

The Future of Distance Education in Educational Organizations: Transformation and Innovation

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Abstract

In the current study, on which issues dissent arises in schools, the reasons why it arises and the consequences of dissent for teachers, administrators and the school were examined. The study using the phenomenological design was conducted on 25 participants. In the study, data were collected with a semi-structured interview form. The collected data were analysed using content analysis. In the study, it was determined that dissent is exhibited on many issues related to instructional planning, extracurricular duties and other duties assigned. The exhibition of dissentient behaviours in these areas was attributed to various organizational, managerial and personal factors. While dissent contributes to increasing the value of the dissident teacher, it causes him/her to face many negative sanctions ranging from mobbing, threats, exclusion and change of place of duty. Dissent can lead to positive outcomes for the school administrators, such as development/empowerment and raising awareness. However, it can also result in negative consequences, including seeking support, isolation, loss of authority and removal from the position. It has positive consequences for the school such as development and creating a more democratic climate, and negative consequences such as an uneasy environment, low productivity, grouping and communication problems.

Keywords: Dissent issues in high schools, reasons of organizational dissent, consequences of organizational dissent.

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Introduction

Distance education uses technological resources to facilitate communication between teachers and students across physical distances (Buselic, 2017; Kırık, 2014; Webster & Hackley, 1997). Moreover, it is defined differently depending on the context. For instance, Bergdahl & Nouri (2021) define distance education during the COVID-19 period as "crisis-based temporary distance education," differentiating it from traditional distance education. Hodges, Moore, Lockee, Trust & Bond (2020) also emphasize that a reliable and effective distance education system requires substantial time and financial investment to train teachers and students, establish essential infrastructure and tools, and develop a curriculum based on strong principles. They contend that the sudden transition to online education prompted by COVID-19 can't be regarded as true distance education; rather, it should be defined as "online emergency remote education." The remote education activities implemented following the closures of schools during the Severe Acute Respiratory Syndrome (SARS) epidemic in China in 2003 (Fox, 2004) also exemplify online emergency remote education. In conclusion, online emergency remote education uses communication tools and technologies to deal with educational disruptions during crises, providing temporary solutions (Sezgin, 2021), while distance education uses specific techniques with teacher support to facilitate learning and certification (Martin & Dowson, 2009; Passerini & Granger, 2000).

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Since changing global conditions and advances in technology play a crucial role in socioeconomic growth (Özbay, 2015), distance education has become an essential component of modern educational systems, requiring personal development (Buselic, 2017). It increases the importance of digital tools in distance education and makes educational technology an essential component of educational advancement. The objective of educational technologies utilized in the realm of education is to enhance the quality of education, develop new techniques for the educational process, and provide these approaches using remote educational technology (Chang, Zhang, and Jin, 2016; Hasanova, Najafova, and Karimova, 2020). Digital technology's significant impact on distance education has led to new understandings of the term "school" and innovative educational methods. As a matter of fact, the term "school" is now more often used to describe an organization where teachers and students come together physically or digitally to carry out educational activities (Timms, 2016). The rise of distance education as a result of the COVID-19 pandemic is one of this transformation's most notable features.

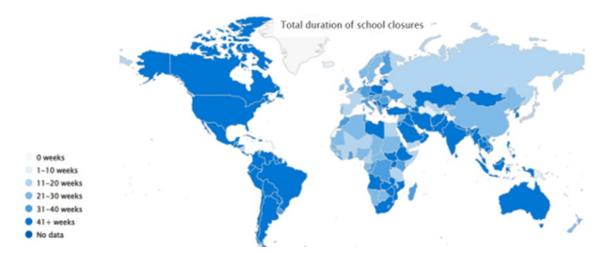
Due to COVID-19 pandemic closures, distance education has become the primary form of education for students and teachers. Throughout this period, digital tools were crucial in education for distribution, engagement, assignment submission, and assessment. In addition, distant education offers an opportunity for teachers and students to improve their current abilities, with a focus on developing digital literacy. Nevertheless, this transition has also presented significant challenges, including those related to inequalities in technology accessibility, sustaining student motivation, and developing successful assessment techniques.

The Rise and Transformation of Distance Education During the Pandemic

The COVID-19 pandemic, first identified in December 2019, led to a widespread global spread and a worldwide policy of school closures, affecting over 1.6 billion students and 100 million teachers across 190 countries (UNESCO, 2021; OECD, 2021). This resulted in 75% of face-to-face education time for 22 million preschool, 105 million primary, 53 million lower secondary, and 34 million upper secondary students being unable to attend (UNICEF, 2021), causing a rise in learning poverty, particularly in low-income countries (The World Bank, 2020).

Figure 1

Illustrates The Duration of School Closures Worldwide

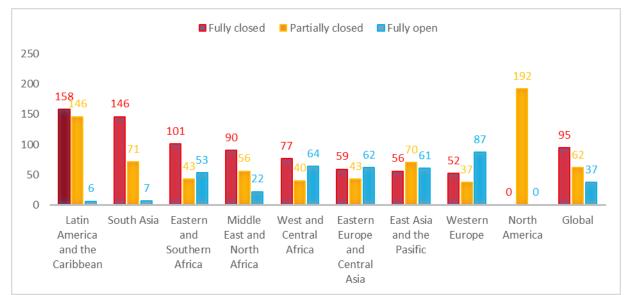


Source: The United Nations Educational, Scientific and Cultural Organization (2023). Retrived from https://webarchive.unesco.org/web/20220625033513/https://en.unesco.org/covid19/educationre-sponse#durationschoolclosures



Figure 1 shows that European countries like Germany, Austria, the Netherlands, and Belgium implemented partial school closures, while Latin American countries like El Salvador, Bolivia, Brazil, and Costa Rica implemented longer periods. The figure illustrates that national policies had a more significant impact on school closure duration than regional policies. For instance, in Nordic nations like Sweden and Switzerland, schools-maintained operations due to reduced infection risks, while Denmark and Finland implemented partial school opening laws. The variation in school closures can be attributed to factors like unforeseen prolongations of closures, inadequate preparedness in educational regulations, and extensive preparations for a transition back to traditional in-person teaching. UNICEF analysis from UNESCO archives provides a comprehensive overview of school closures from March 2020 to February 2021. Figure 2 presents a graphical depiction of these data.

Figure 2.



