Consumer View for AI in Learning: Expectations of Generation Z

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Description

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Abstract

Artificial intelligence is a rapidly growing issue that is becoming more and more popular nowadays. AI has been recently affecting various fields of education and changing the ways in which students are being taught. To make sure that AI implementation goes as smoothly as possible, it is crucial to examine how students perceive these changes and what their opinions about this phenomenon are.

This research aimed to provide a better understanding of artificial intelligence and evaluate the potential benefits and drawbacks of its increased use in education. In addition, the study aimed to identify ways in which AI could improve learning experiences and examine Generation Z's opinions about AI in education and its future.

To achieve the research objectives and collect data, qualitative research method was used. Hence, 2 semi-structured interviews were conducted with a total of 10 participants. Moreover, the knowledge base on the existing literature was created.

The selected research method allowed to collect important information about the current role of artificial intelligence in education and its future from students' perspective. Valuable insights were gained about students' perception of how AI can enhance learning experiences for both students and teachers, and what key elements an optimal AI-supported learning system should have.

Keywords/tags (subjects)

Artificial intelligence, Generation Z, education

Miscellaneous (Confidential information)

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1 Introduction

People tend to think about automation and artificial intelligence (AI) in the context of the future, believing that emerging technologies will play an important role in people's everyday lives. While certain changes are expected only in the future, people do not notice that artificial intelligence has already been influencing many spheres of society. Smart assistants, self-driving cars, Google search, ChatGPT, chatbots, and smart home devices are examples of AI-based technologies that have been significantly affecting people's lives for a long time. Furthermore, in 2020, the COVID-19 pandemic emerged and brought certain difficulties for the entire population, which have led to dramatic changes in education and work fields. AI is a fast-growing and rapidly developing subject that can significantly change many spheres of life.

This study focuses on determining what role artificial intelligence currently plays in learning and how to prepare educational systems for AI adoption. In addition, the research explores Generation Z's vision about changes caused by technology integration.

1.1 Motivation for research

As it was mentioned above, emerging technologies and artificial intelligence are getting more and more involved in different fields of people's lives. Nowadays students, teachers, and workers are starting to use AI for different purposes, which highlights the necessity for studying this phenomenon. The motivation for doing the research about AI's impact on education was to analyze potential benefits and drawbacks of implementation of AI into the field of technology and to identify ways in which AI could enhance learning experiences for both students and teachers.

The author's motivation for this research was created by being a student herself. The interest in researching automation and artificial intelligence appeared after starting the Technology Business and Future Foresight academic track while studying International Business at the university of applied sciences. As a student, the author has experienced the traditional teaching methods as well as witnessed the moment when generative AI tools, such as ChatGPT, started gaining popularity among students. Since it is important to keep up with the trends, it felt crucial to explore how artificial intelligence could improve the learning process for students in the nearest future. To deeply

analyze the phenomenon, it was decided to both collect theoretical framework and conduct interviews.

1.2 Research objectives and questions

After choosing the research topic, it is necessary to identify the research objectives and questions. Therefore, the following research objectives were set for the current research:

- To gain a better understanding of artificial intelligence
- To assess the possible advantages and disadvantages of increasing utilization of AI in the field of education
- To identify ways in which AI could improve learning experiences
- To gather Generation Z's vision of future of AI in education.

In order to meet these objectives, it is important to set the right questions for the research. To understand the present function of artificial intelligence in education and to identify its current impact, the first question was set:

RQ1: What is the current role of AI in education?

To obtain a deeper understanding of students' perspective on the future of AI in education and evaluate their feelings about this phenomenon, the second research question was formed:

RQ2: How do learners feel about and assess the future of AI in the field of education?

Finally, it is essential to find the ways to make AI implementation into learning processes as smooth and beneficial as possible. Based on this issue, the third question was created:

RQ3: What elements should an optimal AI-supported learning system have?

The research questions were answered through qualitative research method. This method provided a deeper understanding of the participants' opinions and experiences as well as an opportunity to cover unexpected topics that emerged during the data collection process.

1.3 Thesis structure

Any systematic research must follow a certain structure to achieve its objectives. The current research consists of five chapters in the following order:

Introduction is the first chapter that introduces the topic to the reader. It covers the background and overview, as well as explains what the motivation is for this research. Moreover, the research objectives and questions are introduced to the reader in this chapter.

The second chapter is **Literature review** that provides a theoretical framework for the research study. It examines existing literature related to the topic, creates the foundation for the research, and describes fundamental concepts for the study.

The third chapter is called **Research approach and implementation**. It explains the research method and approach, as well as states whether qualitative or quantitative analysis is used in the study. Overall, the chapter includes topics such as research philosophy and approach, data collection, data analysis, and plan for research quality and ethics.

Results are presented in the fourth chapter of this thesis. It shares findings from the interviews, as well as presents mind maps and quotes.

Finally, **Discussion and conclusions**. This is the last chapter of the thesis, which answers the research questions and reflects on the theoretical framework. Recommendations for future research, theoretical and practical implications, and limitations of the research are also covered in this section.

2 Literature review

The literature review chapter describes key concepts and familiarizes the reader with the secondary data regarding the studied topic. It provides directions for future research and summarizes pre-existing knowledge on the topic (Rowe, 2014).

The figure below illustrates the structure of the literature review for this thesis. It consists of six sectors, from which chapters 2.2, 2.3, and 2.4 have several subchapters, which provide more details about the given concept. The main sectors of the literature review include AI as a field of technology, AI for education, Generation Z, future of work, future of technology, and summary of the knowledge base.

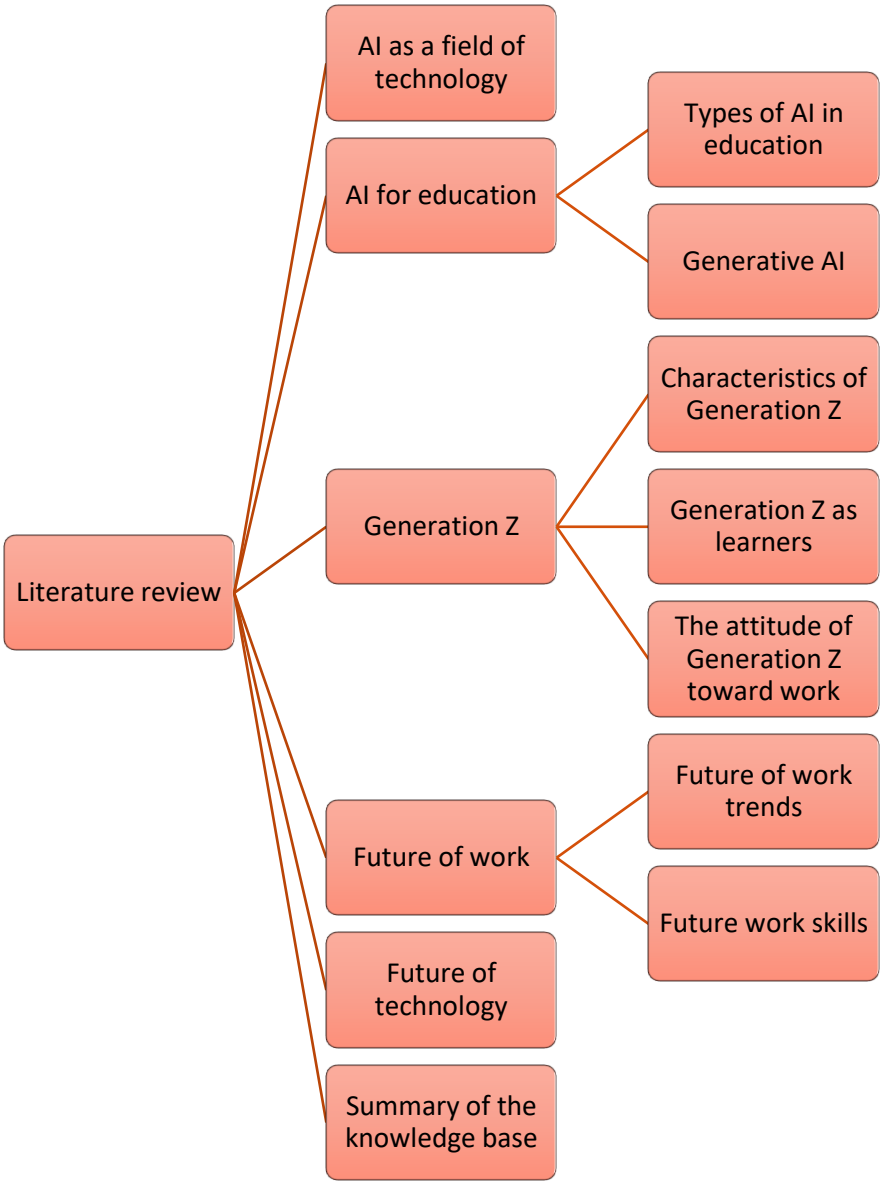

Figure 1. Visual representation of literature review

2.1 AI as a field of technology

Artificial intelligence (AI) is a very comprehensive area, and it is difficult to define it in one sentence. It is a technology trend that plays an important role in the modern world and significantly impacts society. Allen (2020) describes artificial intelligence as a concept, that refers to "the ability of machines to perform tasks that normally require human intelligence" (p. 5). Essentially, AI aims to substitute mostly repetitive and monotonous work which used to be done by humans, such as managing and analyzing data, delivering goods, retail and customer services, packaging, and so on. The purpose of replacing people with automation is to improve the quality and speed of work

while reducing costs (Muro et al., 2019). Thus, artificial intelligence is a part of technological progress, and it is used to increase productivity and simplify certain fields of work.

