Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools in Educational Practices

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Dedication

This study is dedicated to those who have ever doubted their intelligence or questioned their ability to accomplish something difficult. May this work serve as a reminder that you are capable of far more than you realize, and that perseverance, not perfection, is what makes achievement possible.

Acknowledgement

I would like to express my heartfelt gratitude to those who supported me throughout this journey.

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Abstract

Artificial Intelligence (AI) has entered a period of rapid development, and tools, particularly generative AI (GenAI), are now more accessible than ever. Schools around the world are beginning to feel the impact as educators and students explore how to integrate these tools into teaching and learning. With countries like the United States and China prioritizing AI in education, it is more critical than ever for schools to think seriously about how to harness GenAI's potential to reduce teacher workload, support differentiation, and enhance student learning, while also mitigating risks associated with their use. This mixed-methods action research study was conducted within the Trinity Area School District and explored K-12 teachers' and building administrators' perceptions of GenAI in educational practices, serving as a foundational step in developing an AI implementation plan for the district. Guided by the Technology Acceptance Model (TAM), the study found that Perceived Usefulness (PU) was a statistically significant predictor of teachers' intent to use GenAI, while Perceived Ease of Use (PEOU) was not. For administrators, neither PU nor PEOU significantly predicted intent to adopt. Demographic variables showed no significant influence, but prior experience with GenAI tools was a significant predictor of adoption intent. Both teachers and administrators held moderately positive perceptions of GenAI, highlighting an opportunity to build momentum through focused support. The study concludes with insights to guide AI integration planning and offers direction for future research aimed at fostering responsible, meaningful adoption in K-12 education.

CHAPTER I

Introduction

Schools bear the responsibility of embracing emerging technologies to create educational experiences that are engaging, equitable, and tailored to the diverse needs of students. Among these technologies, artificial intelligence (AI) holds significant potential to transform education by providing personalized learning opportunities, enhancing student outcomes, and reducing teacher workload.

In addition to its role in reshaping teaching and learning, the rapid integration of AI across various industries underscores the importance of equipping students with proficiency in digital tools, including AI, to prepare them for future career success. However, as AI remains a relatively new and evolving addition to the educational environment, the first step toward maximizing its potential is preparing teachers. Educators must develop the skills and confidence to leverage AI as both a tool to enhance their educational practices and a subject to prepare their students. Without a deliberate and strategic approach to integrating AI into education, the Trinity Area School District (TASD), located in Southwestern Pennsylvania, risks missing the opportunity to empower both students and teachers to thrive in an increasingly technology-driven world.

Background

Artificial Intelligence (AI), a rapidly evolving field encompassing computer systems designed to perform tasks that typically require human intelligence, is comprised of various technologies and subfields (Brühl, 2024). Among these, generative artificial intelligence (GenAI) is taking the world by storm, particularly in its potential to revolutionize various sectors, including education (Meli et al., 2024). Since the launch of

ChatGPT in November 2022, GenAI has captured global attention due to its unique capability to generate human-like text, images, and other content based on user prompts, offering particularly promising applications for the educational sector (Cao et al., 2023). This breakthrough has spurred the development of similar tools, including GPT-4, Codex, DALL-E-2, and Gemini, and has expanded to include GenAI tools specifically developed for education, such as StretchAI, Magic Schools, and Diffit for Teachers, highlighting the significant impact of GenAI on the teaching and learning landscape.

GenAI tools have the potential to serve multiple functions within the educational realm, benefiting both teachers and students. For educators, GenAI can function as a digital assistant, reducing their workload through the automation of tasks such as generating lesson plan content, suggesting teaching methodologies, and assessing learning outcomes (Kehoe, 2023). Additionally, GenAI can supplement teachers' feedback by providing generated responses, offering more timely feedback, and saving teachers, valuable time. This allows teachers to focus on more personalized instruction while maintaining a dynamic and responsive learning environment (Pahi et al., 2024). For students, tools like ChatGPT can enhance learning experiences by acting as virtual tutors, providing personalized recommendations, answering questions, and offering essay writing suggestions (Su & Yang, 2023).

While these technologies can positively impact students' and teachers' educational experiences and help them address instructional challenges and concerns, they also pose substantial risks, including privacy, surveillance, autonomy, and bias and discrimination (Akgun & Greenhow, 2022). The US Department of Education's Office of Educational Technology (2023) highlights the critical need for a balanced approach to

harness these benefits while mitigating potential harm. This underscores the need for schools to govern the use of AI through the provision of policies and professional development.

With the novelty and rapid advancement of AI in education and limited guidance from state and federal governments, school leaders are challenged with making decisions about what uses of AI to allow in their schools and under what conditions (Borasi et al., 2024). In my role as the district's Director of Technology and Innovation, I am uniquely positioned at the intersection of these challenges. Building administrators, central office administrators, educators, and school board members look to me for guidance on how to best approach AI in the educational setting. This responsibility underscores the urgency of my work to ensure new technologies are effectively leveraged to enhance teaching and learning while safeguarding the interests of both students and educators.

Capstone Focus

In schools, teachers' perspectives are crucial for making sense of innovative technologies (Chiu, 2023). However, there is a significant gap in the literature regarding how GenAI tools are perceived by educators and administrators, especially within the K-12 context in the United States, and particularly in Pennsylvania. Choi et al. (2023) conducted one of the first empirical evaluations identifying educators' perceptions of educational AI technologies within the context of South Korea. This lack of research into teachers' perceptions and attitudes toward GenAI in educational practices limits the ability of school districts within Pennsylvania and the broader United States, such as the TASD, to develop policies, professional development programs, and curriculum initiatives that effectively meet the contextual and unique needs of teachers and students.

Educational practices encompass a wide range of activities, including lesson and assessment development, curriculum design, instructional strategies, classroom management, and the use of educational technology. The integration and governance of GenAI tools are essential not only for increasing efficiency in these areas but also for enhancing educational practices and preparing students with the skills necessary for the twenty-first century. Moreover, safeguarding against risks such as privacy, surveillance, autonomy, and bias and discrimination is crucial.

This study seeks to fill this research gap in literature by exploring the perceptions of K-12 teachers and administrators towards GenAI in educational practices. This study aims to inform TASD's strategic approaches to integrating this emerging technology effectively, ultimately developing effective policies and professional development programs that address the unique needs of teachers and students.

Research Questions

This capstone study focused on the following research questions:

Research Question 1: What are K-12 teachers' and building administrators' perceptions of using GenAI in educational practices as measured by the Technology Acceptance Model Likert scale responses to perceived levels of usefulness and perceived levels of ease using descriptive statistics?

Research Question 2: In what ways do perceptions of GenAI in educational practices differ between K-12 teachers and building administrators as measured by a regression analysis of the Technology Acceptance Model Likert scale responses?

Research Question 3: How do demographic features (age, gender, role, building level, years of experience, and prior experience using GenAI) influence K-12 teachers'

intent to use GenAI tools as measured by applying multiple regression analysis to the Technology Acceptance Model (TAM) Likert scale items?

Research Question 4: What factors do K-12 teachers identify as influencing their decisions to adopt or avoid using GenAI tools in their educational practices as measured by a content analysis of their open-ended survey responses?

Expected Outcomes

As AI in education is a rapidly evolving field, this capstone study provides much-needed insights for district administrators as they begin to explore how to integrate AI into classrooms. By exploring K-12 teachers' and building administrators' perceptions and acceptance of GenAI tools, this study offers a foundation for understanding teachers' and building administrators' current beliefs, concerns, and intentions regarding the use of AI in their teaching and leadership practices.

A positive outcome of this study will inform the TASD's AI implementation plan by ensuring that professional development and policies are based on the actual perceptions of teachers and administrators, rather than assumed perceptions. By addressing concerns and gaps in knowledge and confidence, the district will be better positioned to support teachers in using AI to enhance instruction, reduce workload, and create personalized learning experiences for students.

Fiscal Implications

The fiscal implications of conducting this study are minimal, with expenses primarily limited to the cost of the survey tool. However, the majority of financial considerations will emerge following the study, as its findings will inform the development of a phased, multi-year implementation plan. The scope and scale of this

plan will be carefully tailored to align with available funding opportunities and district priorities, ensuring a strategic and sustainable approach to AI integration.

Initial implementation costs fall into three budget categories: salaries and retirement contributions, software, and professional services for instructional staff development. These funding areas will support the acquisition of AI enabled software to enhance teaching and learning, job-embedded professional development to support teachers in integrating AI effectively into their classrooms, and professional learning seminars and stipends for teachers and administrators to attend additional AI-related training opportunities. The thoughtful and intentional development of an AI implementation plan, combined with adequate financial investments, will ensure TASD remains at the forefront of educational innovation and adequately prepares its students for an AI-driven future.

Summary

The purpose of this action research was to explore teachers' and building administrators' perceptions of GenAI in educational practices to inform TASD's strategic approaches to integrate GenAI into classrooms effectively, fostering policies and professional development programs that address the unique needs of teachers and students. Chapter 1 outlined the study's rationale, significance, and background. Chapter 2 builds on this foundation with a synthesis of existing literature, exploring key themes and research related to educational technology, GenAI in educational practices, and educators' perceptions and adoption behaviors, establishing the scholarly basis for the study.

CHAPTER II

Literature Review

To ensure a thorough understanding of the current research on K-12 teachers' and administrators' perceptions of Generative AI (GenAI) tools in educational practices, a methodical approach was employed to collect and review relevant literature on technology in schools, with a focus on Artificial Intelligence (AI). The literature review process involved searching multiple academic databases, including EBSCOHost, ProQuest, SpringerLink, using key terms and Boolean phrases such as ("Artificial Intelligence" OR "AI") AND ("Education" OR "Schools" OR "K-12" OR "Primary" OR "Secondary"). Although much of the research on AI in schools has emerged over the past two years, the search prioritized peer-reviewed articles and conference papers published within the last twenty years to capture both historical and contemporary perspectives. Examining literature as far back as 2004 allowed for a comprehensive view of how technology in schools has evolved.