The Distribution of School Closure Status Varied By Region From March 2020 To February 2021

Source: The United Nations International Children's Emergency Fund (2021). COVID-19 and School Clousures. One Year of Educadition Disruption. March, 2021. https://data.unicef.org/resources/one-year-of-covid-19-and-school-

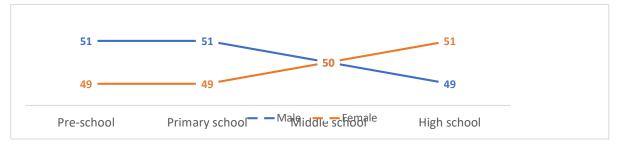
closures/#:~:text=We%20are%20facing%20a%20COVID,will%20pay%20the%20heaviest%20price.

Figure 2 illustrates that geographical disparities in school closure duration are evident, with Europe having the lowest duration and Latin American nations having the longest. Schools worldwide were closed for 95 days while open for 37 days. The United States, Australia, Sweden, Iceland, and Japan maintained schools open for the longest duration. Widespread closures have led to increased use of distance education, but policies influenced by economic, social, and political factors have resulted in learning loss. Figure 3 illustrates the distribution of students who have had academic setbacks in face-to-face education for a minimum of three terms between March 2020 and 2021, categorized by gender and educational level.



Figure 3

The Gender and Educational Levels of Students Who Missed At Least Three Terms of In-Person Instruction From March 2020 To 2021



Source: The United Nations International Children's Emergency Fund (2021). COVID-19 and School Clousures. One Year of Educadition Disruption. March, 2021. https://data.unicef.org/resources/one-year-of-covid-19-and-school-

closures/#:~:text=We%20are%20facing%20a%20COVID,will%20pay%20the%20heaviest%20price.

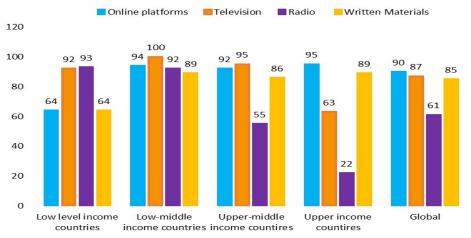
Figure 3 shows that 51% of male students and 49% of female students in preschool and primary education levels, 50% of all students in middle school, and 49% of male students and 51% of female students in high school experience at least three terms of education delay. Despite exploring distance education options, prolonged school closures haven't prevented learning loss, as research shows that prolonged closures accelerate the rate at which students forget acquired knowledge.

This phenomenon affects various subjects, including reading (Engzell, Frey, & Verhagen, 2021; Haeck & Lefebvre, 2020; Rose, Twist, Lord, Rutt, Badr, Hope & Styles, 2021; Kuhfield, Soland, Tarasawa, Johnson, Ruzek, & Liu, 2020), mathematics (Conni, Di Tommaso, Muratori, Piazzalunga, & Schiavon, 2021; Engzell, et. al., 2021; Haeck & Lefebvre, 2020; Meeter, 2021; Pier, Christian, Tymeson, & Meyer, 2021; Rose, et. al., 2021; Kuhfield, et. al., 2020), science (Haeck & Lefebvre, 2020), language skills (Pier, et. al., 2021), writing skills (Engzell, et. al., 2021; Schult, Mahler, Fauth & Lindner, 2021), and exam scores (Engzell, et. al., 2021; Maldonado & De Witte, 2020) across various categories (Maldonado & De Witte, 2020; Meeter, 2021). Family and socioeconomic factors also impact learning loss. The transition to remote education highlights the importance of family factors in the quality and quantity of education. Studies show that parents with higher education levels engage more in academic activities, while those with lower education levels show lower participation (Engzell et. al., 2021; Greenlee & Reid, 2020; Pensiero, Kelly, and Bokhove, 2020).

Socioeconomic factors also significantly influence the quality and quantity of education in distance education. Low socio-economic families often bear the financial burden of obtaining and finishing essential schoolwork (Pensiero et. al., 2020), leading to a disproportionate impact on children from low socio-economic backgrounds (Maldonado & De Witte, 2020; Engzell et al., 2021). Additionally, students from lower socio-economic backgrounds experience greater learning losses (Haelermans, Jacobs, van Vugt, Aarts, Abbink, Smeets, van der Velden, & van Wetten, 2021). Higher-income families can provide internet-enabled computers and laptops, reducing the negative effects of school closures (Haeck & Lefebvre, 2020; Pensiero et. al., 2020); Greenlee & Reid, 2020). Furthermore, parents with better income and greater education tend to own occupations that offer the flexibility to work remotely from home (Adams-Prassl et al., 2020), making students from socio-economically disadvantaged backgrounds more susceptible to educational disparity (Zierer, 2021). Consequently, in schools where a significant number of students come from economically disadvantaged households, they experience more significant learning losses due to socioeconomic factors (Maldonado & De Witte, 2020), which also influence the choice of digital technology in distance education, as shown in Figure 4.



Figure 4



The Distance Education Preferences of Nations In Accordance With Their Income Levels

Source: The United Nations International Children's Emergency Fund (2020). What have we learnt? Overview of findings from a survey of ministries of education on national responses to COVID-19. October, 2020. https://data.unicef.org/resources/national-education-responses-to-covid19/

Figure 4 indicates that radio and television are the most preferred tools of choice in low-income nations, whereas online platforms and printed materials are the most preferred in high-income countries. In addition, countries with lower-middle incomes demonstrated a preference for both television and online platforms, whereas those with higher-middle incomes preferred the radio and television. Globally, online platforms are the most often utilized, followed by television, printed materials, and radio.

Schools play a significant role in accessing distance education opportunities, and it is important to provide appropriate communication tools and opportunities for engagement (Bernard, Abrami, Borokhovski, Wade, Tamim, Surkes, & Bethel, 2009), but the lack of communication tools and opportunities between private and public schools, as well as students' socioeconomic backgrounds, contribute to significant disparities (Svaleryd & Vlachos, 2022). The extended duration of schools and their shift to distance education have also highlighted the importance of schools in child protection systems, as children without access to health and nutrition programs and assistance are considered to be at risk in terms of their holistic development. COVID-19 has disrupted school meals for 370 million children globally (World Food Program, 2020). Children have become more susceptible to violence and psychological distress as a consequence of this situation. The lack of preventive measures for women and girls has increased the risks of sexual exploitation and child marriage (UNICEF, July 10, 2023). Also, the pandemic has halted progress in combating child labor, leading to increased child labor (ILO & UNICEF, 2021). Consequently, allocating benefits, challenges, and disparities is crucial for a new educational model like distance education.