2.2 AI for education

Artificial intelligence significantly impacts many fields of people's lives, and education is not exception. AI has been being implemented into educational systems for several years, and in 2020 the COVID-19 pandemic brought major changes, and learning processes started adapting to new realities. In education, artificial intelligence has the following benefits: automation, acclimation, integration, delineation, and identification (Joshi et al., 2021).

Types of AI in education

To better understand what role AI plays in today's education, Tahiru (2021) has identified three different types of artificial intelligence in education: automation of administrative tasks, smart content, and intelligent tutoring system (ITS).

Automation of administrative tasks refers to the AI application in performing repetitive tasks, such as grading and assessing students' homework, tests, and exams (Johnson, 2019). Completing such tasks with the usage of AI provides teachers and professors with more free time, which they can use to communicate with their students or do more important work. It also accelerates the process of learning and teaching since students get their grades faster.

Smart content aims to condense and shorten textbooks to make them more useful (Faggella, 2019, as cited in Tahiru, 2021). Moreover, Johnson (2019) remarks that smart content can include such things as video lectures and conferences. Overall, it adds more virtual content to the learning process. Smart content could be a useful additional tool for making students more involved into the educational process and more motivated to complete their tasks.

Finally, **intelligent tutoring systems (ITS)** can be described as technology or computer programs that provide intelligent tutors, which are individualized for each student (Alkhatlan & Kalita, 2019).

Intelligent tutoring systems can provide personalized feedback and tasks to a student. They also collect data about students' motivation, results, emotions, etc. (Joshi et al., 2021).

Generative AI

Generative artificial intelligence is a type of artificial intelligence that can produce different types of media, for example, texts, images, videos, audio, etc. It is important to notice that generative AI has made artificial intelligence in general accessible to everyone, which leads to the point at which everyone can use AI for educational purposes and not only. Today, not only experts in different fields have access to AI, but also regular students, teachers, and learners. Generative AI is becoming more and more popular nowadays, and a well-known example of this is ChatGPT. ChatGPT is a chatbot led by generative AI, and it is capable of giving answers to almost any question. It has a reputation of the best AI chatbot, and it within the first five days over a million of people created accounts to use it (McKinsey, 2023). ChatGPT is actively used all over the world, and it has reached the learning industry as well.

While generative AI can make people's lives way easier and has numerous advantages, it can also be very harmful for educational purposes if not used correctly. In their research article, Baidoo-Anu and Owusu Ansah (2023) highlighted benefits and drawbacks of ChatGPT and generative AI in general. **Benefits are as follows:** personalized tutoring, automated essay grading, language translation, interactive learning, and adaptive learning. Meanwhile, **the disadvantages include** lack of human interaction, limited understanding, bias in training data, lack of creativity, dependency on data, lack of contextual understanding, limited ability to personalize instruction, and privacy. Some of the advantages of generative AI utilization are consistent with the information obtained from Tahiru's (2021) work about AI in education in the previous subchapter. It seems logical that the features provided by ChatGPT can be used to reduce the workload for teachers, adapt teaching methods to students' needs, and make learning processes more productive and effective. However, it also has some limitations, which may lead to provision of distorted information, data leaks, and biased or limited feedback.

Since generative AI is a relatively new technology, it takes time and resources to properly prepare for its implementation. The survey shows that less than 10% of educational institutions had established guidelines for using generative AI applications (*Generative Artificial Intelligence in Education: What Are the Opportunities and Challenges?,* 2023). It could be argued that without preparation people might face inevitable negative consequences, which would be extremely strenuous to eliminate. Therefore, schools and universities must develop guidance for teachers and students as well as provide special training for everyone. Talking about work, it is important for employers to conduct training sessions for their employees before fully utilizing generative artificial intelligence at the workplace.

2.3 Generation Z

One study by Gomez et al. (2022) describes Generation Z as people born between 1995 and 2012. This generation is the most diverse from the perspective of ethnicity and race. Stereotypically, Generation Z is dependent on technology, prefers digital communication to avoid talking to people face-to-face, and has a short attention span, which makes it difficult to reach people from this generation and make them focused. However, those are only stereotypes, and Generation Z significantly differs from other populations, and this makes it unique.

Characteristics of Generation Z

Each generation has its distinctive features, which make it different. Gaidhani, Arora, et al. (2019) highlight the following characteristics of Generation Z:

- As it was mentioned above, it is the most diverse generation of all in terms of race and ethnicity.

- Way of communication of Generation Z is unique and very informal, and technology plays an important part in it.

- People of this generation are independent and prefer doing everything themselves.

- They are more positive about their future and more realistic about work, than other generations.

Generation Z as learners

Technologies are part of Generation Z's lives, and their studies since elementary school have been imbued with tools like smartphones, YouTube, online webinars, computers, and free access to the internet. All of these have made them different from other learners, and, therefore, they have certain learning preferences, which should be followed to achieve better results and more efficient productivity when teaching people of Generation Z.

First, Nicholas (2020) asserts that, Generation Z prefers learning without creative tasks and teamwork. They are less interested in creative assignments because they want exact tasks and directions. They are also more motivated to work independently, rather than in a group with other people.

Secondly, students of Generation Z want to have diverse learning tools and methods, such as online videos, digital textbooks, class discussions, smartboards, game-based learning systems, and so on (Barnes & Noble College, 2016).

Together, these studies indicate that Generation Z has particular preferences for ways of teaching, since their natural independence and urge to do things on their own have a substantial impact on their lifestyles.

The attitude of Generation Z toward work

Nowadays employers hire more and more members of Generation Z who graduate from high school or university. Without having a proper understanding about this generation's preferences, values, and characteristics, companies will most likely struggle with management, productivity, and employee turnover. Therefore, it is crucial for employers to know what unique attitudes and approaches towards the workplace Generation Z has.

A number of studies have examined work habits of the generation's members and the reasons why those habits have been formed. For example, in their study, Bulut and Maraba (2021) point out that the Internet and technology in general are the main factors which impact Generation Z's aspects of life as well as their attitude, perception of work, and characteristics. It seems logical because almost the whole generation has been influenced by the Internet and social media from the early years of their lives. They access new information through the internet and follow their favorite influencers to learn about different spheres of life. Moreover, they learn from social media about different ways to earn money and have a more interesting life than a routine office job with two days off a week. Taken together, these effects of the internet and technology have formed the main habits and attitude of Generation Z. Interestingly, even though this generation's members get distracted by social media and their phones all the time, they are known as multitaskers, so they are fully able to do more than one work at a time (Bulut & Maraba, 2021).

Another study of the expectations of Generations Z from the workplace and their perception of work, was reported by Böhlich & Axmann (2020). In their study they propose eight hypotheses about Generation Z: desire for secure employment relationships, loss of importance of material rewards, preference of a fixed income, wish for fixed working hours, wish for work-life separation, preference for a fixed desktop, need for clear instructions, and need for constant (positive) feedback. However, not all these hypotheses were proven by Böhlich and Axmann. In particular, the study has shown that material rewards are in fact important to young generation, most people would prefer flexible working hours, and some members of Generation Z are ready to devote some time to work during their free time. Overall, the study concludes that Generation Z is rather flexible in terms of work and working hours, but high salary still plays a big role in this generation's members' idea of work.

Jones et al. (2019) compared different generations at the workplace and highlighted several distinctive features of Generation Z. Specifically, members of Generation Z are very creative, flexible, and efficient, and it is crucial for them to have an opportunity to express themselves and have freedom. It is also mentioned in the study that they are less disciplined and tend to take more breaks during work than previous generations. Nonetheless, Generation Z employees are very money-conscious, so they are interested in getting high salaries and they work hard to increase their income. It could be argued that Jones et al. (2019) in their study suggest characteristics and

work habits which have been manly formed because of social media and technology. As one example, the young generation gets distracted easily by notifications and text messages and is used to being online all the time, which leads to shorter attention spans and more frequent breaks during workdays.

Collectively, these studies provide important insights into the work habits and attitude of Generation Z and their perception of work and values. The figure below illustrates the summary of the main work preferences and characteristics of Generation Z.

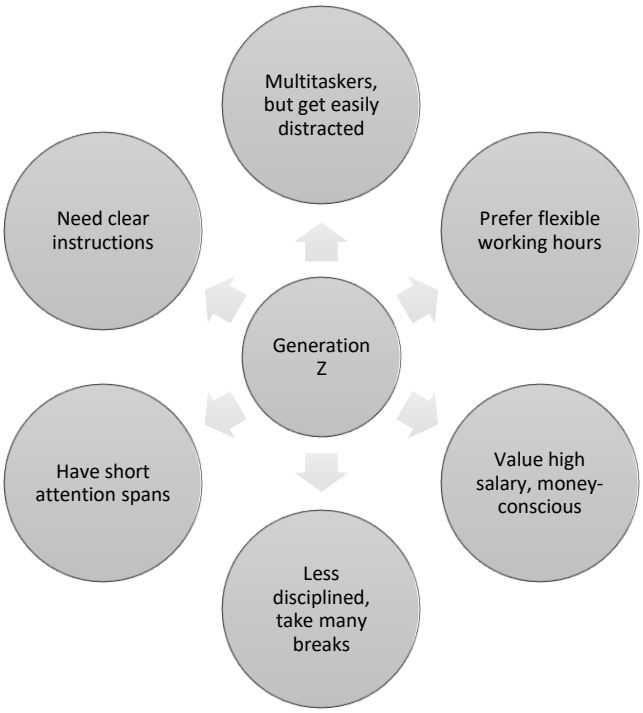

Figure 2. Characteristics and work preferences of Generation Z

2.4 Future of work

Artificial intelligence and automation as well as COVID-19 have forced many environments to change, and the world of work is not an exception. Some jobs are being eliminated, while many new ones are being created and introduced to society. Moreover, during the COVID-19 pandemic, people have learned how to deal without physical presence and offline work in many fields. So what is future of work? This chapter provides a brief overview of its definition and describes the relevant concepts.