To produce a cohesive story, the collected literature was examined and arranged thematically. The review begins with a Historical Overview of Technology Integration in Schools, detailing key developments from the early use of digital tools to present-day AI advancements. This is followed by Transforming Learning Through Educator Preparation, which emphasizes the importance of teacher training for effective technology use and highlights the efforts of organizations dedicated to supporting educators in navigating digital landscapes.

The review then transitions to the emergence of AI in Schools, discussing AI broadly and narrowing to Generative Artificial Intelligence in schools. This is followed

by Global Approaches to Artificial Intelligence in Education, focusing on countries who declared interest in leading in the global AI race. The section on Generative Artificial Intelligence and Educational Practices examines the opportunities and risks associated with GenAI, while The Technology Acceptance Model: A Framework for Understanding AI Adoption in Education presents TAM as a theoretical lens for understanding GenAI adoption.

Finally, the review addresses Teachers' and Administrators' Perceptions of Generative Artificial Intelligence and the importance of Educator Professional Development, concluding with The Path Forward, which outlines implications for future research and practice. This structure connects past and present trends to emerging challenges and opportunities brought forth by the emergence of AI in education.

A Historical Overview of Technology in Schools

Technology has been an integral part of classrooms since the early 20th century, with tools such as overhead projectors, radio broadcasts, copy machines, and calculators being used to support student learning. As technology has evolved, so too has its influence on education, transforming both the classroom environment and teaching practices. In modern classrooms, technological tools have replaced equipment previously associated with classroom settings. For example, chalkboards and whiteboards have been replaced with interactive touchscreen televisions, bringing previously hand-written information to life with videos, animations, and multimedia content that can be easily edited.

The evolution of educational technology is part of a broader societal transformation being referred to as the Fourth Industrial Revolution. Rotatori et al. (2021)

describes this revolution as the merger of the physical, digital, and biological worlds, driven by innovations such as 3D printing, robotics, and the Internet of Things. These advancements are reshaping industries, including education, with AI playing a central role in this shift. AI is now being integrated into classrooms around the world, offering new ways to personalize student learning, automate routine tasks for teachers, and provide data-driven insights to enhance instructional practices.

The expansion of AI and its potential to transform education highlights the need to prepare students and teachers for a technology-driven future. The purpose of this action research study is to explore K-12 teachers' and administrators' perceptions of GenAI tools in educational practices to inform professional development and support systems that will enable schools to harness the benefits of AI while mitigating the risks associated with its use and implementation.

The Internet in Schools

The advent of the internet in the mid-1990s marked a critical turning point, fundamentally altering the ways in which schools' access, deliver, and engage with information. It spurred the widespread integration of information technology to enhance student learning, including the adoption of web-based tools, the expansion of high-speed broadband, and the use of emerging digital platforms that fostered interactive learning experiences (Cairns & Malloch, 2017). Now regarded as an essential component of school infrastructure, the internet is supported by initiatives like the federal E-rate program, which helps subsidize costs associated with internet access and necessary equipment. In parallel, the proliferation of personal computing devices, such as laptops and digital tablets, has further reshaped classroom dynamics through 1:1 programs and

bring-your-own-device (BYOD) initiatives, which ensure that each student has their own computing device. With each student using their own computing device, education was transforming as students found new ways to collaborate, share, and access information, changing not only instructional delivery but also how both teachers and students engaged and interacted with learning materials (Zheng et al., 2016).

Over the past three decades, the internet has evolved from slow, hardwired connections transmitted through phone lines to high-speed networks supported by fiber-optic backbones. In schools, improved connectivity, including high-speed internet and wireless capabilities, alongside the increased affordability and advancement of computers and laptops, have rapidly expanded the demand and utilization of technological tools in school settings. These digitally enhanced tools now support not only building infrastructure such as fire alarms and Heating, Ventilation, and Air Condition (HVAC) systems, security features such as access controls and cameras, and administrative functions such as student information systems, but also directly influence teaching and learning (Halverson & Smith, 2009). Technology now plays a vital role in a variety of manners with clerical tasks such as grading, attendance, and managing student information, while simultaneously enhancing student engagement and serving as a platform for teaching technology itself. As Ghory and Ghafory (2021) note, technology has revolutionized education by making teaching and learning more dynamic, engaging, and efficient.

A range of educational software and applications, such as learning management systems, collaborative document editing software, and interactive learning tools, have been developed as a result of technology's capacity to enhance learning environments.

These tools offer students the opportunity to interact with learning concepts in a digital and interactive manner, receive feedback from instructors and peers, and access resources and assignments. Due to the rapid proliferation of digital learning aids, schools have divided technology into two distinct categories: educational technology and information technology. The hardware, software, and networking technologies that facilitate connectivity and data management are together referred to as information technology. On the other hand, educational technology focuses on the tools, processes, and strategies specifically designed to enhance learning experiences (Huang et al., 2019). While information technology supports administrative functions, educational technology transforms pedagogy through a holistic approach that incorporates learning theories and educational research (Koh & Lim, 2008).

This distinction between information technology and educational technology reflects broader shifts in how technology influences not only school operations but also how students engage with the world. The internet's impact extends far beyond administrative functions; it has fundamentally altered how children grow, learn, and interact. Prensky (2001) introduced the term "digital natives" to describe students born into a world where the internet has always existed. Unlike "digital immigrants," who had to adapt to the digital age, digital natives have been immersed in technology from a young age and are inherently fluent in technology. This concept has evolved beyond technical proficiency; the internet has contributed to shifts in cognition and the way students process information. Nicholas et al. (2004) argue that the internet has given rise to a new cognitive model for acquiring knowledge, significantly shaping how students interact with and absorb information. Although this cognitive model was not formally

named, it is characterized by an approach rooted in trial and error, reflecting the exploratory and iterative nature of learning facilitated by the internet. More recently, digital intelligence, encompassing skills such as computational thinking (CT) and digital literacy, has emerged as a crucial set of competencies for thriving in the modern world (Stiakakis & Barboutidis, 2022).

The Proliferation of Digital Devices

As the world becomes more technologically advanced, schools must work to align their instructional practices with the needs of modern students to prepare them for success in a technology-driven society. One of the most significant educational technology related shifts in schools has been the widespread adoption of 1:1 technology initiatives. 1:1 initiatives provide each student with a personal computing device, such as a laptop, tablet, or Chromebook. These programs have been widely adopted due to their ability to personalize learning, enhance student engagement, and provide equitable access to digital resources. According to Powers et al. (2020), 1:1 technology is primarily implemented to promote digital literacy, collaboration, and more efficient forms of student assessment. With 1:1 programs in place, schools can adopt complementary tools such as learning management systems and collaboration software, creating a digital environment that supports both instructional goals and administrative tasks.

Although educational technology can serve as a tool for delivering instruction, its true value extends far beyond content delivery. Educational technology provides opportunities to improve students' learning experience by promoting engagement, personalizing learning, providing real-time feedback, and fostering collaboration through interactive tools. Additionally, meaningful interactions with technology facilitated by 1:1

devices can promote the development of 21st-century skills such as critical thinking, digital literacy, collaboration, and communication (Kaufman, 2013). Lei and Zhao (2008) investigated the influence of personal computing devices on student learning in their 2008 study, which examined the implementation of a 1:1 initiative. The study discovered that students in 1:1 environments utilized laptops in a variety of innovative and diverse ways, including completing assignments, undertaking research, communicating with peers, and exploring their interests. In essence, the 1:1 environment facilitated learning experiences that would have been challenging or impossible without the use of such technology. Their results indicate that the provision of a personal device to each student significantly improves technology proficiency by providing a plethora of opportunities to acquire and implement technology skills in a variety of contexts, such as communication, exploration, and creative expression (Lei & Zhao, 2008).

Providing students with computing devices alone is not enough; to successfully integrate technology and promote the development of 21st-century skills, teachers must first develop proficiency using technology. Such proficiency entails the ability to use digital tools to communicate professionally, organize information, produce high-quality work, and enhance critical thinking skills (Saad & Sankaran, 2020). According to Eskici and Cayak (2023), a teacher's level of technology proficiency is a significant predictor of their ability to effectively incorporate these digital tools into their lessons. Their study, conducted through the administration of a quantitative survey, examined the relationship between teachers' technology proficiencies and their levels of integrating technology into their classrooms. The findings revealed that teachers with higher levels of technological skills were both more confident with and more consistent in integrating digital tools into

their classrooms to enhance student engagement, foster collaboration, and develop critical thinking. Conversely, teachers with lower technology proficiency levels struggled with incorporating technology meaningfully, often relying on traditional methods or facing barriers to effective technology integration (Eskici & Cayak, 2023).

While developing technology proficiency is essential for teachers to effectively integrate digital tools and promote 21st-century skills, the extent of this proficiency can be influenced by the availability and consistent use of technology in the classroom. The widespread adoption of 1:1 initiatives has likely contributed to increased technological proficiency among educators, as teachers in 1:1 schools report higher levels of personal technology competency and integration compared to those in classrooms without 1:1 computing devices (Sauers & McLeod, 2018). In their 2018 study, Sauers and McLeod employed multiple data collection methods, including online surveys administered to teachers, to examine the influence of 1:1 programs on educators' self-reported technology integration and proficiency. By gathering feedback from teachers in both 1:1 schools and schools without 1:1 computing devices, they identified significant differences in technology use and confidence levels. The findings demonstrated that teachers in schools with 1:1 student device initiatives consistently reported greater personal technology competency and more frequent integration of digital tools in their classrooms compared to their counterparts in non-1:1 settings (Sauers & McLeod, 2018). This suggests that access to individual devices not only enhances educators' comfort and skills with technology but also encourages more robust and innovative instructional practices.

Enhancing Learning Through Educator Preparation

As schools continue to embed emerging technologies into teaching and learning, educators must move beyond basic proficiency with technology and develop pedagogical strategies that effectively leverage digital tools to enhance student learning outcomes. To support and champion the integration of technology in classrooms, international organizations such as the International Society for Technology in Education (ISTE), the Association for Educational Communications and Technology (AECT), and the Consortium for School Networking (CoSN) have been established. These organizations understand the potential for technology to transform education by making learning more engaging, personalized, and relevant for today's digital native students. To advance this mission, these organizations offer professional learning courses, publish journals and magazines, and host conferences and expert webinars.