Embracing the Shift in Education: Assessing the Strengths and Weaknesses of Distance Education

As education undergoes a profound transformation, educators and learners alike are embracing the shift towards distance education. This innovative approach offers a myriad of strengths. Some of these strengths can be listed as follows:

Accessibility and flexibility. Distance education courses offer learners the flexibility to access lessons whenever and wherever they want, regardless of socioeconomic, geographical, or physical classroom restrictions (Chang et. al., 2016; Christensen, Anakwe, & Kessler, 2001; de Oliveira, Penedo, & Pereira, 2018; Katane, Kristovska, & Katans, 2015; Sadeghi, 2019), thus ensuring social equality and accessibility for individuals. Furthermore, learners have the ability to access prerecorded



educational materials at any time that suits them, often in the form of audio and video (de Oliveira et al., 2018; Sadeghi, 2019; Pardanjac, Radosav, & Jokic, 2009).

Individualized Learning Experience. Distance education offers individuals the opportunity for personal growth (Katane et. al., 2015; Chang et. al., 2016; Pardanjac et. al., 2009). Furthermore, some studies have observed that distance education offers students the chance to cultivate motivation, self-regulation, and self-assessment (Katane et. al., 2015; Klisowska, Sen, & Grabowska, 2021; Pardanjac et. al., 2009).

Time and cost savings Compared to the creation of educational materials for face-to-face education, such as worksheets, lecture notes, VCDs, DVDs, and textbooks, distance education offers an easy and repeatable way to access educational materials, resulting in time and cost savings (de Oliveira et. al., 2018; Klisowska et. al., 2021; Sadeghi, 2019). Furthermore, distance education courses enable the uploading of educational resources to the system at any time, which further facilitates savings (Kotrikadre & Zharkova, 2021).

As a result, distance education is gaining popularity due to its accessibility, flexibility, and personalized learning experience, enabling learners to access lessons anytime, anywhere, and promoting personal growth. It also offers cost savings and easy access to educational materials. Nevertheless, it is crucial to acknowledge the weakness of distance education. These might be identified as follows:

Access and Technological Infrastructure Issues. Challenges related to access and technological infrastructure can be divided into two primary categories: insufficient access to essential technologies and internet connectivity, especially troubling for students in regions with limited or no internet access (Christensen et. al., 2001; Katane et. al., 2015; Sadeghi, 2019). Students in rural areas faced challenges enrolling in distance education during the COVID-19 pandemic due to disparities in socioeconomic status and technological infrastructure compared to urban areas (Işık & Bahat, 2021; TEDMEM, 2021).

Social Isolation. Students might experience social isolation due to less face-to-face engagement and communication with teachers and peers in distance education (Christensen et. al., 2001; Sadeghi, 2019). Considering that humans are inherently social creatures, it is evident that distance education is an inefficient method for enhancing communication abilities (Kotrikadre & Zharkova, 2021). Students may face considerable levels of distraction, isolation, anxiety, or hopelessness due to this situation (Sadeghi, 2019).

Procrastination Tendency. Students enrolled in distance education must be self-motivated and disciplined. In other words, distance education promotes the student's autonomy. Students who struggle with self-discipline when working alone without instructor supervision may see this as a disadvantage (Buselic, 2017; de Oliveira et. al., 2018; Rashid & Elahi, 2012). Because of this, students could become less motivated, and procrastination issues might become more common.

Hidden Costs. Distance education is considered an advantage for saving money; however, it actually has hidden costs such as extra transportation and transaction costs (Christensen et. al., 2001).

Assessment and Monitoring Challenges. The main disadvantage of distance education is the challenge associated with monitoring and assessment. Evaluating and assessing performance is more challenging for teachers in online education compared to traditional classroom environments. Students have to wait for feedback until their teacher has assessed and provided comments on their work (Christensen et. al., 2001). Furthermore, teachers may find it challenging to monitor student progress and provide comments. The identification of the student after passing online assessments and doing homework is another issue with this kind of education (Kotrikadre & Zharkova, 2021). This situation makes it potentially challenging to verify identity and prevent test fraud when it occurs remotely.

Lack of digital proficiency Learners may face challenges since distance education applicants are required to have digital skills, including computer competency (Rashid & Elahi, 2012). Many students have difficulty with tasks like taking notes without using notebooks, sending emails, and taking exams and quizzes online (Klisowska et. al., 2021). Furthermore, in distance education, any disruptions caused by software or hardware failures may only be resolved by students with proficiency in computers and technology due to their technological nature. Consequently, this situation has a negative impact on several students (Sadeghi, 2019).



Lack of practical skills It can be difficult to develop some abilities that should be learned through practice in distance education because of the absence of practical knowledge, which hinders the full realization of a profession's potential. that prevents a particular profession from developing to its full potential. For instance, in several academic disciplines, laboratory or workshop activities are crucial.

Artificial Intelligence and Digital Transformation in Education: New Perspectives in Teaching

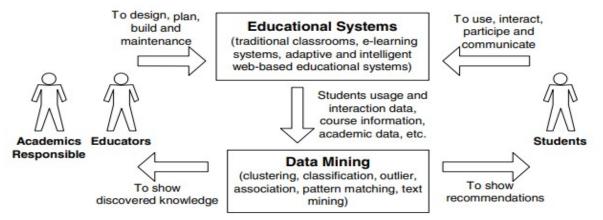
AI is a technology that has been widely used in education, particularly in the context of distance or online learning. It is an extension of the concept of distance education, which originated in the 1990s to update and advance education (Schiff, 2021). Both AI and distance education are software-driven, provide difficulties to teachers' responsibilities, and deviate from the conventional structure and characteristics of schools (Collins & Halverson, 2010). Moreover, providing appropriate technology to Generation Alpha and Generation Z children can make distant education a very effective educational system for them (Suresh, Saxin, & Cheng, 2022).