Schwartz et al. (2019) define future of work as changes in three dimensions: work (the what), the workforce (the who), and the workplace (the where). Supporting this view, Schaninger & Sharma (2021) explain these three elements in the following way:

- **Work.** This element concerns two main questions: how the work is done and how to make money. Therefore, actions should be taken to increase the revenue, find new ways to make profit, and manage the internal and external operations to get the work done. It also includes decisions about what processes can be fully or partially automated, how AI can be implemented into the workflow, and how many employees are needed for the place to operate properly.

- **Workforce.** It is necessary for organizations to analyze what workforce they have (supply) and what they need (demand) in order to develop their businesses. Comparing demand and supply will help to highlight advantages and disadvantages as well as strengths and weaknesses of the organization. Importantly, even though nowadays technologies and automation play a big role in work processes, companies will not succeed without having skilled professionals, who will implement all ideas.

- **Workplace.** Workplace refers to the location and the ways of working. In other words, organizations decide whether their employees work remotely, on-site, or both. The COVID-19 pandemic has definitely changed the ways people work, so remote or hybrid work is very popular now in all the fields, in which it is possible to work from home.

Understanding the nature of all these three aspects can help to properly prepare for the future and achieve success in the modern changing working environment all over the world.

Figure 2 presents the description of each dimension and what each of them corresponds to. Having defined what is meant by the future of work, it is important to explain the course of actions which can be taken to make the changes beneficial and meaningful.

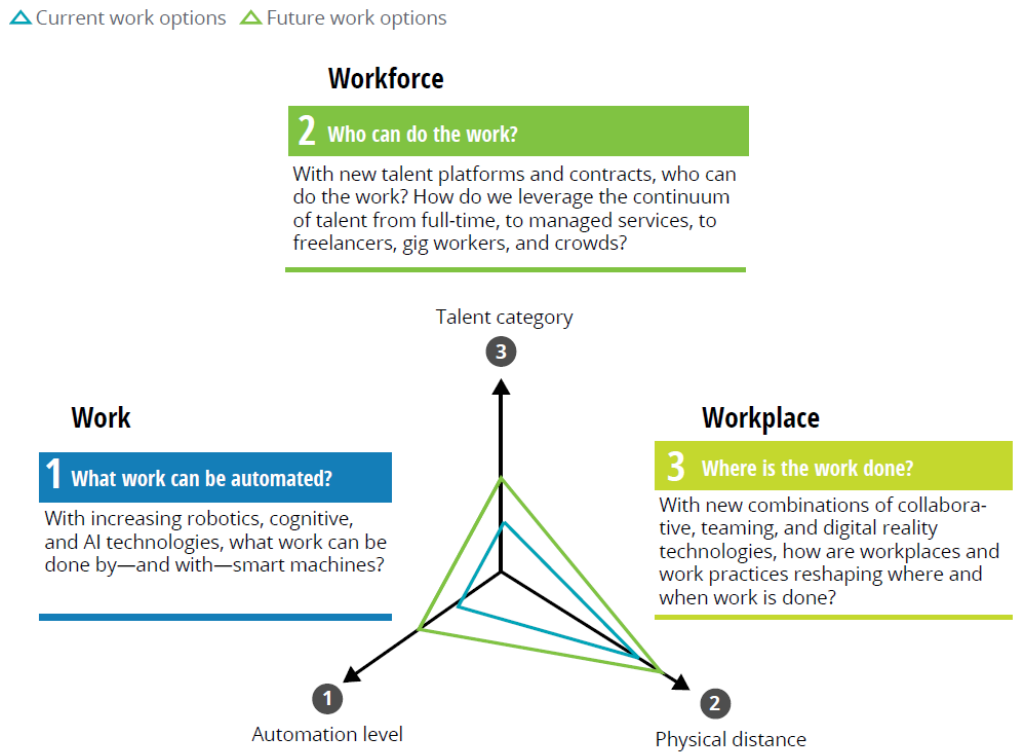

Figure 3. The future of work encompasses changes in work, the workforce, and the workplace (Deloitte, 2019)

Other writers share different idea about future of work. For example, in his review of how AI and robotics transform jobs in Europe, Servoz (2019) highlights the areas and positions which will be mostly affected by automation. He states that highly structured, repetitive, and predictable physical jobs will be fully replaced by robots in the future. It also concerns digital jobs without direct communication with customers. This view is supported by McKinsey & Company (2023) that asserts that job growth will be in high-skill jobs, while middle-skill and low-skill jobs may be at risk, as there is a high chance that they will be taken over by artificial intelligence. However, it does not mean that AI will have only a negative effect on the future work nature, because robotics and automation will also create a large number of new positions in the nearest future.

Together, these two studies support each other and indicate that jobs that do not require a lot of intellectual work and do not consist of diverse tasks, are most at risk. Even though technologies

are getting more and more advanced every day, they are still unable to fully replace highly emotional and intelligent tasks, but it is still necessary to be prepared for possible changes that artificial intelligence may cause in the near future.

Future of work trends

Gartner (2022) claims that organizations are facing a lot of challenges nowadays, which are mostly caused by the COVID 19 consequences and the changing working environment. Therefore, to achieve the strategic goals of the company and strengthen your position as an employer, it is essential to implement the following trends of future of work:

1) **"Quiet hiring" means acquiring new skills without hiring new full-time employees.** There is a possibility for an organization to do it in several ways, for example, by asking employees to do things outside of their job roles, providing more opportunities for existing employees, or bringing in new talents flexibly with the help of alumni networks. Interestingly, the idea of this trend comes from 2022, when "quiet quitting" was viral. Employees would not quit, but at the same time would only do the bare minimum while working in the company. It would usually lead to the loss of skills in the organization. However, in 2023, HR specialists came up with the similar practice, which is beneficial for the employer now. For example, Google is using quiet hiring to identify employees who are already doing tasks outside their job responsibilities, and these employees might get a promotion. However, if Google do not have a suitable internal worker, they hire temporary employees (Castrillon, 2023).

2) **Hybrid flexibility for frontline employees, especially people working in such industries like manufacturing or healthcare.** According to the Gartner Frontline Worker Experience Reinvented Survey (2022), 58% of the organizations in those industries have increased their investments in improvements of working conditions and environment as well as workers experience. Frontline workers are also interested in other flexible benefits, such us the workload, what they work on, and who they work with.

3) **Providing support for managers.** Nowadays managers have too many responsibilities beyond their capabilities at the workplace, which is caused by remote and hybrid work as well as developing and constantly changing needs of employees. Managers play an essential role in organizations, as they report the most important information and conduct communication among different departments. In order to successfully reduce pressure and workload from managers, organizations should start implementing certain things. First, it is important to provide trainings for employees to move forward from outdated practices and approaches to modern and future-oriented ones. Secondly, rethinking the manager position's duties and priorities will ensure that managerial positions will have a more efficient time management.

4) **Non-traditional recruiting processes.** During the past several years there has been a tendency for employees to apply for jobs and positions outside their field or area of expertise. As a result, human resource managers can no longer hire people only according to their previous experience and qualifications. Therefore, in the modern world the key to successful recruitment and promising employees is to evaluate candidates' ability to fulfill the role's responsibilities regardless of their background.

5) **Prioritizing well-being and mental health.** Due to the coronavirus pandemics and other challenges caused by political and economic changes, a significant number of employees have been struggling with mental health issues. It, in turns, leads to reduced efficiency and productivity as well as unexpected resignations, more toxic working environment, and decreased achievements at the workplace. Hence, it is crucial that employers see employees as a whole person and take the following measures to prevent burnouts and mental health problems: avoiding meetings on Fridays, providing proactive rest and paid time off to the employees, offering counseling and discussions about challenges with mental health and at the workplace, and so on.

6) **Carrying out diversity, equity, and inclusion (DEI) measures despite growing resistance.** Even though many organizations are promoting DEI at the workplaces, some employees believe that those actions only create misunderstandings and arguments withing personnel. In the worst case, it may lead to people quitting the jobs, if they feel offended by the

implemented practices or discriminated, and they do not feel like they belong there. To prevent it from happening, it is essential to address the issues causing the resistance and opposition at the early stages to make sure that it does not trigger bigger difficulties.

7) **Awareness of possible data risks due to employee support.** Emerging technologies are being actively used by the companies in order to understand workers' needs better. These technologies can include AI and wearables, such as smart watches, bracelets, clothes, rings, and Bluetooth trackers. However, automation is getting advanced very rapidly, and sometimes it is beyond people's abilities to control devices and artificial intelligence. Thus, there is a high risk of privacy violation and data leak, so employers should be transparent about collection, storage, and usage of the data they collect at the workplace, as well as provide an opportunity for their employees not to participate in activities related to data collection.