However, even with the backing of large international organizations, the promise of transforming education through technology can only be realized if teachers are professionally trained to adopt and implement these tools. The process of integration is rarely straightforward. For example, the introduction of the internet in education sparked two opposing attitudes: enthusiasm or resistance (Kumari, 2022). While some educators embraced the internet's potential to revolutionize teaching and learning, others expressed concerns about its disruption to traditional practices. A similar pattern emerged with the adoption of 1:1 computing initiatives, where the introduction of student devices has rarely led to significant changes in classroom practices (Tallvid, 2016). Teachers' reluctance to embrace 1:1 computing often stems from technical, pedagogical, and content-related concerns (Tallvid, 2016).

In an ethnographic case study using both observations and individual interviews, Tallvid (2016) explored the hesitation among teachers to use student laptops for instruction in a secondary school setting during a 3-year 1:1 laptop implementation initiative. The study focused on the in-service training provided to educators and identified five key factors contributing to their reluctance: limited technical skills, skepticism about the value of integrating laptops, insufficient teaching materials, perceived loss of classroom control, and inadequate time for effective integration. These findings underscore the importance of addressing both technical and pedagogical barriers to better support teachers as they adapt to new technology.

Such challenges are not unique to Tallvid's case study; failures in 1:1 programs have frequently been linked to the rollout process (Hershkovitz & Karni, 2018). Inadequate training often exacerbates existing resistance or leads to program failures, leaving teachers uncertain about how to leverage these new tools effectively (Hershkovitz & Karni, 2018). This pattern of mixed reactions also extended to other digital tools for classroom management and collaboration, where resistance was often rooted in uncertainty about how these technologies would influence the educational environment, compounded by insufficient professional development.

Across various technological advancements, from the onset of the internet to 1:1 computing and other initiatives in between, one clear lesson has emerged: the effective implementation of technology is closely tied to teachers' beliefs and perceptions about the digital tool. The success of any program hinges on the rollout strategy, underscoring the need for pedagogy-driven approaches in teacher professional development on technology (Hershkovitz & Karni, 2018).

Much like the transformative effects seen with the internet and 1:1 technology, the emergence of AI, particularly GenAI, holds immense potential to revolutionize education (Meli et al., 2024). As the educational sector stands on the precipice of transformation, schools must carefully consider teachers' and administrators' perceptions of AI when developing an implementation plan. Understanding the perceptions of key stakeholders allows planners to incorporate the insights of those working directly with students. This approach helps address concerns and misconceptions while ensuring the plan is practical and aligned with the needs of both students and educators.

A Historical Overview of Artificial Intelligence in Education

In 1956, computer scientist John McCarthy coined the term "artificial intelligence" during a Dartmouth College conference (McCarthy et al., 2006). Although AI is complex, at its core, it refers to computer systems that can perform tasks previously requiring human intelligence. These tasks include learning, reasoning, problem-solving, and decision-making. AI is a broad term that encompasses many sub-branches of AI like machine learning, natural language processing, and deep learning. As the sub-branches have advanced, AI features have been progressively incorporated into commonplace technology like online chatbots, cellphones, email spam filtering, autonomous cars, and navigation tools. AI's diverse variety of applications and use cases opens the door for its expanding applicability in education.

AI has been integrated into a number of educational technology programs without being explicitly labeled as AI for many years. Among these programs are adaptive learning platforms, web-browser monitoring tools, facial recognition systems, and plagiarism detection tools which have been used to enhance classroom safety,

management, and instruction. With the increasing availability of AI-powered tools such as chatbots and instructional assistants, AI is moving from a behind-the-scenes facilitator to a more visible and impactful player in education.

Academic database searches reveal that research on AI in education first emerged in the 1960s with research primarily focusing on automation and computer-based instruction. The 1980s showed an increasing emphasis on computer-assisted learning in which the concept of computers not only in classrooms but also as "teachers" was introduced. Education literature from the mid-1980's highlighted the use of AI infused educational software, particularly in higher education and training and development journals. Literature on AI in K-12 education first appeared in the 1990s when AI decision-making software entered the scene. Since the introduction of adaptive learning tools, AI decision making has continuously improved allowing it to be more effective in tailoring instructional content to meet the needs of individual students. Now entering the stage is GenAI, making its appearance in research databases in 2023. The emergence of GenAI notably marks a new era of AI in education, driven by content creation and personalized educational experiences.

Generative Artificial Intelligence in Education

Although AI has been implemented into technology over the past few decades, the rise of GenAI elevated AI to a central position, sparking public conversations about its promise and risks across many spheres of life. Unlike traditional AI systems that simulate human intelligence by using predefined rules, GenAI uses advanced neural networks to analyze patterns in expansive datasets and generate original content like text, images, and audio. The computer system's ability to produce information allows it to

respond and converse in a way that is more like human-to-human communication than human-computer contact. The first publicly available GenAI tool, ChatGPT, was released by OpenAI in November 2022 (OpenAI, 2022).

After ChatGPT was released, GenAI swiftly became the subject of extensive discussions and debates across various fields, including education. Its capabilities, such as interacting with users and generating original responses, have sparked both excitement and concern. In the realm of education, GenAI offers a powerful tool for automating tasks, supporting creativity, and enhancing learning experiences. However, it also raises challenges such as the potential for misinformation, bias, ethical dilemmas, and academic integrity concerns, particularly where the distinction between student-produced work and AI-generated content can become blurred.

In the months following ChatGPT's release, a wide range of GenAI tools have been introduced to the public at an unprecedented pace, many specifically designed for use in education. Tools such as MagicSchool (MagicSchool, n.d.), which generates personalized lesson plans and provides recommendations for clerical tasks like drafting parent emails and preparing special education documents, and Diffit for Teachers (Diffit for Teachers, n.d.), which adapts reading passages to different levels, translates resources into various languages, and automates the creation of differentiated instructional materials, have quickly gained traction among educators. These tools aim to streamline lesson planning, grading, and content creation, freeing teachers to focus more on interactive and student-centered activities.

With the advent of GenAI tools, AI is now recognized as a sub-branch of educational technology (Brühl, 2024), marking a significant shift from traditional tools

toward more advanced, autonomous systems that can adapt to the needs of learners. AI differs from earlier technological advancements, such as the internet and personal computing devices, because it not only delivers content but also adapts instruction in real-time based on learner data (Zawacki-Richter et al., 2019). This adaptability is a key reason why AI is expected to transform education in profound ways.

Unlike traditional educational technology tools such as learning management systems and online assessments, AI systems can quickly analyze large datasets in real-time, identifying patterns and adjusting instructional content to suit the learner's progress, pace, and preferences (Zawacki-Richter et al., 2019). Personalized learning experiences are one of the most promising applications of AI in education. In addition, AI-supported instruction automates tasks such as grading and attendance, which allows teachers to spend less time on clerical tasks and focus more on students.

Although AI has tremendous potential to transform education, its integration into classrooms is not without significant challenges. In the same way that schools faced uncertainty with the introduction of the internet and personal devices, AI brings new concerns about data privacy, the loss of human oversight, and the possibility of bias in AI-driven decision-making. Many of these issues remain significant barriers to widespread adoption, particularly in education, where ethical considerations and student data security are paramount. Considering GenAI's relative newness in schools, governments, educators, and policymakers worldwide are trying to determine how to best respond to these challenges while harnessing AI's transformative power. Globally, countries are developing frameworks and strategies for integrating AI into education, with each adopting specific approaches based on their own needs and resources.

Global Approaches to Artificial Intelligence in Education

AI has far-reaching implications, extending beyond individual sectors like education, as nations position themselves to become global leaders in this rapidly evolving field. The proliferation of AI technologies is not just shaping industries but is said to be altering the world order in international relations (Vijayakumar, 2023). The competition between countries, corporations, and educational institutions to lead in the development and application of AI technologies is referred to as the Global AI Race. This race, which is considered part of the broader Fourth Industrial Revolution (Rotatori et al., 2021), is expected to pave the way for another rise and fall of great powers. The United States, China, and Russia have been identified in the literature as race contenders, each striving to emerge as dominant players in this global AI race (Vijayakumar, 2023). These nations are motivated by the potential of AI to both enhance economic productivity and bolster military capabilities. Additionally, the United Kingdom, while not necessarily viewed as a superpower in AI, has committed substantial investments toward becoming a global leader in AI (UK Department for Science, Innovation, and Technology, 2023).

Integrating AI into schools is a key part of these nations' national strategies for leading the global AI race. By incorporating AI into education systems, these countries strive to create environments that promote AI literacy, in turn developing a workforce skilled in AI and equipped to drive innovation. In line with this objective, countries are developing national education policies and curricula that emphasize AI as an important field of study as well as a tool to improve student learning. Furthermore, countries are developing their own guidelines, frameworks, and policies for integrating AI into their education systems.

This section provides an in-depth look at how AI is being integrated into educational systems in four key nations: The United Kingdom, Russia, China, and the United States. These countries were selected for their substantial advancements in AI technologies and their influence on the global stage. Examining their approaches to AI in education offers valuable insights into how AI can be leveraged to address educational challenges, enhance learning outcomes, and prepare students for an AI-driven future.

AI in the United Kingdom

The United Kingdom (UK) has set an ambitious goal of becoming a global leader in science and technology, with a special emphasis on AI, by 2023. The UK government is working towards this goal by committing substantial funding and establishing a Frontier AI Task Force (UK Department for Science, Innovation, and Technology, 2023). The objective of the task force is to ensure that the UK develops sovereign capabilities in AI while simultaneously promoting safe and reliable adoption of GenAI tools.

In August 2023, the Department for Science, Innovation, & Technology, in conjunction with the Office for Artificial Intelligence, released a white paper titled A Pro-Innovation Approach to AI Regulation. The white paper outlines the UK's strategy for striking a balance between fostering AI innovation and ensuring public trust by addressing the ethical challenges posed by these technologies.