Massive open online courses (MOOCs) have impacted the perception of AI technologies in education as predominantly related to remote education. In particular, AI-based distance education systems use deep learning and machine learning techniques to provide personalized content tailored to the learning context, the subject's nature, intended learning outcomes, students' needs and goals, and instructional technology methods based on information gathered from participants (Bagunaid, Chilamkurti, & Veeraraghavan, 2022; Casey, 2008; Kashive & Powale, 2020; Xiaogang, 2018). Systems for distant learning that are AI-enabled can also predict students' likelihood of finishing courses using demographic and behavioral data analysis, allowing course providers to make the necessary adjustments (Kashyap & Nayak, 2018). The development of learning analytics using learner demographic and behavioral data has made these modifications possible.

Learning analytics and data mining are crucial in education for enhancing assessment and educational outcomes. They identify important data to improve the learning environment and student learning. These methods examine students' cognitive and learning capacities by using different methods and algorithms, such as creating maps based on linkages between variables like learning outcomes, materials, resources, instructional behaviors, and knowledge (Chen, Chen, & Lin, 2020). In conclusion, AI in education significantly changes evaluation processes, enabling teachers to identify students' strengths and limitations, modify curriculums, and provide customized learning methods.

Figure 5

Data Mining and Learning Analytics Process



Source: Romero, C. & Ventura, S. (2013). Educational data mining: A survey from 1995 to 2005. *Expert Systems with Applications*, 3 (1), 135-146. https://doi.org/10.1016/j.eswa.2006.04.005

As Figure 5 illustrates, educators and academics are responsible for designing, planning, creating, and maintaining educational systems while students successfully engage with them. In this context, courses can improve e-learning processes by using different data mining approaches (Romero & Ventura, 2013). Indeed, the development of techniques and software for educational data mining



focuses on improving teaching and learning environments for students (Avella, Kebritchi, Nunn, & Kanai, 2016).

Although educational data mining can be used for curriculum building, the shift from a productoriented to a process-oriented approach in education is transforming classroom designs to accommodate students with diverse backgrounds, experiences, and goals (Collins & Halverson, 2010; Roll & Wylie, 2016). This has led to a growing interest in lifelong learning strategies that enable learning anytime and anywhere (Roll & Wylie, 2016). AI-supported assessment tools, such as peer and teacher communication and student work, are becoming more preferred due to their personalized and adaptable nature.

Due to the sociocultural nature of education (Shturba, 2016), multi-interactive learning environments in distance education must adhere to cultural norms (Roll & Wylie, 2016). In this context, various AIsupported assessment tools such as expert systems (Arslan, 2020), intelligent tutoring systems (Arslan, 2020; VanLehn, 2011), data mining (Castro, Vellido, Nebot & Mugica, 2007; Kashyap & Nayak, 2018; Yadav and Deshmukh, 2023), learning analytics (Kashyap and Nayak, 2018), text analysis (Balfour, 2013; Swiecki, Khosravi, Chen, Martinez-Maldonado, Lodge, Milligan, Selwyn & Gasevi´c, 2022), assessment systems based on student performance (Bagunaid et. al., 2022), and machine learning models (Ismail, Materwala, & Hennebelle, 2021) are used in distance education. These tools can accurately and objectively assess student performance, understand learners' strengths and weaknesses, and provide immediate feedback. However, it's crucial to consider both the advantages and disadvantages of using artificial intelligence in education (AIED).

Opportunities and Responsibilities Resulting from Artificial Intelligence in Education

Implementing AIED has brought transformational potential as well as a wide range of significant responsibilities. So, as we integrate AI into education, we need to ensure its ethical and inclusive implementation while maximizing its potential to transform learning.

Individualized Learning Experience. Individualized learning is often emphasized as a key benefit of academic writing. Intelligent tutoring systems exemplify the application of AIED, particularly in online courses. The systems rely primarily on user profiles and academic accomplishments to engage with users through a personalized interface that enhances the learning experience (Tapalova & Zhiyenbayeva, 2022; Walkington & Bernacki, 2020).

The teaching profession's changing status. The responsibilities of teachers have been altered due to the integration of AI in education (İşler & Kılıç, 2021). Individualized learning technologies are utilized in education to empower students to organize their own learning paths, create educational objectives aligned with their interests and requirements, and accomplish them. Teachers are often perceived as mentors rather than individuals who actively seek, discover, combine information, and engage in autonomous collaborative thinking. Also, implementing AI technology in the classroom will remove teachers from tasks requiring rote memory, allowing them more freedom, creativity, and time to focus on professional growth or other career goals (Schif, 2021).

Accessibility and flexibility. By transcending geographical or physical limitations, it can access a larger number of students. Moreover, it is cost-effective due to its easy accessibility (Borana, 2016).

Collaboration and social learning in the digital environment. AI can enhance social learning and collaboration in online environments through various strategies. One such strategy is software that improves academic writing skills, allowing students to manage their time better (Calvo, O'Rourke, Jones, Yacef, & Reimann, 2011). Another is improving speaking abilities, allowing students to challenge peers and propose solutions using tools such as Academic Productive Speech (APT) (Adamson, Dyke, Jang, & Rose, 2014). Virtual reality projects and emerging distance education technologies are expected to significantly influence social learning and collaboration (Chang et. al., 2016). AI can also create groups based on student traits, enhancing cooperation and addressing ethical responsibilities (Zawacki-Richter et al., 2019).

Data security and privacy. Collecting and utilizing student data pose dangers to privacy and security. There are legal and ethical responsibilities regarding the correct safeguarding and use of the gathered data. Two ethical concerns regarding this technology are the potential collection of personal data categorized as "leaking personal information" and the widespread use of AI technology



categorized as "individual data being accessible," making it shareable and susceptible to inappropriate use (Safdar, Banja, & Meltzer, 2020). In addition, AI systems continuously gather data to improve performance, raising questions about user permission, transparency, and the reliability of AI applications in defending against cyberattacks. AI systems continuously gather data to improve performance. The need for user permission and openness in this process is emphasized, and the reliability of AI applications against cyberattacks is a subject of controversy.

The Human Dimension of Education and the Teachers. AI-based assessment systems may not be entirely accurate without human guidance, as they focus on analyzing concepts and explaining algorithms rather than emphasizing the educational part of pedagogy (González-Calatayud, Prendes-Espinosa, & Roig-Vila, 2018). This can negatively impact teachers' and students' motivation (Swiecki et. al., 2022). A study by Saplacan, Herstad, and Pajalic (2018) found that students feel negative feelings due to insufficient input from digital systems, such as neglect, dissatisfaction, uncertainty, a need for approval, and restlessness due to insufficient input from digital systems. This is a potential result of machine calculations driven by AI or the acceptance of results by the assessment process as being correct. So, assessments should be created and assessed by individuals with diverse socio-cultural backgrounds, educational experiences, and intellectual and personal values, regardless of the methods and systems used (Aljarrah, Ababneh, Karagozlu, & Ozdamli, 2021; Hanesworth, Bracken, & Elkington, 2018).