8) **Reducing bias in hiring process algorithms.** More and more organizations are using artificial intelligence in the recruitment process. However, ethics plays an important role when using machine learning and AI, so all employers and hiring managers must ensure the transparency of all operations that involve automation. As well as with data collection at the workplace, all candidates and potential employees have a right to stay away from hiring processes using artificial intelligence.

9) **Lack of soft skills in Generation Z.** The COVID-19 pandemics in 2020 causes the social isolation around the world. It has dramatically affected the young generation. As Gartner (2022) explains, 46% of the surveyed Gen Z employees claim that coronavirus made it more complicated to pursue the career, and 51% of respondents state that they absolutely were not prepared for work life throughout their education. It seems logical, that it leads to the lack of soft skills, such as negotiation, public speaking, networking, etc., which also has a negative effect on performance. The only way employers can address this problem is to reconsider their idea about professionalism.

The trends described above indicate that even though not all of them are related to artificial intelligence, some parts of work life will be automated in the nearest future. Consequently, AI and robotics integration is inevitable, and it is necessary to accept it and find the ways to make it smooth and efficient.

Future work skills

The world is constantly changing, and as it was mentioned earlier, artificial intelligence creates new jobs which require new skills and knowledge. It is caused not only by the emergence of new positions, but also by the fact that Generation Z has been entering the work life. Thereby, to achieve high performance and productivity at the workplace, it is necessary to make sure that all candidates and employees are skilled enough and properly trained to be able to keep up with the changing environment.

Ehlers and Kellermann (2019) define future skills as the "ability to act successful on a complex problem in a future unknown context of action" (p.3). This definition implies that future skills are about being flexible, easily adaptable, and being capable of solving problems in changing, unfamiliar, or unstable conditions. Future skills are very versatile, and in today's ever-evolving world it is crucial to have these abilities to succeed in any field of the life.

Rakowska and de Juana-Espinosa (2021) conducted several surveys to collect data from three different countries about the most valued competencies for employability. According to their results, it can be determined that the most important and useful skills are social intelligence, computational thinking, and adaptive thinking. In addition to those, self-management and self-development skills are highly appreciated. Interestingly, such factors as formal education and previous work experience were considerably less valuable than other skills. This finding matches one of the future of work trends by Gartner (2022) which were described earlier.

2.5 Future of technology

Technology has been actively advancing and growing in the past several years. It has also been affecting the society as well as work and education industry in various ways, both positive and negative. Communication is one of the aspects, which has been significantly influenced by technology

development. Nowadays, people can communicate virtually from different countries and can be easily connected with other people from all over the world. It allows people to work remotely without depending on a certain location. It has been a great advantage to many companies and employees, as it gives more opportunities to expand businesses and build a career. Remote work has also created new jobs, added more freedom and creativity to work processes, and made some positions more available for people. Moreover, the ability to keep in touch with people around the world has advanced the education industry. Now, students do not need to physically go to educational institutions to get a degree or even be in the country of their institutions. Similarly, it is possible to attend professional courses or master a new profession fully online. These advantages of the developing technologies promote intercultural relations at the workplaces and in educational facilities.

Chui et al. (2023) in their report analyzed the current technologies and highlighted 15 technology trends, which matter the most for companies in 2023:

1. Applied AI
2. Industrializing machine learning
3. Generative AI
4. Next-generation software development
5. Trust architectures and digital identity
6. Web3
7. Advanced connectivity
8. Immersive-reality technologies
9. Cloud and edge computing
10. Quantum technologies
11. Future of mobility
12. Future of bioengineering
13. Future of space technologies
14. Electrification and renewables
15. Climate technologies beyond electrification and renewables

On the one hand, it can be very beneficial for companies to follow some of these trends. For example, applied and generative AI, next-generation software development, digital identity, advanced connectivity, and cloud and edge computing are advanced technologies, that can make working processes more smooth, efficient, and secure, help to replace monotonous or computing tasks, and provide stress-free and creative environment for both employees and employers. On the other hand, some of these trends are too global, so it can be challenging or nearly impossible to implement them at the workplace, but it is crucial to keep following the emerging technologies and integrate them into everyday life.

2.6 Summary of the knowledge base

This chapter summarizes the literature review and explains in detail the key concepts, such as artificial intelligence, generation Z, future of work, and future of technology. First, the definition of AI was stated in this research, as well as the following types of artificial intelligence in education were highlighted: automation of administrative tasks, smart content, and intelligent tutoring systems (ITS). These features make studying processes easier and more efficient for both students and teachers, and they tend to improve performance. Generative AI is another type of AI which is being actively used by millions of people nowadays. It has potential to be a major breakthrough in work, learning, and people's lives overall, if the necessary actions are taken in society in order to make it beneficial and harmless.

Next, a thorough research was conducted about Generation Z, its characteristics, and attitude to work and studies. In short, members of the generation Z prefer flexible working hours and clear instructions, have short attention spans, and take many breaks during their working or studying processes. Now those distinctive features modify the organization of work and learning, which in turn force teachers to implement new ways of teaching and employers to provide trainings for employees.

Finally, future of work consists of three factors, which are work, workforce, and workplace. Work life around the world gets affected by automation and robotics, and many repetitive jobs will be fully replaced by artificial intelligence or robotic technologies in the future. As it was mentioned earlier, Gartner (2022) explained nine future of work trends to show what the society should prepare for.

The findings of this knowledge base demonstrate that working environment has been changing due to global pandemics, new trends, emerging technologies, and new generation entering the working life. It is also evident, that implementation of artificial intelligence is unavoidable and can have both positive and negative effects. The key to success is to learn different ways of how to make technologies advantageous and how to properly prepare for the changing conditions. It is also important to change the ways of teaching, recruiting, and working in order to achieve progress in today's world. To sum up, nowadays there are many things that affect learning in many ways. Figure 4 and Figure 5 below provide the summary of the main effects of Generation Z, artificial intelligence, and technologies on learning and working processes.

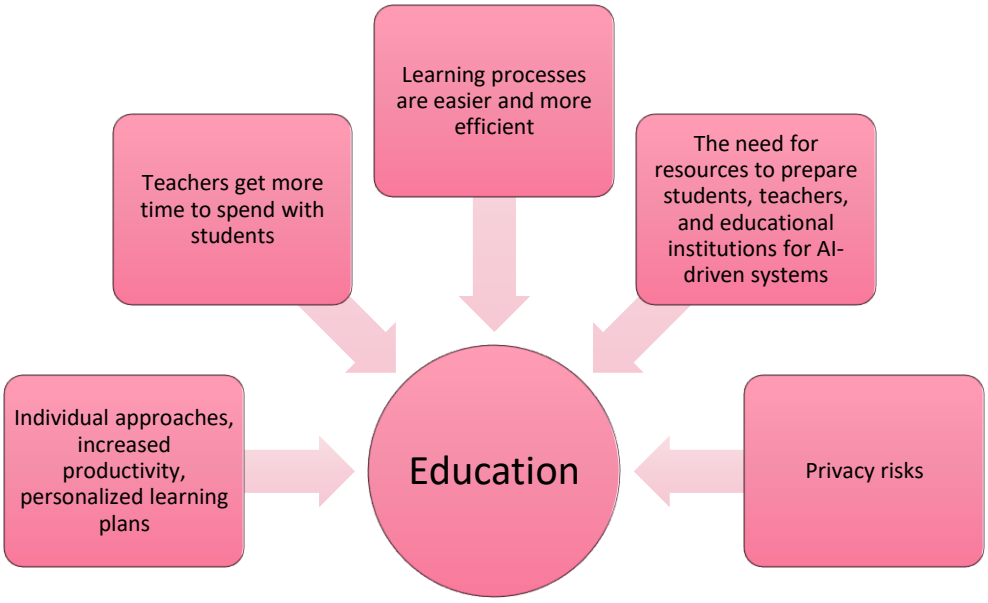

Figure 4. The impact of AI on learning in education

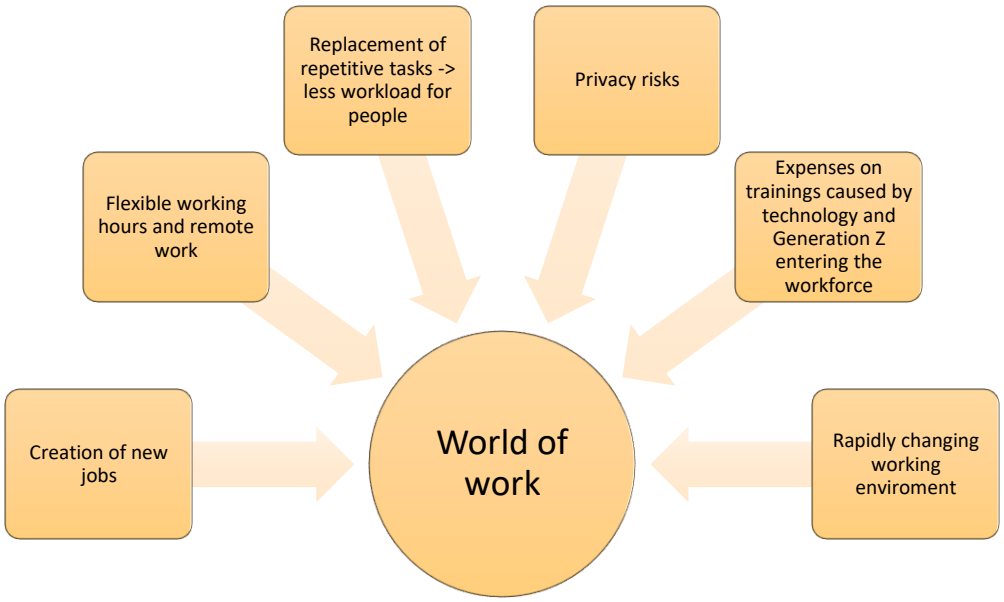

Figure 5. The impact of AI on learning at workplace

3 Research Approach and Implementation

The following chapter describes the way research is done and implemented. Sileyew (2019) defines research methodology as a path which researchers go through from defining the objectives to presenting the results of the study. The information about research approach and design, data collection and analysis, and ethics of the research processes, is provided in this section.