In its October 2023 white paper, the UK Department of Education highlighted the importance of schools integrating GenAI technologies into their classrooms while also ensuring that students acquire the critical thinking skills required to effectively assess the reliability of AI-generated information (Gov.UK, 2023). The white paper also addresses further critical challenges, including the importance of preventing students from

becoming overly dependent on AI tools, the potential for bias in AI systems, and the necessity of ensuring online safety. Overall, the UK government is adopting a centralized strategy to harness the benefits of GenAI and to equip students with the knowledge and skills required to utilize GenAI technologies responsibly and effectively (Gov.UK, 2023).

AI in Russia

Russia declared its intent to enter the global race to develop AI in 2017 (Petrella et al., 2021). Despite this declaration to become a world superpower in AI, the current state and future prospects of AI research, development and application in Russia are weak and weakening (Dear, 2019). Unlike other countries, Russia has taken a different approach to AI innovation by relying on state-owned enterprises rather than government or privately-owned entities (Petrella et al., 2021). For example, the United States depends on technology companies such as Google and Microsoft to drive AI innovation. While Russia does have a privately-owned technology company, Yandex, it has been sidelined due to governmental distrust. Without a private technology company as an option, Russia has tasked Sberbank, a state-owned bank, with leading the development of Russia's AI strategy (Petrella et al., 2021).

Many years behind other nations in the global AI race, Russia's first publication related to AI in education was not released until July 2024. Addressing the use of AI in higher education, this publication fails to address the use of AI in K-12 schools (Artificial Intelligence of the Russian Federation, 2024). The official Artificial Intelligence of the Russian Federation website does not provide a framework for technology in education. It does include a program for students in Grades 8-11 to participate in a program called the All-Russian Olympiad (Artificial Intelligence of the Russian Federation, n.d.). Based

upon the limited information, Russia does not provide resources or guidance on fully embracing AI in basic education.

AI in China

China has emerged as a global leader in the integration of AI across multiple sectors, including education. The country's commitment to AI is outlined in its 2017 national strategy, the New Generation Artificial Intelligence Development Plan, which highlights AI as a core component of future national development. This plan outlines the role AI will play in transforming various industries, with a strong emphasis on education. The Chinese government has articulated goals such as developing AI-driven education platforms, creating a learner-centered educational environment, and offering precision-deployed education services that cater to both daily and lifelong learning needs (Stanford University, 2017).

One of China's key strategies is to leverage its centralized authority to mandate AI education in its high school curriculum, requiring all high school students to study AI as part of their graduation requirements. The Ministry of Education (MOE) has also taken steps to facilitate collaboration between AI companies and educational institutions to strengthen the nation's AI talent pipeline. Chinese universities and technology firms are partnering to offer joint training programs that align industry needs with higher education. As of 2023, China's MOE announced the establishment of 184 AI education bases across primary and secondary schools, designed to serve as hubs for promoting AI education. These AI bases are a cornerstone of China's strategy to integrate AI into the educational system, with an emphasis on expanding educational resources and teacher training (Peterson et al., 2021; The State Council: The People's Republic of China, 2024).

China's centralized approach allows it to rapidly implement AI technologies in schools, requiring AI companies to partner with educational institutions to train students in AI technologies. These partnerships, along with the mandated inclusion of AI education in high school curricula, illustrate China's commitment to preparing its students for the emerging AI-dominated global landscape. Furthermore, the MOE's approach includes enriching the content of general technology courses with AI components and ensuring that teachers are adequately trained to deliver AI-related instruction. This comprehensive integration of AI into both basic and higher education is designed to build a workforce equipped with the skills needed to maintain China's competitive edge in the global AI race (Stanford University, 2017; The State Council: The People's Republic of China, 2024).

China's proactive efforts to embed AI into education at all levels contrast with the more cautious approaches seen in other nations. Its strategy reflects a broader, state-driven vision of harnessing AI to not only transform education but also boost the nation's economic and technological standing in the global AI race.

AI in the United States of America

Through governmental legislation, the United States (US) has already taken significant steps toward integrating AI into education. The first AI related executive order, The American AI Initiative, was established by President Donald Trump in 2019. The primary objectives of this order were to establish ethical standards for AI development, promote AI education and training, and enhance AI research and development (Exec. Order No. 13859, 2019). This order acknowledged the necessity of

incorporating AI-related content into K-12 education to equip the future workforce with the necessary skills to thrive in an AI-driven economy.

Building upon this foundation, President Joe Biden's administration took further steps for advancing AI in 2021 when they created the National AI Task Force. The primary objectives of this task force are to create a comprehensive strategy for incorporating AI into critical sectors, including education, and to expand the national AI research infrastructure (The White House, 2021). This task force, in collaboration with the US Department of Education, seeks to ensure that AI technologies are leveraged in schools to enhance student learning, improve educational equity, and address the digital divide.

In 2023, the US Department of Education published a white paper report that outlines the potential for AI to transform educational practices through personalized learning, curriculum design, and administrative efficiency. Highlighting both the opportunities and challenges associated with AI integration in K-12 education, the white paper stresses the importance of equipping educators with the necessary skills and tools to effectively use AI in the classroom. Among the recommendations were training programs to build educators' proficiency in using AI-driven platforms, data analysis tools to track and respond to student progress, and ethical guidelines for the responsible use of AI in education. Furthermore, the report called for increased funding dedicated to AI research in K-12 education and the development of AI-powered tools designed to enhance learning and address varied student needs.

Summary of Global Approaches to Artificial Intelligence in Education

The integration of AI in education has been approached differently by countries such as the United States, United Kingdom, China, and Russia, each with unique priorities and frameworks. The U.S. emphasizes equitable access and ethical standards, supported by federal task forces and collaborations with educational institutions to ensure responsible AI adoption. The UK, through its regulatory focus, aims to balance innovation with safety, promoting responsible AI integration in schools. China's large-scale, centralized approach mandates AI education at all levels, combining national policy with extensive partnerships between schools and AI companies. Russia's progress, although slower, underscores the potential role of state-owned enterprises in developing AI infrastructure, even if AI's integration into education remains limited.

While these countries may not share direct collaborations in AI educational strategies, their diverse approaches highlight valuable lessons for the global education sector. The ethical considerations emphasized by the U.S. and UK, combined with China's large-scale implementation, offer complementary perspectives. By drawing on these strengths, ethical AI usage, innovative regulation, and scalable implementation models, educational systems worldwide can explore meaningful pathways to integrate AI. Each nation's distinct approach contributes to a broader understanding of how AI can be leveraged to enhance learning outcomes and better prepare students for an AI-driven future.

Generative Artificial Intelligence and Educational Practices

GenAI is rapidly becoming a focal point in education due to its versatility and wide-ranging applications in schools (Cao et al., 2023; Meli et al., 2024). Although

literature on GenAI in the educational context only began emerging in 2023, it highlights the potential for teachers to effectively leverage GenAI to support various aspects of their professional responsibilities. These responsibilities include lesson planning, creating resources and assessments, providing instructional support during class, and even offering tutoring and fostering student engagement beyond the classroom. In this context, "educational practices" related to GenAI encompass a broad range of professional tasks undertaken by teachers or administrators, spanning from instructional activities to administrative and clerical duties.

The integration of GenAI into these practices presents numerous opportunities, but also considerable risks (Powell & Courchesne, 2024). As educators and administrators increasingly adopt these technologies it becomes critical to understand both the advantages and challenges of their use. By cultivating this awareness, schools can implement GenAI thoughtfully to maximize its potential benefits while mitigating associated risks and unintended consequences. The existing literature offers limited but growing evidence on the impact of these wide-ranging practices, often suggesting improvements through professional development, clear ethical guidelines, and strategic implementation measures. Moving forward, research must continue to refine targets for improvement and develop evidence-based strategies to ensure GenAI effectively supports educational goals.

Opportunities and Risks Associated with Generative AI in Schools

GenAI offers significant opportunities to streamline and enhance educational practices for teachers and administrators by automating time-consuming tasks and enabling personalized learning experiences. One of the primary advantages of GenAI

tools is their ability to function as digital assistants, effectively reducing the administrative workload that often detracts from instructional time. For example, GenAI-powered systems can manage tasks like grading, data entry, assessment generation, and lesson planning, allowing educators to shift their focus from administrative responsibilities to more meaningful interactions with students (Akgun & Greenhow, 2022; Kehoe, 2023). This automation not only increases efficiency but also frees up time for teachers to dedicate to instruction and student-centered activities.

In an analysis of data collected from an international symposium on 'Digitalizsation, Education, and Design: The Role of the Teacher,' Hrastinski et al. (2019) found that personalization was a commonly cited purpose of AI in education. AI has the capacity to quickly interpret data and make decisions, which allows for instructional content to be tailored by the computer rather than the teacher. This computer-powered personalization opens the door for students to receive individualized, real-time support when it is needed, such as after-school hours. Additionally, such tools have the potential to provide language-learning support for non-native speakers.

GenAI can also serve as a valuable resource for professional development, providing educators with insights into best practices, instructional strategies, and content-area expertise. Furthermore, GenAI can aid in assessment and evaluation by generating quizzes, offering feedback on student work, and analyzing student performance data to help teachers identify areas for intervention (Kasneci et al., 2023).

A study conducted by Powell and Courchesne (2024) investigated the potential benefits and risks associated with using ChatGPT for creating first-grade science lesson plans. The researchers identified several advantages, including the efficiency of the

lesson-planning process, proper alignment with curriculum frameworks, and generally accurate and relevant lesson content. However, the study also revealed notable concerns. For instance, ChatGPT failed to provide essential resources, such as images it had referenced, recommended activities that might violate school policies (e.g., using live animals), and included suggestions for class discussions on topics that students may not be familiar with as they have not been fully explored. These findings underscore the importance of teachers critically evaluating the AI-generated content to identify limitations, ask follow-up questions, and make necessary modifications (Powell & Courchesne, 2024). This study highlights a key risk in adopting GenAI for educational practices, reliance on these tools without sufficient training for teachers and administrators, which may lead to inappropriate use or oversight.

