. [In Hebrew].
- Eisenberg, E., & Eden, O. S. (2019). *Adapting Israel's education system for the challenges of the 21st century*. The Israel Democracy Institute
- Frey, C. B., & Osborne, M. A. (2013). *The future of employment: How susceptible are jobs to computerization?* Oxford Martin School.
- Goldberg, E. (2017). The Google generation as a challenge to the education system. *Limudim: Virtual Journal of Education and Teaching*, 13, 1-9. <https://bit.ly/3Qi699f> [In Hebrew]
- Harpaz, Y. (2010). *Holding a class: In ten lessons*. Hed Hachinuch Publication. <https://bit.ly/39r6GVL>
- Harpaz, Y. (2016). *Understanding understanding: Theory and practice*. The Academic College Beit Berl.
- International Labour Organization. (2020). *Teleworking during the COVID-19 pandemic and beyond*. [A Practical Guide]. <https://bit.ly/3zJlbPk>
- International Labour Organization. (2021). *Shaping skills and lifelong learning for the future of work*. ILC.109/Report VI, Geneva. <https://bit.ly/3xUwV0g>
- Kankaraš, M., Montt, G., Paccagnella, M., Quintini, G., & Thorn, W. (2016). *Skills matter: Further results from the survey of adult skills*. OECD Publishing. <https://bit.ly/3MThZUF>

- Kim, S., Raza, M., & Seidman, E. (2019). Improving 21st-century teaching skills: The key to effective 21st-century learners. *Research in Comparative and International Education*, 14(1), 99-117. <https://doi.org/10.1177/1745499919829214>
- Kotsiou, A., Fajardo-Tovar, D. D., Cowhitt, T., Major, L., & Wegerif, R. (2022). A scoping review of future skills frameworks. *Irish Educational Studies*, 41(1), 171-186. <https://doi.org/10.1080/03323315.2021.2022522>
- Manela, M. (2017). *Research: 65% of the jobs that Z Generation will engage in do not yet exist*. Calcalist.
- Martin, J. P. (2018). *Skills for the 21st century: Findings and policy lessons from the OECD survey of adult skills* (OECD Education Working Paper 166). <https://doi.org/10.1787/19939019>
- Ministry of Education. (2015). *Technological and digital literacy - developing the skills and knowledge needed to learn in the 21st century*. ICT, Technology and Information Systems Administration. <https://bit.ly/3nKRSE4> [in Hebrew].
- National Research Council. (2008). *Research on future skill demands: A workshop summary*. Margaret Hilton, Rapporteur. The National Academies Press. <https://bit.ly/3MTsSft>
- Nir, A., Ben-David, A., Bogler, R., Inbar, D., & Zohar, A. (2016). School autonomy and 21st century skills in the Israeli educational system: Discrepancies between the declarative and operational levels. *International Journal of Educational Management*, 30(7), 1231-1246. <https://doi.org/10.1108/IJEM-11-2015-0149>
- Organization for Economic Cooperation and Development. (2019). *Learning Compass 2030*. <https://bit.ly/3NY9M1Q>
- Peretz, H. (2020). *21st century skills - literary review*. Foundation Research and Development Department. <https://bit.ly/3MTezRh> [in Hebrew]
- Ran, A., Almagor, R., & Josephsberg-Ben Yehoshua, L. (2019). *The new learners: Characteristics of Z Generation in the classroom and beyond the school walls*. Mofet Institute Publishing, Inter-College Information Center.
- Rosner, M., & Nagdy, M. (2020). *Projections of future education. our world on data*. <https://bit.ly/3xuxTyO>
- Schwartz, A., Ben Meir, E., & Somekh, S. (2020). *Giving soft skills and measuring them in the changing world of work - a literary review*. Myers JDC Brookdale Institute <https://bit.ly/3MTezRh> [In Hebrew].
- Semmel, M. L. (2009). *Museums, libraries, and 21st century skills*. Institute of Museum and Library Services. <https://bit.ly/39JuoN0>
- Yoad, Z., & Melamed, U. (2009). *Informatics - an outline for the development of informational processes during the learning of the fields of knowledge for the conduct of learners in an information-rich environment*. Tel Aviv Publishing, Ministry of Education. <https://bit.ly/3NrFqoM> [In Hebrew].