3.1 Research philosophy and approach

There are five research approaches: qualitative, quantitative, community-based participatory, mixed methods, and arts-based research (Leavy, 2022). In this study, the qualitative methodology was employed to collect data. The most common qualitative research methods are focus groups, interviews, diaries, and others. Savin-Baden and Howell Major (2013) claim that the goal of qualitative research is to examine how individuals perceive and interpret their experiences, ideas, and thoughts. They suggest that qualitative research is not suitable for the analysis of relationships between variables or inferring cause-and-effect relationships. On the contrary, it helps to explore the behaviors and understand different phenomena. This study used qualitative analysis in order to gain insights into Generation Z's attitude towards artificial intelligence in learning as well as to identify how they feel and assess the future of AI.

Since the purpose of this study is to find out how Generation Z estimates the utilization of artificial intelligence for educational purposes and describe their perception of this phenomenon, it can be inferred that the conducted research is descriptive. “Descriptive research is defined as a research method used to describe the existing phenomena as accurately as possible” (Atmowardoyo, 2018, p.198). This research design does not involve cause-and-effect relationships, but it aims to observe behaviors and collect data about a certain phenomenon. The descriptive research design supports the choice of the research approach, which was qualitative, as it was explained earlier.

Research reasoning plays a significant role in drawing conclusions of study. Generally, there are three types of research reasonings: inductive, deductive, and abductive. In this research, inductive reasoning was applied. Inductive reasoning represents an approach in which various statements, which are considered to be true, are used to make conclusions about phenomena (Sauce & Matzel, 2017). The conclusion about the type of reasoning for this research can be explained by the fact that there were no preliminary assumptions which needed to be proved right or wrong during the study. The raw data was collected, which was later used to make certain inferences.

3.2 Data collection

There are two types of data: primary and secondary. The difference between these two types is that primary data is gathered firsthand by the researcher, whereas secondary data refers to the preexisting data collected by other researchers or individuals (Ajayi, 2023). As mentioned above, the study used a qualitative research approach to collect data. The primary data for this research was collected by semi-structured interviews.

Bailly and Nys (2018) define semi-structured interview as a qualitative research method that has predefined open questions, which initiate discussion and give an opportunity for the researcher to delve further into certain topics and examine the answers of the participants. In the present study semi-structured interviews were particularly useful in gathering information about Generation Z’s experiences with artificial intelligence and assessing their perspective of the role of AI in education and its effect in the future. The main advantage of this method of data collection is that it allows the researcher to gain beneficial insights from the experiences and knowledge of the interviewees within a given context, while the disadvantage of this method is time consumption (Bailly & Nys, 2018).

3.2.1 Sample

It is important to choose the proper sample for the research. For this study, the sample frame identified the target group with certain criteria. Semi-structured interviews were conducted with 10 people, divided into 2 groups. Primary inclusion criteria for the participants were as follows: representatives of Generation Z (people born between 1997 and 2012. i.e., 11-26 years old) who are currently enrolled as attending students in educational institution and/or have a job. Such factors as gender, nationality, and country of residence were not relevant for the study, and therefore, for the selection criteria.

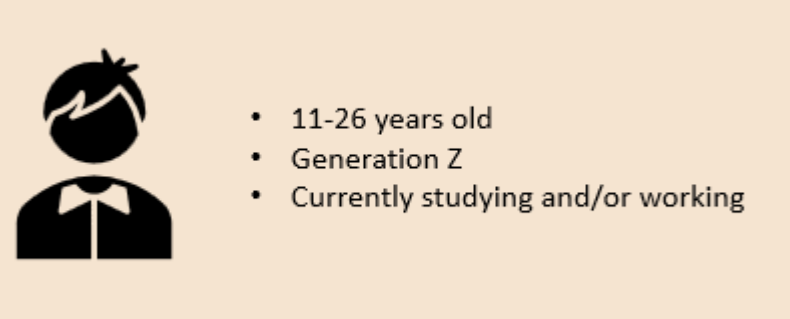

Figure 6. Profile of an interview participant

3.2.2 Interview Design for Data Collection

All interviews were conducted online via Zoom and lasted for around one hour each. According to Bailly and Nys (2018), the duration of one interview should be from 30 minutes to 1 hour and 30 minutes maximum, therefore, it was decided that one hour is the most optimal length of each interview. Each interview session was recorded and transcribed. Since the interviews were semi-structured, the interviewer had a guide with predetermined open-ended and probe questions. In semi-structured interviews it is important to have prepared questions about the desired topic, unlike unstructured interviews, but the questions do not need to go in a certain order, as the main idea is to go with the flow during the process (Adeoye-Olatunde & Olenik, 2021). The participants had a chance to talk freely, but the interviewer was responsible for making sure that they do not start talking about topics that are irrelevant for the study. The questions for the interviews can be found in Appendix 1.

3.3 Data analysis

Data was analyzed by the descriptive statistics method. Descriptive statistics play an important role in any research and help to summarize the data systematically and describe the relationship among variables (Kaur et al., 2018). In their article, Kaur et al. (2018) points out that there are different types of variables in descriptive statistics as well as measures of central tendency, frequency, position, and dispersion/variation.

The analysis of the collected data started with listening to the recordings of the interviews and transcribing them. Bailly and Nys (2018) suggest that it is necessary to transcribe the interviews as soon as possible, for example, on the same day, the next day, or during the week at the latest. The interviews were listened to several times, and the detailed transcriptions were done by the author. It was crucial to notice which opinions participants agreed and disagreed on the most during the interviews. By doing the data analysis in this way, the researcher was able to draw rational conclusions. Due to the size of the transcription, it was decided not to include them in the research, but the author will store them privately until the end of the process.

After the transcriptions were completed, they were coded in computer software called NVivo12 (Appendix 2). By using this software, the author managed to code the interviews to specific nodes, as well as analyze and organize all data.

3.4 Plan for research quality and ethics

When conducting research, it is important to make sure that ethical norms are taken into consideration. Ethical issues are often brought up in qualitative research, as this research method includes human interaction (Dooly et al., 2017). Thus, ethics in research play a significant role, and their explanation needs to be provided in this paper. Borah (2020) claims that research ethics includes principles and guidelines that guide the researcher in making ethical decisions throughout the whole process.

3.4.1 Validity and reliability

Validity means the extent to which research resonates with values and principles which define what high-quality research is (Sabnis & Wolgemuth, 2023). In short, it refers to the degree to

which the research explores what it needed to explore and how well it matches reality. At the same time, Nha (2021) claims that the main characteristic of reliability is consistency. It other words, it means the stability and consistency of the research results.

First, the study was meant to gain insights into Generation Z's opinions about artificial intelligence in learning processes. The author made sure that all interview participants were members of Generation Z and not any other generations, as well as currently were students, so it can be inferred that the sample was chosen correctly according to the objective of the research. Moreover, the interviewer only asked open questions without any guiding ones, which prevented the author's influence on interviewees' answers. The interviewer also participated in the interviews only when asking questions and avoided interrupting other people and making comments during the process. Together, these factors indicate that reliability and validity of the current research are both high. The researcher succeeded in gathering all necessary information to achieve the goals of the study. Additionally, it can be stated that the results of the interviews reflect the reality of the studying phenomenon.

It is also worth mentioning that to achieve solid conclusions, two groups of people with different opinions and beliefs were used to collect and analyze data. The author decided to divide all participants into two groups to collect more versatile and reliable data. By including individuals with diverse points of view, the author aimed to minimize bias and enhance the overall validity of the conclusions.

3.4.2 Ethics of the study principles and process

Sim and Waterfield (2019) in their article point out three ethical issues: consent, confidentiality and anonymity, and risk of harm. In the present study the participation of all interviewees was fully voluntary. All participants were informed beforehand about the research objectives and studying topic. The author received the consent from all contributors, so no one took part in this research against their will. Also, the interviewees had the right to not answer questions if they did not want to or feel comfortable. The author ensured confidentiality and anonymity by not revealing people's names and private information when analyzing data and discussing the results. Finally, the researcher provided interviewees with a calm, quiet, and friendly environment. It is important to mention that throughout the process participants were not exposed to situations that

could cause any physical (injuries, pain, etc.) or psychological (anxiety, fear, anger, etc.) harm to them.

Furthermore, even though the data was collected by using semi-structured interviews, which usually have predefined questions or topics, the author was fully open to any new potential findings, proposals, and change of plans.

At last, it was already explained earlier that the researcher did not affect the participants' replies in any way. To avoid bias during interviews, all interviewees were informed by the interviewer that they were free to share any thoughts they had, and that there was no wrong answer. In addition, the cameras of all participants in Zoom were turned off, so that no one was affected by other people's emotions, reactions, and body language.