A study by Choi et al. (2023) echoes similar conclusions, emphasizing that while ChatGPT demonstrates promise as an efficient tool for creating course maps and instructional content, it still requires the domain knowledge and instructional design expertise of educators to ensure the quality and reliability of the generated materials. Without proper training, teachers and administrators may struggle to critically assess GenAI outputs, leading to inappropriate content, ineffective teaching strategies, or even potential policy violations. These findings highlight the critical need for professional development programs that equip educators with the necessary skills to integrate GenAI tools responsibly and effectively.

Moreover, a well-documented challenge with GenAI systems is their propensity to generate biased results, which can perpetuate and amplify existing biases and inequities within society. These biases have the potential to negatively affect teaching

and learning processes, potentially disadvantaging certain groups of students if left unaddressed (Kasneci et al., 2023; Powell & Courchesne, 2024). An example of GenAI bias in the educational realm is the perpetuation of gender and racial bias in automated score systems (Akgun & Greenhow, 2022). This raises significant concerns about ensuring the inclusivity, fairness, and accuracy of AI-generated content, particularly in diverse educational settings. Teachers and administrators using GenAI tools must remain vigilant in identifying and mitigating bias to uphold the integrity of the educational process.

In addition to bias, the generation of misinformation is a growing concern. One specific form of misinformation, known as "hallucinations," occurs when GenAI tools fabricate information that appears both convincing and accurate but is actually entirely false (Athaluri et al., 2023). The dissemination of misleading content from hallucinations has the potential to negatively impact student learning and instructor decision-making. Without proper oversight, educators may inadvertently introduce fabricated information into their teaching materials.

The risk of misinformation is compounded when teachers and administrators place blind trust in GenAI systems, leading to over-reliance on AI-generated content. Research indicates that when individuals know advice is generated by AI, they are more likely to follow it, even if it contradicts their own judgment or available contextual information (Klingbeil et al., 2024). This blind reliance on AI could result in missed opportunities for fostering creativity, critical thinking, and problem-solving skills among students. Teachers who do not critically assess AI outputs may inadvertently limit students' opportunities to engage with more complex cognitive tasks (Kasneci et al.,

2023). Therefore, ongoing training and critical evaluation of AI-generated material are essential to mitigate these risks and ensure responsible use of GenAI in educational practices.

Beyond the risks of insufficient teacher training, oversight, bias, misinformation, and over-reliance on GenAI, ethical concerns surrounding the use of GenAI in education are equally significant. One of the most pressing ethical issues involves data privacy. As students and teachers increasingly engage with GenAI platforms, they often disclose an excessive amount of personal information, making these interactions vulnerable to privacy violations (Akgun & Greenhow, 2022). The integration of GenAI systems into education can also lead to the development of surveillance mechanisms, whereby sensitive data is tracked, monitored, and stored without full transparency. These systems not only capture detailed information about the preferences, behaviors, and learning patterns of students, but also raise concerns about how such data will be used and whether it could infringe on students' and teachers' rights (Akgun & Greenhow, 2022; Jeon & Lee, 2023).

In addition, the use of GenAI by students brings up significant concerns regarding academic integrity (Iqbal et al., 2023; Jeon & Lee, 2023). GenAI tools may allow students to bypass traditional academic processes by generating essays, assignments, or problem-solving steps automatically. A study conducted by Mah et al. (2024) examined teachers' and students' perceptions of what constitutes learning and cheating when AI is involved. Participants were presented with scenarios detailing how a student used ChatGPT for assignments and asked to rate how much the student learned and to what extent the student cheated. Interestingly, in some instances, the student perceived to have

cheated the most also appeared to have learned the most. This paradox highlights both a concern and an opportunity: while GenAI poses risks to academic integrity, it also offers potential learning benefits when norms for responsible use are co-constructed between teachers and students (Mah et al., 2024).

While the risks associated with GenAI, such as ethical concerns, lack of oversight, and threats to academic integrity, are significant, the potential advantages, particularly in reducing teacher workload and enhancing personalized learning, cannot be ignored. Nations worldwide are already pushing for AI literacy to equip students with the skills needed to thrive in AI-driven economies. The challenge now is determining the extent to which K-12 teachers and administrators are adopting these tools into their educational practices. Understanding adoption patterns and educators' attitudes toward GenAI is essential, which can be examined using frameworks like the Technology Acceptance Model (TAM).

The Technology Acceptance Model: A Framework for Understanding AI Adoption in Education

The Technology Acceptance Model (TAM) serves as a foundational framework for understanding how individuals adopt new technologies. Its application has expanded to include studies involving GenAI in various educational contexts, from K-12 settings to higher education and teacher training programs. This growing body of research reflects the increasing interest in understanding how AI tools are perceived and integrated into educational practices (Ayanwale et al., 2022; Ma & Lei, 2024; Yang & Appleget, 2024). Despite GenAI being a relatively new tool, studies emerging in 2024 emphasize TAM's role in understanding the factors influencing GenAI adoption in education.

For K-12 students, Chai et al. (2021) identified self-efficacy as the most important factor directly predicting students' behavioral intent to adopt AI technologies. Self-efficacy refers to one's belief in their own abilities. This underscores the importance of equipping students with the skills and confidence to use these technologies effectively, as their perceived ability to use GenAI significantly influences their likelihood of adopting it in educational settings.

In higher education, several factors play a role in students' acceptance of GenAI. Saif et al. (2024) found that the perceived ease of use and usefulness of ChatGPT's AI-generated text heavily influenced students' favorable attitudes toward using the tool. These attitudes, in turn, motivated students to engage more frequently with GenAI, resulting in increased usage. Similarly, Al-Abdullatif and Alsubaie (2024) noted that perceived value, which includes elements such as usefulness, enjoyment, and cost, had a strong effect on students' intention to use ChatGPT. These studies highlight how GenAI's functionality, coupled with user satisfaction, can drive its adoption in higher education.

Preservice teachers also exhibit positive attitudes toward adopting AI technologies, with Yang and Appleget (2024) identifying that a favorable attitude toward AI technologies directly influenced preservice teachers' willingness to use them in classroom settings. Ma and Lei (2024) deepened the application of TAM by identifying AI literacy and perceived usefulness as the primary factors affecting behavioral intent to adopt GenAI, with perceived usefulness having the most substantial impact on preservice teachers' intent to integrate AI tools.

Among in-service teachers, readiness to teach AI-related topics are largely influenced by perceived usefulness. Ayanwale et al. (2022) found that teachers' readiness to integrate AI into their instruction was closely tied to their perceptions of how useful these technologies were in improving teaching and learning outcomes. While this research focuses on AI more broadly rather than GenAI specifically, the findings suggest a connection between teachers' readiness to adopt AI and their future intentions to integrate AI into classroom practices.

As GenAI technologies continue to evolve, educators must rethink their teaching philosophies to accommodate these tools effectively (Yang & Appleget, 2024). The successful integration of GenAI into educational practices will require more than just familiarity with the technology; it will necessitate a comprehensive understanding of its implications for teaching and learning, as well as ongoing professional development to ensure responsible and effective use. Moreover, teachers' and administrators' perceptions of GenAI will play a critical role in determining how quickly and effectively these tools are adopted within educational systems. Understanding these perceptions will not only guide the development of professional development programs but will also help shape policies that promote equitable and ethical use of GenAI in classrooms. As such, examining the perceptions and attitudes of educators toward GenAI is a vital next step in fostering its meaningful adoption in K-12 education.

Teachers' and Administrators' Perceptions of Generative Artificial Intelligence

As GenAI is a relatively new technology, especially in educational contexts, the literature addressing teachers' and administrators' perceptions of GenAI in K-12 settings is still developing. Much of the current research focuses on higher education, leaving

gaps in our understanding of how K-12 educators and administrators perceive and integrate GenAI into their practices.

Teachers' Perceptions of GenAI in Educational Practices

A study by Jeon and Lee (2024) found that language teachers were generally open to using ChatGPT in their classrooms, recognizing its potential to automate various instructional tasks and enhance pedagogical effectiveness. These teachers acknowledged that while ChatGPT could aid in lesson planning and resource creation, its success depended on the teacher's ability to judiciously manage and apply AI-generated resources. Importantly, they emphasized that GenAI, including tools like ChatGPT, would not replace human teachers but rather serve as a complementary resource to maximize their professional expertise.

Similarly, Yang and Appleget (2024) found that preservice teachers had positive attitudes toward GenAI, viewing it as a useful tool for instruction. The teachers recognized the potential of GenAI to enrich their teaching by offering a wealth of resources and ideas. However, they also stressed the importance of teacher-student interaction, noting that while GenAI could assist with many aspects of lesson planning, it could not substitute the nuanced understanding of individual student needs that only teachers could provide.

In higher education, research by Iqbal et al. (2023) revealed a more cautious stance. University professors expressed concerns that ChatGPT could be disruptive in the classroom, potentially undermining the learning process. Some professors believed that the technology lacked sufficient support for effective educational integration. However, despite these reservations, many acknowledged the potential benefits of using ChatGPT

in specific contexts, such as automating feedback or increasing student engagement and motivation.

At present, the majority of research on teachers' perceptions of GenAI focuses on higher education, leaving a gap in the understanding of how K-12 educators view these technologies. As GenAI becomes more prevalent in educational settings, further research is needed to explore K-12 teachers' perceptions and their readiness to adopt AI tools in their everyday teaching practices.

Administrators’ Perceptions of GenAI in Educational Practices

Research on K-12 administrators' perceptions of GenAI is similarly limited, though some initial findings provide valuable insights. In a study conducted by Borasi et al. (2024), interviews with 36 school leaders revealed that administrators faced considerable uncertainty about when and how to implement AI technologies in schools. The school leaders expressed a strong desire for more guidance on integrating AI effectively, highlighting the challenges of navigating new technologies while meeting state mandates. The study identified four key areas where school leaders sought support: decision-making guidance, a better understanding of AI's educational implications, resources to assist teachers with AI, and AI solutions to streamline administrative tasks.

These findings suggest that while administrators are open to using AI to reduce teacher workloads and improve student engagement, there is still a lack of clear strategies and support for integrating GenAI into the day-to-day functioning of schools. Despite this openness, there remains a significant gap in the literature regarding K-12 building administrators' specific perceptions of GenAI tools in educational practices. Understanding these perceptions is essential for shaping effective policies and

professional development programs that address the challenges of AI integration in schools.