Creativity. AI programs in education use virtual information assistants that replicate replies similar to human speech. Despite increased participation in the program, AI is still believed to lack human-specific skills such as creativity and critical thinking. So current AI applications are moving towards human-centered AI applications (Yang, Zhuang, & Pan, 2021).

Method

The study served as a review model by examining the prospective future of distant education in educational organizations. Review articles aim to enhance scholarly discussions. As a result, they are useful instruments for scholars engaged in literature reviews or seeking to expand their knowledge on a particular topic. A comprehensive review of the pertinent literature was conducted for the study, and the findings were organized into distinct categories. Databases in the social sciences and education sciences, together with reports from pertinent national and international organizations, were utilized in the literature review. The studies were chosen for this research based on their novelty, credibility, uniqueness, approach, and research findings.

Discussion, Conclusion and Recommendations

Current sociological and technical advancements have brought about substantial changes in the education sector, introducing new methods and possibilities, including distance education and artificial intelligence. Distance education, which provides a range of educational resources to students via internet platforms, has been a highly discussed subject, particularly during the pandemic. Distance education is a highly disputed issue due to the fact that nearly every benefit it offers also comes with a drawback. Connectivity and flexibility are benefits of remote education; however, the absence of internet connectivity and equipment shortages might impede people from obtaining educational opportunities, creating a disadvantage.

Distance education provides tailored learning and improves technology and digital abilities, yet a person's digital competence level might be a drawback. Furthermore, this method implies that each person is autonomous and has self-control, disregarding the potential for individuals to display procrastination habits or lack drive. Collaboration and social learning in the digital world are benefits of distance education. However, the need for distant education to be interactive may restrict classroom engagement and provide challenges for socializing.

An individual's cultural background might influence whether distance education is beneficial or detrimental. Socializing holds greater importance for those from collectivist cultural backgrounds compared to individualization, and they may engage in more active learning in a traditional classroom environment. It might be difficult to meet students' social needs without in-person interaction, leading to negative psychological effects such as social isolation, loneliness, anxiety, and despair. Distance education offers economic and social benefits but sometimes overlooks the unique learning





preferences and pace of disadvantaged populations. It can also be impacted by familial and socioeconomic circumstances, as seen during the COVID-19 pandemic. Practical skill development for applicable courses becomes more complex in distance education when essential facilities like laboratories and workshops are not available. Challenges in assessing and overseeing progress are common in distance education. Some drawbacks can be mitigated by implementing various strategies, such as enhancing technology infrastructure and incorporating hybrid education approaches.

Another important consideration is the teaching methodology. Teachers in the classroom act as orchestra conductors, and if they lack confidence, it might hinder the precise performance of the music. Makerenya, Stash, and Nikashinavd (2020) propose that instructors' unfavorable views are due to many variables. The transition to predominantly digital education as a result of COVID-19 has necessitated quick adjustments from instructors and pupils. Teachers frequently do not possess the requisite degree of digital literacy to efficiently employ the educational objectives of the topic in a digital setting. Moreover, students may lack motivation and be hesitant to utilize their digital capabilities. These variables influence the bad impressions instructors have.

Artificial intelligence is a common topic of discussion in relation to societal and technical advancements. AI technologies providing individualized learning through data mining and learning analytics share advantages and issues with online education. AI in education may tailor instruction, improve instructor effectiveness, reach a wider student audience, and offer flexibility in time and location. Nevertheless, technology also presents drawbacks such as disparities in digital literacy, worries about data protection, ethical dilemmas, and educational considerations. Distance education and the integration of artificial intelligence in education are closely connected ideas. Both have distinct benefits and drawbacks. To effectively meet students' requirements and provide impactful learning experiences, it is essential to thoroughly analyze and integrate these two techniques.

Given all these concerns, the following recommendations should be considered: Implementing the correct policies would facilitate the effective implementation of distance learning and the utilization of artificial intelligence in educational institutions. By establishing the necessary infrastructure, nations can take advantage of the potential that artificial intelligence and online education present. Culture is a factor that must be taken into account while implementing policies. It is essential that the policies implemented are in harmony with the national culture.

References

- Adamson, D., Dyke, G., Jang, H., & Rosé, C. P. (2014). Towards an agile approach to adapting dynamic collaboration support to student needs. *International Journal of Artificial Intelligence in Education*, 24 (1), 92–124. https://doi.org/10.1007/s40593- 013-0012-6.
- Adams-Prassl, A., Boneva, T., Golin, M. & Rauh, C. (2020). IZA DP No. 13374: Work That Can Be Done from Home: Evidence on Variation within and across Occupations and Industries. In *https://www.iza.org/publications/dp/13374/work-that-can-be-done-from-home-evidence-on-variation-within-and-across-occupations-and-industries.*
- Aljarrah, A., Ababneh, M., Karagozlu, D. & Ozdamli, F. (2021). Artificial intelligence techniques for distance education: A systematic literature review. *Technology, Education Management Informatics (TEM)*, 10 (4), 1621-1629. https://doi.org/10.18421/TEM104-18.
- Arslan, K. (2020). Artificial intelligence and applications in education. *Western Anatolia Journal of Educational Sciences*, 11 (1), 71-88.
- Avella, J. T., Kebritchi, M., Nunn, S. G. & Kanai, T. (2016). Learning analytics methods, benefits, and challenges in higher education: A systematic literature review. *Online Learning*, 20 (2), 1–17.
- Bagunaid, Chilamkurti, N. & Veeraraghavan, P. (2022). AISAR: Artificial intelligence-based student assessment and recommendation system for e-Learning in big data. *Sustainability*, 14 (17), 10551. https://doi.org/10.3390/su141710551.