3.5 Limitations of the chosen method

As semi-structured interviews were chosen to collect data, it is important to highlight the potential limitations of this method. For example, by conducting semi-structured interviews, it is possible to gather information only from a limited number of people, which would lead to narrower outcomes. Moreover, there is a chance that the results might be biased, because participants might be afraid to share certain opinions, or because they do not want their answers to differ from other interviewees' responses. Last, the sample might not accurately represent the whole society and the points of view, which are common among people as a whole.

4 Results

Information about results from interviews conducted is provided in this chapter. In order to follow a logical structure, the results were divided into three parts corresponding to the three main topics of the research: current role of AI in education, future of AI in education, and AI-supported learning system. Since the names of the participants of the interviews cannot be revealed due to ethical considerations, they were mentioned in this chapter as "interviewees", "participants", or "respondents" and were used with the pronoun "they". While the figure below shows a short summary of all interviews, the results in detail are explained further in the chapter.

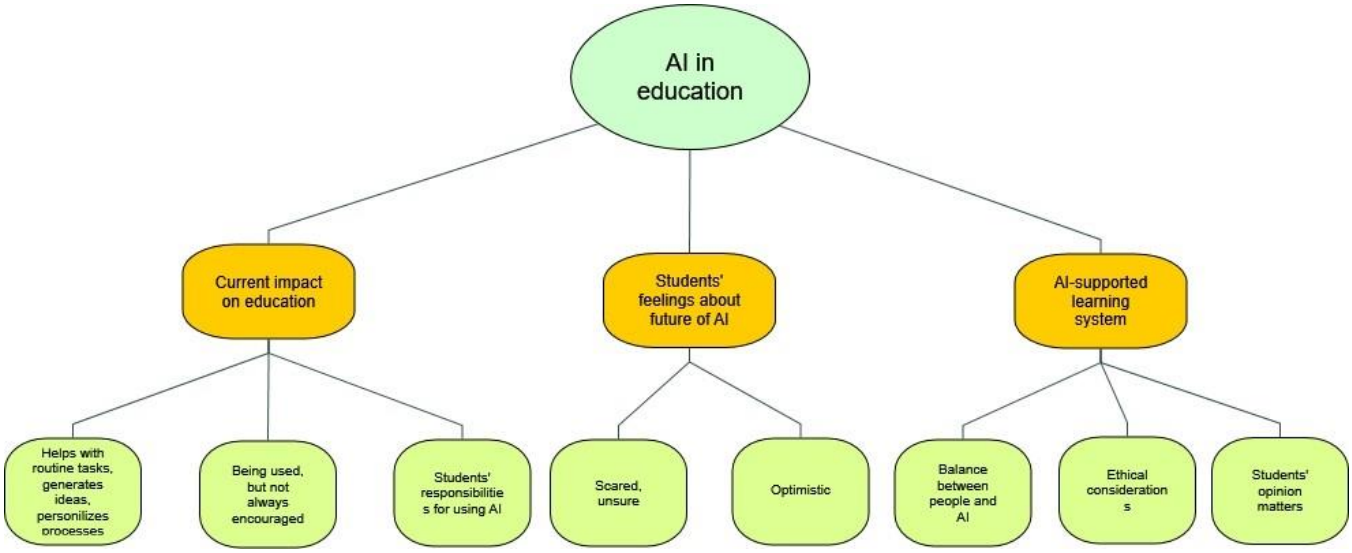

Figure 7. Short summary of the results

4.1 Current role of AI in education

The first set of questions aimed to gather data about what role AI plays in education nowadays and answered the first research question:

RQ1: What is the current role of AI in education?

A common view amongst all participants was that artificial intelligence is being actively implemented in the learning processes, however, 25% of interviewees still mentioned that sometimes many teachers think about using AI for educational purposes in an old-fashioned way and do not encourage their students to use it. The key remarks from the interviews were highlighted:

Assistance in repetitive/administrative tasks

75% of those who were interviewed agreed that AI can be a very useful tool for both students and teachers, as it can make processes more efficient and optimized. For example, it can do such routine tasks as grading, scheduling, and lesson planning, as well as more advanced tasks, like providing individual learning or using personalized approaches to students. Moreover, it was mentioned by interviewees that artificial intelligence can assist students in their learning processes by giving

instant feedback or correct answers to the questions. This way, AI allows teachers to pay more attention to students or overall concentrate on more important things than checking students' assignments.

Generating ideas

In all cases, the participants reported that they personally use generative AI tools, such as ChatGPT, to help them with their studies. What they meant by that is that they use it to gather new ideas, find synonyms, see the possible variations of the structure for their essays, and find literary resources for their assignments. They especially highlighted the time-saving aspect of using ChatGPT, because it provides them with different possible perspectives or viewpoints on a specific topic. Additionally, one participant said that they sometimes use generative AI tools to get a better understanding on a subject, because for them the explanation given by tools like ChatGPT is more comprehensible than the one given by Google.

However, it is important to add that all participants asserted that they never copy and paste the text from ChatGPT or turn in the AI-generated text as their own. They all agreed that it is unethical to do this, and these actions negatively affect the learning experiences of the students.

Finally, it is crucial to say that 25% of the participants stated that it should be students' responsibility whether to use generative AI tools as a helpful tool to enhance their learning and knowledge, or to use it irresponsibly and fully copy-paste information without proper attribution or personal contribution.

I1: "At least from my perspective, almost all my classes, when AI is brought up, it's usually with some form of hostility, the teachers do not appreciate AI and often steer us away from it."	I2: "I think AI can help you and automate the grading process, making it more efficient and consistent, for example, and maybe AI can do some administrative tasks, like, it can assist in scheduling, for example."
I3: "I definitely did not rely on AI exclusively and it wasn't like I just copy-paste everything	I4: "AI definitely simplifies the process of studying, the process of preparing or organizing

AI has generated, so it was just a useful tool for me which made my assignment writing process just a bit faster and maybe more efficient. I wasn't spending all this time on finding synonyms to the words or trying to paraphrase a sentence, I would just leave it to the AI."	materials at least and as well the AI tool can help with so-called starting problem when you do not know how to start the speech, how to start the text, how to organize the first paragraph, so now this problem is best in the past."
I5: "I use AI only for ideas. I use it only to divide my reports into topics, for example."	I6: "It's about the students' own responsibility. Kind of like if we start utilizing more AI, then the responsibility goes more towards the student side. So they will essentially decide whether they will fully cheat or they will just use it responsibly and actually learn the stuff as well."

Table 1. Some highlights from interviews about current role of AI in education

4.2 Future of AI in education

The next part of the interview questions covered the future of AI in education and aimed to provide answers for the second research question:

RQ2: How do learners feel about and assess the future of AI in the field of education?

Even though AI tools are already being used by many students, it can be still challenging to predict the future of artificial intelligence. In this part of the interviews, the participants shared their feelings and concerns about the future and consequences of AI as well as expressed their opinions about possible ways to implement AI smoothly into learning processes. Interestingly, the two groups had different points of view about these matters, and opinions differed as to whether there are reasons to be concerned about the future or not.

Uncertain but staying positive

All participants of the first interview (50% of all participants) agreed on a common opinion, that there are many factors that bother them about the future of AI. All interviewees expressed their concerns about teachers being fully replaced by robots and AI, which will lead to the lack of human interaction, empathy, and face-to-face communication during learning processes. Commenting on that, one of the interviewees said: *"I am a bit scared in terms of if the robots will substitute teachers because I was listening to one podcast, and it was said that teachers now will be substituted with the robots in primary school. And I would really not want to have this if I was in a primary school, because I still prefer human interaction and feel empathy from a teacher rather than to be talking to a machine"*. Nevertheless, the participants said that even though they feel a bit scared or unsure of the consequences of AI in education, they still see the potential of changes that artificial intelligence may bring to the industry of education. They expect AI to be implemented in a beneficial way, but at the same time feel the need to be prudent.

Optimistic

Whilst members of the first group had certain fears about the future of AI, the second group (the other 50% of all participants) collectively agreed that they feel rather optimistic and excited about what AI can bring to the future of education. The interviewees expressed optimism about the increasing development of AI and its impact on education. They believe that artificial intelligence can make education accessible to everyone and make learning processes easier. One participant commented: *"I personally feel mostly optimistic, because I feel like it will continue developing, but I do not think that it is going to get out of hand"*. All participants reported that despite potential drawbacks, such as administrative regulation issues and misuse of AI's capabilities, people will still be able to control and regulate automation in the future.

Implementation of AI

The discussion about the possible ways to make integration of AI as smooth and beneficial as possible, resulted in participants having different points of view:

30% of respondents commented that the speed of implementation as well as students' opinions about this process matter the most in this case. They felt that it is crucial to gather students' feedback before making any decisions, because students will be the ones most affected by the possible changes. One of the interviewees commented on that in the following way: *"I would say that in this case, I would like to really be asked as a student if I would want this implementation of AI or not, and in what spheres. That's the best way to try to make it smoothly and make students adjust to this as easy as possible"*. In a similar manner, it is important to make sure that the implementation of AI goes slowly and gradually, so that there are no sudden changes, which could possibly lead to unpredictable consequences. Gradual integration provides better understanding of the phenomenon among students and helps to ensure faster acceptance.