The Role of Demographics in Perceptions of GenAI in Educational Practices

Research indicates that demographic features, such as gender, generation, and teaching experience, can influence perceptions and ease of use of GenAI tools. Yilmaz et al. (2023) found that male students reported finding ChatGPT easier to use compared to female students, suggesting that gender may play a role in shaping comfort with AI technologies. This raises questions about how other demographic factors might affect the adoption of GenAI technologies among educators.

In another study conducted by Chan and Lee (2023), the experiences and perceptions of Gen Z students and Gen X and Gen Y teachers regarding GenAI use in higher education were examined. The findings revealed that Gen Z students were generally optimistic about the potential benefits of GenAI, such as increased productivity, personalized learning, and efficiency. They expressed intentions to incorporate GenAI into various educational activities. On the other hand, Gen X and Gen Y teachers acknowledged the advantages of GenAI but voiced greater concerns about over-reliance on the technology, its ethical implications, and its potential impact on traditional pedagogical methods.

These findings highlight the need to consider demographic differences when designing professional development and support systems for GenAI adoption. Educators from different generations, with varying levels of comfort and experience with technology, may require tailored training and guidance. Understanding how demographic factors shape GenAI adoption will be crucial for creating equitable access to AI

technologies in education, addressing potential disparities, and fostering inclusive learning environments.

Preparing Educators for Integrating Generative Artificial Intelligence in Educational Practices

The integration of GenAI into educational practices offers transformative opportunities, but its success hinges on effective professional development for educators. As nations around the world prioritize the integration of AI in schools, educators must take special care in preparing students to use GenAI ethically and effectively. A role GenAI can play that should not be overlooked is its role in fostering 21st century skills, such as critical thinking, problem-solving, and collaboration (Ng et al., 2023). These 21st century skills are uniquely human skills that cannot be replicated by AI. As AI technologies are being increasingly integrated into society and workplaces, completing tasks previously addressed by humans, students need to remain competitive by possessing the skills that computers cannot replicate.

With GenAI being relatively new, there is a need for tailored professional development initiatives that equip teachers with both technical proficiency and pedagogical strategies. To effectively teach AI literacy and facilitate meaningful learning experiences for their students, teachers must first become proficient end-users of GenAI. This dual role requires educators to simultaneously be learners and instructors of GenAI, and professional development programs must support both dimensions (Ng et al., 2023).

Effective professional development should focus on helping educators recognize the tangible benefits of GenAI, which has been identified as a key factor in encouraging adoption (Ma & Lei, 2024). According to the TAM, perceived usefulness plays a critical

role in influencing teachers’ intent to adopt AI technologies (Ma & Lei, 2024). Therefore, training sessions must highlight how GenAI can streamline lesson planning, improve student outcomes, and reduce administrative burdens, fostering a positive attitude toward its integration.

To ensure that AI is widely adopted in schools, it is imperative to identify instructors' knowledge gaps as a barrier to AI instructional facilitation (Ayanwale et al., 2022). To close these gaps, professional development is crucial because teachers must first have a thorough understanding of the link between AI and humans as well as how advanced AI technologies will affect their profession. Jeon and Lee (2023) emphasize the importance of studying teachers' perceptions and experiences with AI to design effective professional learning plans that lead to meaningful professional development. In carefully curating professional development to meet the needs of educators, they will be better equipped to integrate GenAI technologies into their classrooms, ensuring both ethical and effective usage while promoting AI literacy and preparing students for the future.

The Path Forward

As technology evolves, so too will the educational landscape. To effectively incorporate and embrace emerging technologies in classrooms, it is imperative to learn from past challenges in educational technology adoption. The global push to incorporate AI into classrooms reflects a broader objective to prepare future generations for an AI-driven world, but this goal cannot be achieved without first addressing the perceptions and preparedness of educators. Teachers' and administrators' attitudes toward GenAI serve as critical precursors to its successful integration. Therefore, assessing these

perceptions through models like TAM is necessary to develop professional development programs tailored to educators' specific needs.

By aligning professional learning with the expectations and demands of AI in education, educators will not only be better equipped to teach AI literacy but also more likely to perceive GenAI as a valuable tool in their instructional practices. Through well-structured professional development and ongoing support, schools can ensure that GenAI is integrated thoughtfully and responsibly, thereby enriching the teaching and learning process while fostering an AI-literate generation prepared to thrive in a rapidly changing technological landscape.

CHAPTER III

Methodology

The literature review provided a background on educational technology, discussing the evolution of technology integration in classrooms over the past several decades. It reinforced the need for meaningful professional development opportunities to ensure educators can effectively implement new technologies. Additionally, the review explored global perspectives on Artificial Intelligence (AI) in education, highlighting how different countries are approaching their integration within schools. As AI adoption in education gains momentum worldwide, the literature further emphasized the potential benefits of GenAI, including its ability to reduce teacher workload, enhance student achievement, and prepare students for an AI-driven world. Collectively, these findings underscore the urgent need for school districts to equip teachers with the knowledge and skills necessary to help students become proficient in using GenAI tools.

To support the effective adoption of GenAI tools in educational settings, similar to other digital learning tools, it is essential to understand teachers' and administrators’ perceptions and experiences with GenAI. The literature suggests that studying these perceptions can inform the development of professional learning programs that foster educators' confidence and competence in using GenAI tools. Such insights can guide the design of training initiatives that ensure GenAI is implemented in ways that enhance instruction while addressing potential challenges and concerns.

A localized study within Trinity Area School District (TASD) on the districtwide implementation of a 21st-century instructional framework provides relevant context for understanding teachers' professional learning experiences. Examining educators’

responses to past technology initiatives, such as the integration of computational thinking (CT), offers valuable insight into factors that influence teacher adoption of new instructional approaches. These findings help contextualize the study within TASD's existing efforts to integrate technology into teaching and learning. The following section provides an overview of TASD, highlighting the district's commitment to technology integration, professional learning experiences, and the challenges encountered in previous initiatives.

Setting

The Trinity Area School District (TASD) is located in Washington, Pennsylvania, within Washington County, a part of the Pittsburgh metropolitan area in southwestern Pennsylvania. Situated approximately 30 miles south of Pittsburgh, TASD serves a geographically rural community. The district comprises seven school buildings: one high school, one middle school, one intermediate school, and four elementary schools, collectively educating 3,316 students from kindergarten through grade 12. Demographically, 36% of TASD students are classified as economically disadvantaged, 25% receive special education services, 2% are identified as homeless, and 1% are English language learners.

TASD is recognized for its commitment to innovation and technology integration. In 2024, the district received the International Society for Technology in Education (ISTE) Distinguished District Award, which honors school systems that are transforming education by enhancing teaching and learning through technology. This recognition was awarded in part due to TASD's comprehensive implementation of CT across the curriculum. CT, a problem-solving framework that mirrors the logical processes used by

computers, is regarded by ISTE as a fundamental 21st-century skill. All TASD educators have participated in extensive professional development on integrating CT into their instruction, including completing *An Introduction to Computational Thinking for Every Educator*, a 15-hour graduate-level course offered through ISTE University (ISTEU).

Beyond CT, TASD prioritizes the integration of technology in the classroom and ensures that students have access to digital learning resources. Each student in grades K-12 is provided with a Chromebook to support learning both in school and at home. Additionally, students without reliable home internet access are issued mobile hotspots to ensure continuous connectivity to TASD's curricular materials.

The district offers a diverse range of technology-focused coursework, starting in kindergarten, and has invested in immersive technology driven facilities including esports arenas and fabrication labs (fab labs) at both the middle and high school levels. At the high school level, students can enroll in specialized technology courses, including computer science, cybersecurity, digital fabrication, and broadcasting. Additionally, Trinity High School offers nine career and technical education (CTE) programs. These programs, facilitated entirely on campus, reinforce the district's commitment to preparing students for careers in technology and innovation.

Despite its emphasis on technology and innovation, TASD has encountered challenges in securing widespread teacher adoption of new instructional technologies and 21st century focused teaching pedagogies. The CT initiative, particularly the ISTEU course, met resistance from some educators. Unlike traditional professional development sessions, this course introduced a novel learning experience for TASD teachers. Many were unfamiliar with the concept of CT and were required to engage in a fully online,

instructor-led course - an unfamiliar format for many participants. The course did not include synchronous sessions; instead, teachers completed and submitted five assignments that were assessed by an instructor, with each assignment requiring a minimum score of 80% to pass. The introduction of graded deliverables and instructor feedback was a significant departure from previous professional development experiences within the district, which typically involved passive, lecture-style learning.

A post-course in-house survey revealed that 88% of participating staff members experienced some level of stress while completing the course. Of this group, 16% reported disliking the learning experience due to difficulties managing their stress. Despite these challenges, 81% of staff members acknowledged that CT could serve as a foundational framework for learning across disciplines, while 15% believed its application should be limited to STEM subjects. The remaining 4% did not perceive CT as valuable in education. These survey results uncovered the need to ensure teachers understand the purpose and value of an initiative prior to its implementation, as their perceptions and level of comfort with the material can impact their engagement and willingness to integrate new concepts, such as CT, into their teaching practices.

As TASD seeks to remain at the forefront of educational innovation by embracing AI integration, district leaders recognize that the success of any new initiative hinges on teachers understanding its value and relevance. Understanding teachers' and administrators' perceptions of GenAI is a critical first step in developing a professional learning framework that aligns with their current beliefs and readiness levels. This framework will help determine whether educators and administrators are prepared to integrate GenAI tools into their classrooms and schools, while also ensuring the design of

professional development programs that effectively address their needs and demonstrate the value of these tools in enhancing student learning.

Purpose

The rapid advancement of AI, particularly GenAI, has significantly impacted educational settings. Since the release of ChatGPT and similar tools, GenAI has become widely accessible to both students and educators, transforming how information is generated, analyzed, and applied in learning environments. However, as AI tools continue to evolve, schools struggle to keep pace with their integration, often lacking the necessary infrastructure, policies, and professional development to support effective implementation. The literature underscores the importance of preparing students to be AI-literate, recognizing that fluency with AI technologies will be essential for success in an increasingly AI-driven workforce. Achieving this goal requires that educators themselves become proficient in using AI tools, enabling them to integrate these technologies into instruction in meaningful, ethical, and pedagogically sound ways.