- Balfour, S. P. (2013). Assessing writing in MOOCs: Automated essay scoring and calibrated peer review (EJ1062843). ERIC. https://eric.ed.gov/?id=EJ1062843.
- Bergdahl, N. & Nouri, J. (2021). Covid-19 and crisis-prompted distance education in Sweden. *Technology, Knowledge and Learning,* 26 (3), 443-459. https://doi.org/10.1007/s10758-020-09470-6.
- Bernard, R. M., Abrami, P. C., Borokhovski, E., Wade, C. A., Tamim, R. M., Surkes, M. A. & Bethel, E. C. (2009). A meta-analysis of three types of interaction treatments in distance education. *Review of Educational Research*, 79 (3), 1243–1289. https://doi.org/10.3102/0034654309333844.
- Borana, J. (2016, March 5-6). *Applications of artificial intelligence and associated Technologies.* [Conference presentation]. Proceeding of International Conference on Emerging Technologies in Engineering, Biomedical, Management and Science [ETEBMS-2016]. https://www.cs.buap.mx/~aolvera/IA/2016_Applications%20of%20IA.pdf
- Buselic, M. (2017). Distance Learning concepts and contributions, *Oeconomica Jadertina*, 2 (1), 23-34. https://doi.org/10.15291/oec.209.
- Calvo, R. A., O'Rourke, S. T., Jones, J., Yacef, K. & Reimann, P. (2011). Collaborative writing support tools on the cloud. *IEEE Transactions on Learning Technologies*, 4 (1), 88–97. https://www.learntechlib.org/p/73461/.
- Casey, D. M. (2008). A journey to legitimacy: The historical development of distance education through technology (EJ798658). ERIC. https://eric.ed.gov/?id=EJ798658.
- Castro, F., Vellido, A., Nebot, A. & Mugica, F. (2007). Applying Data Mining Techniques to e-Learning Problems. In: Jain, L.C., Tedman, R.A., Tedman, D.K. (Eds.), *Evolution of Teaching and Learning Paradigms in Intelligent Environment* (pp. 183-221). Studies in Computational Intelligence, 62. Springer, Berlin, Heidelberg. <u>https://doi.org/10.1007/978-3-540-71974-8_8</u>
- Chang, X.- qin, Zhang, D.- hua, & Jin, X.- xin. (2016). Application of virtual reality Technology in distance learning. *International Journal of Emerging Technologies in Learning (IJET)*, 11(11), 76–79. https://doi.org/10.3991/ijet.v11i11.6257
- Chen, L., Chen, P. & Lin, Z. (2020). Artificial intelligence in education: A review. *IEEE Access*, 8, 75264-75278, 2020. https://doi.org/10.1109/ACCESS.2020.2988510.
- Christensen, E. W., Anakwe, U. P. & Kessler E. H. (2001) Receptivity to distance learning: the effect of technology, reputation, constraints, and learning preferences. *Journal of Research on Computing in Education*, 33 (3), 263 279. https://doi.org/10.1080/08886504.2001.10782314.
- Collins, A. & Halverson, R. (2010). The second educational revolution: Rethinking education in the age of technology. *Journal of Computer Assisted Learning*, 26 (1), 18–27. https://doi.org/10.1111/j.1365-2729.2009.00339.x
- Contini, D., Di Tommaso, M. L., Muratori, C., Piazzalunga, D. & Schiavon, L. (2021). The COVID-19 pandemic and school closure: Learning loss in mathematics in primary education. IZA DP No. 14785. Discussion Paper Series. *IZA Institute of Labor Economics.* https://ftp.iza.org/dp14785.pdf.
- de Oliveira, M.M.S., Penedo, A.S. & Pereira, V. S. (2018). Distance education: Advantages and disadvantages of the point of view of education and society. *Dialogia*, 139-152. https://doi.org/10.5585/dialogia. N29.7661.



- Engzell, P., Frey, A. & Verhagen, M. D. (2021). Learning inequality during the COVID-19 pandemic. Proceedings of the National Academy of Sciences, the USA, 118, 17. https://doi.org/10.1073/pnas.2022376118
- Fox, R. (2004, December, 5-8). SARS epidemic: Teachers' experiences using ICTs [Conference presentation]. In R. Atkinson, C. McBeath, D. Jonas. Dwyer & R. Phillips (Eds.), Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference, 319-327. http://www.ascilite.org.au/conferences/perth04/procs/fox.html
- González-Calatayud, V., Prendes-Espinosa, P & Roig-Vila, R. (2018). Artificial Intelligence for Student Assessment: A Systematic Review. *Applied Sciences*, 11, 1-15. doi.org/10.3390/app11125467.
- Greenlee, E. & Reid, A. (2020). Parents supporting learning at home during the COVID-19 pandemic. Statistics Canada, Catalogue No. 45-28-0001. Accessed at: <u>https://www150.statcan.gc.ca/n1/pub/45-28-0001/2020001/article/00040-eng.htm</u>
- Haeck, C. & Lefebvre, P. (2020). Pandemic school closures may increase inequality in test scores. Canadian Public Policy, 46 (1), 82-87. doi.org/10.3138/cpp.2020-055.
- Haelermans, C., Jacobs, M., van Vugt, L., Aarts, B., Abbink, H., Smeets, C., van der Velden, R., & van Wetten, S. (2021). A full year COVID-19 crisis with interrupted learning and two school closures: The effects on learning growth and inequality in primary education. Maastricht University, Graduate School of Business and Economics. GSBE Research Memoranda No. 021 https://doi.org/10.26481/umagsb.2021021
- Hanesworth, P., Bracken, S. & Elkington, S. (2018). A typology for a social justice approach to assessment: learning from universal design and culturally sustaining pedagogy. *Teaching in Higher Education,* doi: 10.1080/13562517.2018.1465405.
- Hasanova, J., Najafova K. A. and Karimova G. A. (2020,). Digital Technology Development: Distance Education, Advances in Economics. *Business and Management Research*, 138, 401-404.
- Hodges, C. B., Moore, S., Lockee, B. B., Trust, T. ve Bond, M. (2020). The difference between emergency remote teaching and online learning.Educase Review, 1 (7). Retrived from https://er.educause.edu/
- Ismail, L., Materwala, H., Hennebelle, A. (2021). Comparative Analysis of Machine Learning Models for Students' Performance Prediction. In: Antipova, T. (eds) Advances in Digital Science. ICADS 2021. Advances in Intelligent Systems and Computing, vol 1352. Springer, Cham. https://doi.org/10.1007/978-3-030-71782-7_14
- Işık, M. & Bahat, İ. (2021). Inequality of opportunity in education and problems and solutions regarding access to education in the context of technology. *Journal of Ahi Evran University Institute of Social Sciences (AEÜSBED),* 7 (2), 498-517. https://doi.org/10.31592/aeusbed.908232.
- İşler, B. ve Kılıç, M. Y. (2021). The use and development of artificial inteligence in education. Journal of New Media, 5 (1). https://doi.org/1-11. 10.17932/IAU.EJNM.25480200