50% of the participants reported that AI implementation in education is a process which requires certain regulations in order to ensure the success of AI in education. For example, one interviewee thought that *"there should be identified firstly harmful sides of AI in education"* before broadly using it. Additionally, ensuring the accessibility of AI tools to everyone is another crucial part, because if they are not accessible to everyone, then it needs to be regulated, fixed, or fully avoided. One interviewee claimed that it is important to control and keep track of the content and information shared to students. That is, neither teachers nor students can use AI-generated materials and pretend that it is their own work. These ideas of the participants also indicate that there are many unfamiliar and unknown issues, so it is better to analyze it as much as possible. It was also mentioned that it can be easier to regulate AI in education when it is fully implemented.

A minority of interviewees **(20%)** were rather unsure about the integration of AI in education. There was an opinion that people are currently struggling with moving forward with AI and making sure everything runs well at the same time, so it is difficult to say now if they will succeed. As one interviewee put it: *"I think we are kind of in a battle right now of moving forward and to make sure it goes smoothly. I am not sure we are going to be able to do that, but I think only time will tell"*. Another opinion was that it is impossible to restrict or regulate AI only in education, so there is only a possibility to regulate the way of implementation only in general at every step and everywhere at once.

The chart below shows the proportion of participants' opinions about key factors of the AI implementation process.

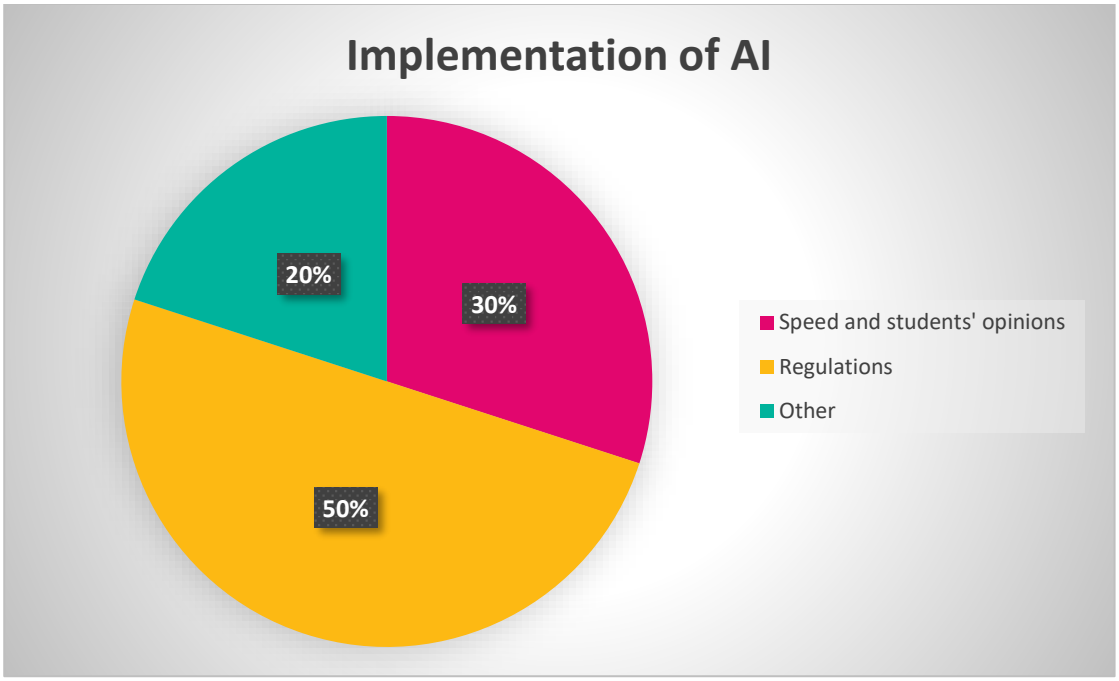

Figure 8. Students' thoughts about implementation of AI

AI for unique needs and preferences of individual learners

The second part of the interviews also included a question about possible ways in which artificial intelligence can be used in the future to adapt education to the unique needs and preferences of individual learners. When asked about this topic, the interviewees agreed that AI can be capable of addressing the needs of learners in different ways, and several examples came up during the discussions. First, a few participants stated that AI can be used for personalizing the learning programs for each student. For example, one interviewee said: *"AI can analyze a certain student, their knowledge, interests, maybe goals in education and career skills and other factors, they can maybe generate some kind of individualized learning process for that one person, or at least suggest the best courses based on their interests and skills"*. Several other respondents agreed with this statement and added that artificial intelligence can be utilized for analyzing students' learning styles, creating personalized learning pathways, and suggesting courses for the student's level of knowledge.

Next, some participants had an idea that AI can be used as teacher's assistant by giving real-time feedback or answering students' questions in a certain university chatbot when it is out of the office hours for the teacher. AI can also provide tutoring for students by sharing extra information or insights on particular topics, giving exercises for students to practice more, and helping them understand the subject better without the teacher being involved. Finally, one interviewee mentioned that it is a great idea if AI can assist students with disabilities or any other students who cannot go to school and attend classes.

4.3 AI-supported learning system

In the final part of the interviews, the respondents were asked about AI-supported learning systems and relevant ethical considerations. The questions related to the last research question were asked in this section:

RQ3: What elements should an optimal AI-supported learning system have?

It is worth noting that this part turned out to be the most challenging for the participants of both groups. Nonetheless, during the interviews the author of the research provided assistance or paraphrased the questions when needed, to elaborate on the subject for a better understanding.

Keeping balance between traditional learning methods and AI-driven methods

A common view shared by all respondents was that keeping balance between teachers and AI is a crucial factor in making AI-supported learning system succeed. Even though AI is intelligent and smarter than humans, it lacks emotions and empathy, which are important in human interaction. AI-driven programs cannot fully replace teachers, because especially in education, it is necessary to pay attention to students' well-being and personal feelings to be able to notice if a student is struggling or needs help. Studying in a fully AI-led environment can eventually lead to the lack of in-person contact and social interactions among students, and it is worth saying that some students simply cannot assimilate information without analyzing verbal and non-verbal signs and expressions. Moreover, there are some occupations that cannot be taught by artificial intelligence, because they require some practical skills, which can be taught best by humans. Therefore, com-

bining AI and traditional teaching methods can help to achieve the highest productivity and effectiveness. Commenting on this issue, one participant added: *"I think maybe the path to finding balance is a special training for teachers and instruction to effectively integrate AI tools into the teaching process, the learning process"*, so they suggested a way to keep the balance more easily.

Other features of AI-supported learning system

30% of the respondents reported that in order to function properly, AI-supported learning system must comply with the policies and procedures that already exist in current educational systems. In this case, control over the information shared by AI matters the most, because it is essential to make sure that AI tools are harmless, and students cannot get any inappropriate information while studying.

In addition, one interviewee suggested that despite the absence of emotions and empathy in AI, it is important to ensure that AI tools are capable of providing positive feedback for students to encourage them throughout the learning process. The participant stated that they personally get more motivated when their teacher reassures them that they are doing everything correctly. As the interviewee put it: *"I definitely think that it would feel way too emotionless and cold if it does not have any kind of feedback system built in it"*. However, they commented that it might be better to avoid negative feedback to eliminate possible unintended consequences.

Finally, another respondent mentioned that an optimal AI-supported learning system should have a multi-language feature, so that learning programs are available in several languages. This result partially corresponds with another result mentioned earlier in this chapter, that states that it is necessary to make AI tools accessible to everyone.

The figure below provides a summary of the results of this part of the interviews.

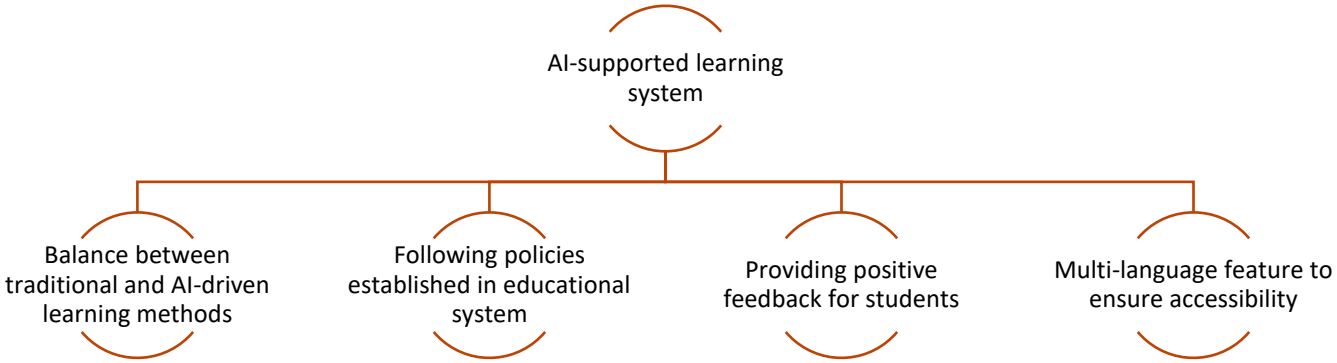

Figure 9. Summary of the results about AI-supported learning system

Ethical considerations

When talking about AI-supported learning systems, ethical considerations play an important role. The majority of participants agreed that data privacy is the main ethical concern. Since all AI tools are public, there is a high chance of data leaking, it is inappropriate to officially use AI in education without finding a solution to this problem. Another ethical concern is related to the content of shared data. It was already mentioned before, but a few respondents again emphasized this issue, because they strongly believe that it is crucial to make sure that students do not abuse AI or use it for malicious purposes. Finally, **40%** of interviewees suggested that fairness and discrimination are of considerable importance. For example, one participant commented: *"If we use AI for grading some assignments, we need to be careful, because it can raise concerns about the fairness and validity of evaluations"*. Even though the teacher's opinion might be biased when grading an assignment or exam, there is also a possibility that AI tools make mistakes. One participant stated that AI-driven tools tend to use stereotypes or make assumptions about things way too generally. Similarly, other responses to this question included: *"I think it is important to implement certain features into the AI-supported systems that can make them non-discriminative, because I feel like diversity and non-discrimination is like, are the important things"*.