The TASD is committed to innovation and ensuring that students graduate with the skills needed to succeed in a world in which AI is omnipresent. Recognizing the role of AI in shaping future careers and industries, TASD seeks to provide educators with professional development that is grounded in their current perceptions and beliefs about GenAI. However, as seen in the district's prior efforts to introduce CT, teachers' acceptance of new technologies and pedagogies varies widely, influenced by factors such as perceived relevance, ease of use, and prior experience. Understanding these perceptions is essential for designing professional learning experiences that foster engagement and support successful AI integration.

This action research study is grounded in Davis's (1989) Technology Acceptance Model (TAM), which suggests that the acceptance of technology is influenced by users' perceptions of its usefulness and ease of use. The TAM is a widely recognized theoretical framework that has been adapted and extended over the last 35 years to fit the educational context, both K-12 and higher education, to explore teacher and student acceptance of modern technologies and approaches including collaborative software (Koranteng et al., 2020), distance learning (Shieh & Hsieh, 2023), geometry software (Van Vaerenbergh et al., 2023), and digital reading tools (Lin & Yu, 2023), and virtual reality (Huang & Liaw, 2018), among others. Findings from these studies suggest that perceived usefulness is the strongest predictor of technology adoption, with perceived ease of use playing a secondary role in influencing adoption decisions.

Given the increasing presence of AI in education, TAM provides a relevant and structured framework for examining how K-12 teachers and administrators perceive GenAI tools. Understanding their beliefs about the usefulness and usability of these tools will be valuable in shaping professional development efforts, ensuring that training initiatives align with their needs and readiness levels. Additionally, demographic factors such as age, years of experience, and prior exposure to digital tools have been shown to influence technology adoption, highlighting the importance of considering these variables in assessing educators' willingness to integrate GenAI into their instructional practices.

By examining teachers' and administrators' perceptions of GenAI through the lens of TAM, this study sought to provide insights that will inform TASD's approach to professional learning and AI implementation. Understanding the factors that drive technology adoption will enable the district to develop a structured, research-informed

approach to AI integration, ensuring that teachers receive the necessary support to use GenAI effectively and ethically in their classrooms. The following four research questions guided the study:

Research Question 1: What are K-12 teachers' and building administrators' perceptions of using GenAI in educational practices as measured by the Technology Acceptance Model Likert scale responses to perceived levels of usefulness and perceived levels of ease using descriptive statistics?

Research Question 2: In what ways do perceptions of GenAI in educational practices differ between K-12 teachers and building administrators as measured by a regression analysis of the Technology Acceptance Model Likert scale responses?

Research Question 3: How do demographic features (age, gender, role, building level, years of experience, and prior experience using GenAI) influence K-12 teachers' intent to use GenAI tools as measured by applying multiple regression analysis to the Technology Acceptance Model (TAM) Likert scale items?

Research Question 4: What factors do K-12 teachers identify as influencing their decisions to adopt or avoid using GenAI tools in their educational practices as measured by a content analysis of their open-ended survey responses?

Each research question within this study was designed to explore how perceived usefulness, perceived ease of use, and individual characteristics influence educators' and building administrators' willingness to adopt GenAI. Specifically:

- Research Question 1 explored the general perceptions of GenAI among teachers and building administrators, using descriptive statistics to quantify how teachers and administrators evaluate its usefulness and ease of use.

- Research Question 2 explored differences in perceptions between teachers and administrators, identifying variations based on role-specific responsibilities and experiences.
- Research Question 3 considered how demographic factors, such as years of experience, gender, age, and prior experience with GenAI, affect educators' intent to adopt these tools.
- Research Question 4 identified key factors influencing adoption or avoidance of GenAI, using qualitative content analysis to provide context for the quantitative findings.

Findings from this study could inform targeted professional development initiatives and policy decisions that support GenAI integration in K-12 education. By understanding educators' perceptions and concerns, school districts can design training programs that address barriers to adoption and provide the necessary support for successful implementation. Additionally, the localized focus on TASD ensures that the study's findings directly contribute to the district's ongoing technology initiatives while offering valuable insights to broader discussions on AI in education.

The following section details the research plan, outlining the methods used to investigate these research questions and the analytical approaches employed to interpret the data.

Research Plan

Building upon the insights from the literature review, this study was designed to explore how K-12 teachers and administrators perceive GenAI tools in educational practices. Prior research highlights that technology adoption is significantly influenced by

perceived usefulness and perceived ease of use, as outlined in Davis's (1989) Technology Acceptance Model (TAM). This model has been widely applied to assess technology adoption in education, demonstrating that educators' attitudes toward new tools are shaped by their beliefs about how the technology will impact their teaching effectiveness and how easily it can be integrated into their practices (Granić & Marangunić, 2019; Venkatesh & Davis, 2000).

TAM posits that perceived usefulness, the extent to which educators believe a technology enhances teaching and learning, is the strongest predictor of adoption (Venkatesh & Davis, 2000). Perceived ease of use, the degree to which educators believe a tool requires minimal effort to implement, also influences adoption, primarily by reinforcing perceived usefulness (Davis, 1989). Research has consistently shown that educators are more likely to adopt a technology when they perceive it as both beneficial and easy to integrate into existing instructional practices (Zaineldeen et al., 2020).

Furthermore, studies suggest that demographic factors such as age, gender, years of experience, and prior exposure to technology influence technology adoption. For example, younger teachers often report higher perceptions of ease of use and usefulness, leading to greater adoption rates (Morris & Venkatesh, 2000). Gender differences have also been observed, with research suggesting that while TAM applies universally, levels of perceived usefulness and ease of use may vary between men and women, potentially influencing adoption rates (Manickam & Ramu, 2018; Teo, 2010). Given the complexities of technology adoption, TAM provides a structured framework for assessing educators' and building administrators' perceptions of GenAI integration and identifying factors that facilitate or hinder adoption.

This study leveraged TAM as a guiding framework to investigate how teachers and administrators in TASD perceive GenAI tools, with a particular focus on the relationship between perceived usefulness, ease of use, and behavioral intent. Additionally, by incorporating demographic variables, the study sought to explore how different educator subgroups perceive AI differently.

To examine these perceptions, the study employed a district-wide survey designed to measure educators' beliefs about the benefits, usability, and challenges of GenAI adoption in K-12 education. The survey was adapted from established TAM-based instruments (Yilmaz et al., 2023) to ensure validity and reliability in assessing AI adoption.

By aligning the research design with an established theoretical framework, this study ensured a methodologically sound approach to understanding how K-12 educators perceive and engage with AI-driven technologies in educational settings. The findings will directly contribute to TASD's efforts to develop structured, research-informed policies and professional development programs, ensuring that teachers receive the necessary support to integrate AI effectively and ethically into their classrooms.

Participants

TASD employs a diverse group of professionals, including teachers, nurses, and school counselors, all of whom play a role in promoting student achievement. The focus of this study was on two key participant groups: teachers and building administrators. Participation in this action research study was voluntary and followed a census sampling approach, inviting all full-time teachers and building administrators within TASD.

Substitute teachers and student teachers were excluded from participation as the study focused on permanent district staff responsible for instructional decision-making.

TASD employs 248 full-time teachers and 10 building administrators across the district's seven school buildings, all of whom were eligible to participate in the study (see Table 1). Of the 248 full-time teachers, 186 are female, and 62 are male (see Table 2). Understanding the overall staffing distribution within TASD provides important context for the study and helps to frame the demographic breakdown of teachers.

Table 1

Number of Teachers and Building Administrators by School Building

TASD School Building	Number of Teachers	Number of Building Administrators
Trinity East Elementary School	20	1
Trinity High School	69	3
Trinity Intermediate School	38	1
Trinity Middle School	58	2
Trinity North Elementary School	23	1
Trinity South Elementary School	15	1
Trinity West Elementary School	25	1

Note. This table was based on staffing at Trinity Area School District as of March 1, 2025.

Table 2

Number of Teachers by School Building and Gender

TASD School Building	Number of Teachers	
	Female	Male
Trinity East Elementary School	20	0
Trinity High School	44	25
Trinity Intermediate School	33	5
Trinity Middle School	33	25
Trinity North Elementary School	20	3
Trinity South Elementary School	15	0
Trinity West Elementary School	21	4

Note. This table was based on staffing at Trinity Area School District as of March 1, 2025.

In addition to gender, the ages, and years of experience of teachers are important factors in understanding the overall makeup of the teaching workforce at TASD. The teachers' ages range from under 25 to over 65, with a breakdown by gender provided in Table 3. Furthermore, the years of experience span from one year to over 35 years, with the data broken down by gender as well in Table 4. These details provide further context for how the distribution of age and experience may influence teachers' perceptions and readiness for new initiatives such as the integration of AI tools in the classroom.

Table 3

Number of Teachers by Age Span and Gender

Gender	Number of Teachers					
	Under 25	25-34	35-44	45-54	55-64	65+
Female	2	43	65	55	20	1
Male	0	14	20	17	9	2

Note. This table was based on staffing at Trinity Area School District as of March 1, 2025.

Table 4

Number of Teachers by Years of Experience and Gender

Years of Experience	Number of Teachers	
	Female	Male
1-2	14	4
3-5	30	6
6-10	36	13
11-15	13	12
16-20	52	7
21-25	27	7
26-30	10	6
30+	4	7

Note. This table was based on staffing at Trinity Area School District as of March 1, 2025.

All full-time teachers in TASD hold at least a bachelor's degree and a Pennsylvania Department of Education (PDE) teaching certification, ensuring compliance with state-mandated qualifications. Similarly, all building administrators hold

supervisory certification from PDE, which qualifies them to oversee both instructional and operational functions in their respective schools.