- Kashive, N. & Powale, L. (2020). Understanding user perception toward artificial intelligence (AI) enabled e-learning. *The International Journal of Information and Learning Technology*, 38 (1), https://doi.org/10.1108/IJILT-05-2020-0090.
- Kashyap, A. & Nayak, A. (2018). Different Machine Learning Models to Predict Dropouts in MOOCs. *2018 International Conference on Advances in Computing, Communications and Informatics (ICACCI)*, Bangalore, India, 2018, pp. 80-85. https://doi.org/10.1109/ICACCI.2018.8554547.
- Katane I., Kristovska I. & Katans E. (2015). Evaluation of Distance Education Environmental Advantages. In Proceedings of the International Scientific Conference Engineering for Rural Development, Vol.14 (May 20-22, 2015, Latvia). Jelgava: LLU TF, pp. 720 - 728. ISSN 1691-5976. International Data Bases: indexed in Elsevier SCOPUS, Web of Science. Retrieved from http://www.tf.llu.lv/conference/proceedings2015/ Papers/116_Katane.pdf
- Kırık, A. M. (2014). Historical development of distance education and the situation in Turkey. Marmara University Journal of Communication, 21, 73-94. https://doi.org/10.17829/midr.20142110299.
- Klisowska, I., Sen, M. ve Grabowska, B. (2021). Advantages and disadvantages of distance learning. *E-methodology*, 7 (7), 27-32. https://doi.org/10.15503/emet2020.27.32
- Kotrikadre, E. V. & Zharkova, L. I. (2021). Advantages and disadvantages of distance learning in universities, Propósitos y Representaciones, 9 (3), 1184-1190. https://doi.org/10.20511/pyr2021.v9nSPE3.1184
- Kuhfield, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E., & Liu, J. (2020). Projecting the potential impact of COVID-19 school closures on academic achievement. *Educational Researcher*, 49 (8), 549-565. https://doi.org/10.3102/0013189X20965918
- Makerenya, T. A., Stash, S. V. & Nikashina, P. O. (2020). *Modern educational technologies in the context of distance learning*, Journal of Physics: Conference Series, 1-5. doi:10.1088/1742-6596/1691/1/012117.
- Maldonado, J. E. & De Witte, K. (2020). *The effect of school closures on standardised student test outcomes.* Discussion Paper Series DPS20.17. KU Leuven Faculty of Economics and Business.
- Martin, A. & Dowson, M. (2009). Interpersonal relationships, motivation, engagement, and achievement: Yields for theory, current issues and educational practice. Review of Educational Research, 79 (1), 327-365, https://doi.org/10.3102/0034654308325583.
- Meeter, M. (2021). Primary school mathematics during the COVID-19 pandemic: No evidence of learning gaps in adaptive practicing results. Trends Neurosci Educ. 2021 Dec;25:100163. doi: 10.1016/j.tine.2021.100163. Epub 2021 Oct 3. PMID: 34844699; PMCID: PMC8487463.
- Özbay, Ö. (2015). The current status of distance education in the World and Turkey. *The Journal of International Educational Science*, 2 (5), 376-394.
- Passerini, K. & Granger, M. J. (2000). A developmental model for distance learning using the internet. *Computers & Education,* 34 (1), 1–15. https://doi.org/10.1016/S0360-1315(99)00024-X
- Pardanjac, M., Radosav, D. & Jokic, S. (2009). Advantages and disadvantages of distance education, MIPRO 2009- 32nd International Convention Proceedings: Computers in Education Crotaia, 4, 237–241.
- Pensiero, N., Kelly, A. & Bokhove, C. (2020). Learning inequalities during the Covid-19 pandemic: how families cope with home-schooling. University of Southampton Research Report. https://doi.org/10.5258/SOTON/P0025.



- Pier, L., Christian M., Tymeson, H. & Meyer, R. H. (2021). COVID-19 impacts on student learning: Evidence from interim assessments in California. Policy Analysis for California Education, PACE.
- Rashid, M. & Elahi, U. (2012). Use of educational technology in promoting distance education. *Turkish Online Journal of Distance Education-TOJDE*, 13 (1), 1302-6488.
- Roll, I. & Wylie, R. (2007). Evolution and revolution in artificial intelligence in education. *International Journal of Artificial Intelligence in Education*, 26 (2), 582-599. https://doi.org/10.1007/s40593-016-0110-3
- Romero, C. & Ventura, S. (2013). Educational data mining: A survey from 1995 to 2005. *Expert Systems with Applications,* 3 (1), 135-146. https://doi.org/10.1016/j.eswa.2006.04.005
- Rose, S., Twist, L., Lord, P., et al. (2021). Impact of school closures and subsequent support strategies on attainment and socio-emotional wellbeing. National Foundation for Educational Research.
- Sadeghi, M. (2019). A shift from classroom to distance learning: Advantages and limitations. *International Journal of Research in English Education*, 4 (1), 80-88. https://doi.org/10.29252/ijree.4.1.80
- Safdar, N. M., Banja, J. D. & Meltzer, C. C. (2020). Review. Ethical considerations in artificial intelligence. European Journal of Radiology, 122, 108768.
- Saplacan, D.; Herstad, J. & Pajalic, Z. (2018). Feedback from digital systems used in higher education: An inquiry into triggered emotions two universal design oriented solutions for a better user experience. *Studies in Health Technology and Informatics*, 256, 421-430. https://doi.org/10.3233/978-1-61499-923-2-421
- Schiff, D. (2021). Out of the laboratory and into the classroom: the future of artifcial intelligence in education. Artificial Intelligence and Society, 36, 331-348. https://doi.org/10.1007/s00146-020-01033-8.
- Schult, J.; Mahler, N.; Fauth, B.; Lindner, M.A. (2021). Did students learn less during the COVID-19 pandemic? Reading and Mathematics Competencies Before and After the First Pandemic Wave. Available online: https://psyarxiv.com/pqtgf/ (accessed on 20 July 2023).
- Sezgin, S. (2021). Acil uzaktan eğitim sürecinin analizi: Öne çikan kavramlar, sorunlar ve çıkarılan dersler. *Anadolu Üniversitesi Sosyal Bilimler Dergisi,* 21(1), 273-296. https://doi.org/10.18037/ausbd.902616.
- Shturba, V. A. (2016). Education as a socio-cultural phenemenon, Education and Pedagocical Sciences, 8 (2/1), 124-126. https://doi.org/10.17748/2075-9908-2016-8-2/1-124-126
- Suresh, Y. H., Saxin, W. L., & Cheng, Z. L. (2022). Effect of E-Learning on Academic Performance of Undergraduate Students at Nankai University, China. *Journal of Education*, 5 (5), 1-11. https://doi.org/10.53819/81018102t50122.
- Svaleryd, H. & Vlachos, J. (2022). COVID-19 and School Closures, Global Labor Organizatipn (GLO), Working Paper, No. 1008, Global Labor Organization (GLO), Essen.
- Swiecki, Z., Khosravi, H., Chen, G., Martinez-Maldonado, R., Lodge, J. M., Milligan, S., Selwyn, N. & Gasevi´c, D. (2022). Assessment in the age of artificial intelligence. *Computers and Education: Artificial Intelligence*, 3, 1-10. https://doi.org/10.1016/j.caeai.2022.100075