Figure 10. AI in education

5 Discussion and conclusions

The research was conducted to assess the role of AI in education from students' perspective and gain a better understanding about Generation Z's expectations for this phenomenon. The chapter covers discussion and conclusion on answering research questions, implications for future research, and limitations of the research.

5.1 Answering research questions

The title of the research provides information about the primary purpose of this research. In this study, the aim was to investigate the expectations of Generation Z about artificial intelligence and its effects in the field of education as well as assess their feelings about the increasing development of AI and its future implementation.

The objectives of the research were met, and the research questions were answered. The answers to the research questions are presented below.

RQ1: What is the current role of AI in education?

Artificial intelligence is currently being used for educational purposes, however, teachers sometimes think about it in an old-fashioned way and do not always encourage students to use it, as it is considered plagiarism. Nevertheless, the students actively use AI tools to get new ideas on a topic or find a more comprehensible explanation of a certain subject. The participants of the interviews pointed out that the time-saving aspect of AI plays an important role for them, because they no longer need to spend time on finding synonyms or literary references for their assignments. The most important finding is that students are aware of the importance of proper attribution when using materials from the internet, and they understand that it is essential to use AI tools responsibly and without just copying and pasting everything thoughtlessly. Moreover, it was highlighted during interviews that AI assists teachers by doing routine tasks, such as grading, lesson planning, giving feedback to students, etc. Even though artificial intelligence is only being partially used in education, it has the potential to enhance learning experiences for both students and teachers, but there are still opportunities for development nowadays.

This finding supports information provided in the literature review chapter in subsection 2.2. For example, these results reflect those of Tahiru (2021) who also highlighted the ways in which AI can enhance learning processes. She stated that AI can provide smart tutoring for students and automate administrative tasks, such as grading and scheduling, allowing teachers to focus more on students' needs.

RQ2: How do learners feel about and assess the future of AI in the field of education?

The future of artificial intelligence caused both positive and negative feelings among participants. Several students expressed their concerns about the possibility of teachers being fully replaced by robots and AI, which could have adverse consequences and lead to the lack of human interaction, empathy, and personal contact during learning processes. However, it is worth mentioning that they still reported that they believe that there are possibilities to make AI implementation successful and beneficial for everyone, if it is used as an addition to teachers, and not as full replacement of them.

The majority of interviewed students feel optimistic about the possible upcoming changes that AI might cause in the future. They believe that AI has the potential to enhance learning experiences for both students and teachers by personalizing learning programs, completing repetitive and administrative tasks, and providing smart tutoring for students without teachers being included. In general, it can be stated that while students recognize the benefits of AI in education, careful consideration must be given to its implementation to ensure that it is advantageous, harmless, fair, and accessible to everyone, and under no circumstances replaces humans.

These results corroborate the ideas of Baidoo-Anu and Owusu Ansah (2023), who suggested possible advantages and disadvantages of the generative AI tool ChatGPT (subsection 2.2). As mentioned in the literature review, ChatGPT has such benefits as personalized tutoring, automated essay grading, language translation, and drawbacks, such as lack of human interaction, lack of creativity, dependency on data, and privacy.

RQ3: What elements should an optimal AI-supported learning system have?

AI-supported learning system is a complicated topic, however, several key features were highlighted during the research. First, balancing traditional learning methods and AI-driven methods is a crucial factor for success. AI-supported learning system cannot function without teachers' involvement because AI lacks emotions and empathy, which play an important role in human interaction. There are occupations that cannot be taught by AI due to practical skills, and teachers are needed for students' well-being and socialization, therefore, it is necessary to keep balance between teachers and AI tools when implementing AI-supported learning system.

Additionally, another significant element of an optimal AI-supported learning system is compliance with established policies in the educational system and ensuring control over information generated and shared by AI. For smooth operation of AI-supported learning system it is essential to avoid ways, in which students might take advantage of it and receive unwanted or inappropriate information. AI-supported learning system must also be accessible to everyone to prevent discrimination among students.

Finally, ethical considerations are of considerable significance when AI-supported learning system is implemented. Data privacy is the main concern, as AI-tools might have a high chance of data leaking. Another ethical implication is the potential for bias and discrimination, as AI tools tend to generalize information and use stereotypes. In a similar manner, those who were interviewed, suggested that ensuring fairness during grading processes done by AI, is another crucial ethical matter, which should be taken into account before introducing AI-supported learning system to education.

5.2 Theoretical & practical implications

The results of this research have shown that members of Generation Z are mostly optimistic about AI implementation in education, however, they believe that it is necessary to use it responsibly and consider certain ethical matters. The findings provide information about advantages and disadvantages of artificial intelligence in education, students' feelings about the future of AI, key elements of an optimal AI-supported learning system, and ethical considerations. Overall, these results match those observed in the literature review. As mentioned above, observations made by Tahiru (2021), Baidoo-Anu and Owusu Ansah (2023), Johnson (2019), and Joshi et al. (2021) are consistent with the results of the current study, therefore, this work contributes to the existing knowledge of artificial intelligence by providing support for the other studies.

This thesis provides teachers and students with a better understanding of artificial intelligence, its advantages, and disadvantages. The findings of this research have a number of practical implications. For example, the study suggests that AI implementation in education can significantly improve learning processes for both students and teachers, and this information can lead to increased productivity and enhanced academic experiences. Moreover, data about students' feelings about AI in education and their expectations towards this phenomenon can help to implement AI-supported learning systems effectively and make them beneficial and useful according to students' preferences and needs.

5.3 Assessment of research process & results quality

Overall, the research process from deciding on the topic to the final submission has taken around a year. There have been several disruptions throughout the process, which could slow down productivity, but the writer has managed to overcome them.

From the author's standpoint, the most challenging part of the whole research was creating the theoretical framework and writing Literature review. Since AI is a topic that is constantly changing and developing, it was rather difficult and time-consuming to find relevant and present-day resources. It was essential for the author that literary resources about artificial intelligence were as modern and present as possible.

The author responsibly followed ethical guidelines throughout the procedure, and all respondents remained anonymous during the entire process. In addition, the author's points of view and opinions were not included in the research and did not have any effect on the results and the study itself.

5.4 Limitations of the research

The current research has several limitations because of various reasons. First, all interviewees are either citizens or residents of Finland, that is, they are all living in Finland, although, some of them have international background. All participants are getting a bachelor's degree and studying in Finnish universities, thus, they had roughly similar learning experiences. These factors had an impact on their ideas and points of view, and similarities in their responses could have been caused by the fact that all respondents were from the same region. Moreover, more people could have been invited to participate in the interviews to collect more detailed and versatile data. The sample size of respondents may not represent the total population, which could result in possible bias in the results. Another limitation of the research is the fact that this research is based on people's personal opinions that can change or evolve over time. Therefore, the results may not accurately describe people's long-term perspectives, as personal opinions might be influenced by external factors.

5.5 Implications for further research

Artificial intelligence is a fast-growing matter that is rapidly developing and receiving a lot of attention in the modern world. AI is already affecting education and the world of work, and it will influence them significantly in the future. Thus, further research is needed to investigate this topic yet more, and this study can be used as a base.

First, a larger variety of participants would provide a deeper and more reliable understanding of the topic. As mentioned in 5.4, all respondents were university students in Finland, so the results are limited to one region. However, interviewing people with dissimilar academic experiences from different parts of Finland or different countries would ensure a clearer picture of the phenomenon. By dividing the results according to the cultural or academic background of participants, it could be possible to identify any potential patterns that may exist. More information on AI would help to establish a greater degree of accuracy on this matter.

Additionally, different methods of research could be used to collect more data. For example, combining surveys and semi-structured interviews would be the most effective way to gather more data and insights about the topic.

Finally, more valuable information could be collected from school and university teachers. They could share their opinions about how artificial intelligence currently affects education, and what teachers’ expectations are. Collecting this data could provide an opportunity to compare students’ and teachers' expectations for AI in education.

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Appendices

Appendix 1. Questions for Semi-Structured Interviews

1. From your perspective, how has AI currently impacted education, and what role does it play in education nowadays?
2. Could you share an example or experience of how AI affected your learning processes, either positively or negatively?
3. What are the possible advantages and disadvantages of increasing utilization of AI in education?
4. How do you assess the future of AI in education? What are your emotions about this phenomenon (e.g., scared, optimistic, excited, indifferent)?
5. In your opinion, how can we ensure that implementation of artificial intelligence goes smoothly and becomes as beneficial for students and learning processes as possible?
6. How can AI be used in the future to adapt education to the unique needs and preferences of individual learners?
7. What key features or elements do you think should an optimal AI-supported learning system have to improve the learning experience? Could you provide specific examples or ideas?
8. In your view, is it necessary to keep balance between AI-driven and traditional learning methods to achieve the highest possible productivity and effectiveness? Why? Why not?
9. What ethical considerations should be taken into account when designing and implementing AI-supported learning systems?

Appendix 2. Nodes created in NVivo