- Tapalova, O. & Zhiyenbayeva, N. (2022). Artificial intelligence in education: AIEd for personalized learning pathways. *The Elektronic Journal of e-Learning*, 20 (5), 639-653.
- The Organization for Economic Cooperation and Development (2021). The state of school education one year into the COVID pandemic. June 2021, https://www.oecd-ilibrary.org/education/the-state-of-schooleducation_201dde84-en;jsessionid=X2amVkieZCY2s3A AzQpT8FOg.ip-10-240-5-132

The United Nations Educational, Scientific and Cultural Organization (2023). Retrived from https://webarchive.unesco.org/web/20220625033513/https://en.unesco.org/covid19/educationresponse#durationschoolclosures

The United Nations Educational, Scientific and Cultural Organization (2021). One year into COVID-19 education disruption: Where do we stand? <u>https://www.unesco.org/en/articles/one-year-covid-19-education-disruption-where-do-we-stand</u>

- The United Nations International Children's Emergency Fund (2023). *Covid-19: Getirilen Kısıtlamalar giderek artarken çocuklara yönelik istismar, ihmal, sömürü ve şiddet Riski de Yükseliyor*. Available at: https://www.unicef.org/turkiye/bas%C4%B1n-b%C3%BCltenleri/covid-19-getirilen-k%C4%B1s%C4%B1tlamalar-giderek-artarken-%C3%A7ocuklara-y%C3%B6nelik-istismar-ihmal (Accessed: 10 July 2023).
- The United Nations International Children's Emergency Fund (2021). COVİD-19 and School Clousures. One Year of Educadition Disruption. March, 2021. https://data.unicef.org/resources/one-year-ofcovid-19-and-schoolclosures/#:~:text=We%20are%20facing%20a%20COVID,will%20pay%20the%20heaviest%20p rice.
- The United Nations International Children's Emergency Fund (2020). What have we learnt? Overview of findings from a survey of ministries of education on national responses to COVID-19. October, 2020. <u>https://data.unicef.org/resources/national-education-responses-to-covid19/</u>
- The World Bank (2020). *The COVID-19 pandemic: Shocks to education and policy responses* (May, 2021). https://openknowledge.worldbank.org/bitstream/handle/10986/33696/148198. pdf?sequence=4veisAllowed=y
- Timms, M. J. (2016). Letting artificial intelligence in education out of the box: educational cobots and smart classrooms. *International Journal of Artificial Intelligence in Education*, 26 (2), 701-712. https://doi.org/10.1007/s4059.
- Türkiye Eğitim Derneği (2021). 2020 eğitim değerlendirme raporu (TEDMEM Değerlendirme Dizisi 7). Ankara: Türk Eğitim Derneği.
- VanLehn, K. (2011). The Relative Effectiveness of Human Tutoring, Intelligent Tutoring Systems, and Other Tutoring System. *Educational Psychologist*, 46 (4), 197-221. https://doi.org/10.1080/00461520.2011.611369.
- Walkington, C. & Bernacki, M.L., 2020. Appraising research on personalized learning: Definitions, theoretical alignment, advancements, and future directions. *Journal of Research on Technology in Education*, 52 (3), 235–252. https://doi.org/10.1080/15391523.2020.1747757.
- Webster, J. & Hackley, P. (1997) Teaching effectiveness in technology-mediated distance learning. *Academy of Management Journal,* 40 (6), 1282 – 1309. https://doi.org/10.2307/257034
- World Food Program (2020). School children missing meals 2020. https://www.unicef.org/romania/press-releases/futures-370-million-children-jeopardy-school-



closures-deprive-them-school-

meals#:~:text=ROME%2FNEW%20YORK%2C%2029%20April,school%20meals%20amid%20sc hool%20closures.

- Xiaogang, L. (2018). A research on distance education system based on artificial intelligence technology. 2018 International Conference on Big Data and Artificial Intelligence (ICBDAI 2018), 98-103.
- Yadav, N. R. & Deshmukh, S. S. (2023). Prediction of Student Performance Using Machine Learning Techniques: A Review, In book: Proceedings of the International Conference on Applications of Machine Intelligence and Data Analytics (ICAMIDA 2022) (pp 735-741). https://doi.org/10.2991/978-94-6463-136-4_63.
- Yang, Y., Zhuang, Y., & Pan, Y. (2021). Multiple knowledge representation for big data artificial intelligence: framework, applications, and case studies. *Frontiers of Information Technology & Electronic Engineering*, 22(12), 1551–1558. https://doi.org/10.1631/FITEE.2100463.
- Zawacki-Richter, O., Marín, V. I., Bond M. & Gouverneur, F. (2019). Systematic review of research on artificial intelligence applications in higher education where are the educators? *International Journal of Educational Technology in Higher Education*, 16 (39), 2-27. https://doi.org/10.1186/s41239-019-0171-0
- Zierer, K. (2021). Effects of pandemic-related school closures on pupils' performance and learning in selected countries: A rapid review. *Education Sciences*, 11 (6), 1-12. https://doi.org/10.3390/educsci11060252