To ensure ethical research practices, informed consent was required for participation in the mixed methods action research survey. This informed consent process was reviewed and approved by the Pennsylvania Western University Institutional Review Board (IRB) and is documented in Appendix C. As part of the informed consent process, participants were fully informed of their rights, including their ability to withdraw from the study at any time without penalty or negative consequences. Additionally, participants were notified that the potential risks associated with the study were minimal and comparable to those encountered in daily professional activities. To further protect participants, the researcher implemented several risk mitigation strategies, including:

- Anonymity safeguards - No personally identifiable information or email addresses were collected.
- Voluntary participation - Participants were informed that participation was entirely voluntary, with no obligation or consequences for withdrawing. They were advised that if they felt uncomfortable or no longer wished to participate while taking the survey, they could stop at any time without penalty. Instructions for exiting the survey were provided, including the option to either proceed to the last page and press "Submit" or close the browser completely to discontinue participation.
- User-friendly survey design - The questionnaire was designed to be accessible and non-intrusive, minimizing participant burden.

To reduce potential bias stemming from the researcher's role as a district-level director, a secretary facilitated participant recruitment by distributing the study invitation and survey link to eligible teachers and administrators. This approach ensured that participants did not feel pressure or obligation to participate due to hierarchical relationships within the district.

Participants were informed that there were no direct benefits associated with their participation in this study. However, the findings could contribute to a deeper understanding of how K-12 teachers and building administrators perceive GenAI, and these insights would inform TASD's strategic approach to AI integration. This could support the development of effective policies and professional development initiatives tailored to the needs of both educators and students.

To systematically explore these perceptions, the study employed a mixed-methods research design, incorporating both quantitative and qualitative elements. The following section details the research methods and data collection process used to analyze educators' and building administrators' perceptions of GenAI in educational practices.

Research Methods & Data Collection

This doctoral capstone action research project utilized a mixed-methods research design to explore K-12 teachers' and building administrators' perceptions of GenAI tools in educational practices. By incorporating both quantitative and qualitative elements into the survey, the study provided a comprehensive analysis of the factors that might influence educators' acceptance and implementation of GenAI in their classrooms. For the context of this study, educational practices refer to the various methods, strategies, and techniques employed by educators to facilitate learning and foster the development of

knowledge and skills in students. Specifically, these practices include designing curricular resources, planning for instruction, delivering instruction, assessing students, classroom management, and use of educational technology.

For this mixed-methods action research study, data were collected using an anonymous, self-report online questionnaire, administered through SurveyMonkey, and included in Appendix D. The questionnaire was chosen as the primary data collection tool because digital surveys are widely used in educational research to efficiently gather responses from large populations efficiently while maintaining participant anonymity (Al-Hamad, 2022; Koranteng et al., 2020).

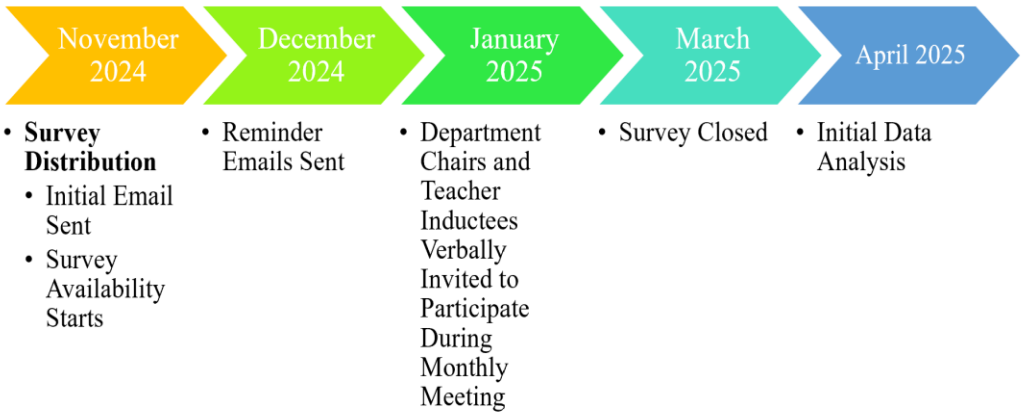
A census sampling approach was employed, inviting all full-time teachers and building administrators within TASD to participate. This method ensured representation across different school levels and roles, allowing the study to capture a diverse range of perspectives on GenAI in educational practices. By including the entire eligible population rather than a subset, the study aimed to minimize sampling bias and enhance the generalizability of its findings within TASD. Additionally, the census approach strengthened the study's validity by ensuring that insights were drawn from the full population of educators responsible for technology integration decisions.

Data collection took place over the course of five months, from November 2024 to March 2025, with data analysis beginning in April 2025 (see Figure 1). A district secretary distributed invitation emails to all full-time teachers and building administrators within TASD through designated email groups, ensuring equal access to the survey for all eligible participants (see Appendix E). This method of recruitment minimized potential

feelings of obligation, as the email invitations did not come directly from the researcher, who serves as a district-level director.

Figure 1

Data Collection Timeline for Capstone Project



Note. The researcher created this graphical representation to detail the data collection timeline visually.

Before completing the survey, all participants were required to provide informed consent, acknowledging their voluntary participation and understanding of the study's purpose, procedures, and confidentiality measures. The informed consent form was reviewed and approved by the Pennsylvania Western University Institutional Review Board (IRB) and is included in Appendix A. The consent form clearly stated that participation in the study was voluntary and anonymous, and participants were informed that they could discontinue their participation at any time without penalty. Additionally, the form specified that no personally identifiable information, including email addresses, would be collected, further ensuring participant privacy.

The SurveyMonkey questionnaire consisted of 32 items, divided into three main sections. The first section collected anonymous demographic information, including age, gender, professional role, building level, years of experience, and prior experience with GenAI. These demographic variables were examined to determine whether specific educator characteristics influenced perceptions of GenAI adoption.

The second section consisted of 24 Likert-scale questions, based on a 5-point scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). These questions were designed in accordance with Davis's (1989) Technology Acceptance Model (TAM), which has been widely used in educational technology research to assess how perceived usefulness and perceived ease of use shape users' behavioral intent to adopt new tools (Granić & Marangunić, 2019; Zaineldeen et al., 2020). The Likert-scale responses provided quantifiable data that allowed for descriptive and inferential statistical analysis, helping to identify patterns in educators' perceptions of GenAI in educational settings.

The third section consisted of two open-ended questions tailored to teachers and administrators, allowing participants to elaborate on the factors influencing their decision to support or avoid GenAI adoption in educational practices. The inclusion of these open-ended questions ensured that qualitative insights could complement the quantitative findings, providing a richer understanding of the contextual factors affecting GenAI adoption. The specific open-ended questions were structured as follows:

K-12 Teachers

1. Describe any experiences or factors that have influenced your decision to support the adoption of generative AI tools in educational practices? Please include both positive or negative influences.

2. What are the main reasons you might avoid using generative AI tools in your educational practices? Please share specific concerns or challenges you have encountered.

Building Administrators

1. Describe any experiences or factors that have influenced your decision to support teachers' decisions to adopt generative AI tools in educational practices? Please include both positive or negative influences.
2. What are the main reasons you might want teachers to avoid using generative AI tools in their educational practices? Please share specific concerns or challenges you have encountered.

The study collected both qualitative and quantitative data simultaneously using the SurveyMonkey tool, which was the only direct cost associated with the research, totaling $292.56. While free alternatives such as Google Forms were considered, the researcher chose not to use them to maintain the confidentiality of anonymous responses, ensuring that no data was linked to school accounts. This decision ensured that only the researcher had access to the raw data, thereby safeguarding privacy and maintaining confidentiality.

Validity

While this action research capstone project was conducted to inform decision-making within the TASD, ensuring the accuracy and reliability of the findings was a priority. By maintaining high standards of validity, this study aimed to generate meaningful data that could support decision-making within the district while also providing valuable insights for other schools and districts. Given the emerging nature of

GenAI in education and the limited research available, this study contributes to the growing body of knowledge on its adoption and may serve as a resource for similar districts navigating its integration.

Validity in research refers to the accuracy of a method in measuring a phenomenon and ensuring that findings reflect the true values or concepts being studied (Noble & Heale, 2019). Among its various forms, construct validity is particularly important, as it determines whether a measurement tool effectively captures the concept it is designed to assess (Grimm & Widaman, 2012). This type of validity plays a central role in the construction of assessment tools and is essential in evaluating cognitive ability tests, surveys measuring attitudes and beliefs, and observational techniques used to analyze behavior (Grimm & Widaman, 2012). Considering that this study explores the perceptions and beliefs of K-12 teachers and administrators regarding GenAI, establishing construct validity was essential to ensure that the survey accurately measured these attitudes.

To enhance construct validity, this study utilized the Technology Acceptance Model (TAM) framework, a widely recognized and empirically validated model for predicting user acceptance of technology. Numerous studies have used TAM across various contexts, consistently demonstrating that its two core constructs, perceived usefulness and perceived ease of use, significantly influence an individual's intention to adopt new technology. By aligning the survey questions with TAM's established constructs, this study ensured that it accurately measured teachers' and administrators' perceptions of GenAI adoption.

Additionally, external validity was considered to ensure that the study's findings could be applicable beyond TASD. External validity refers to the extent to which the results can be generalized to a broader population (Findley et al., 2021). This study supported external validity by employing a census sampling approach, inviting all full-time teachers and building administrators to participate. By including the entire eligible population rather than a sample subset, the study minimized selection bias, providing a more representative dataset for understanding GenAI adoption in educational settings. Furthermore, since TAM has been validated across different educational contexts, its application in this study further strengthens the potential for the findings to be relevant to other schools and districts exploring AI integration in education.

Another measure taken to enhance the reliability and credibility of this study was triangulation. Triangulation is a method used to strengthen research findings by ensuring that different approaches yield consistent outcomes (Noble & Heale, 2019). This study employed methodological triangulation, capturing both quantitative and qualitative data simultaneously through Likert-scale survey questions and open-ended qualitative questions. The responses to these questions were compared to ensure consistency across data sources and to provide a more comprehensive understanding of participants' perceptions of GenAI in educational practices.

Summary

This action research capstone study employed a survey-based mixed-methods approach to explore TASD teachers' and building administrators' perceptions of GenAI in educational practices. Grounded in the well-established TAM framework, the study incorporated both quantitative survey data and qualitative open-ended responses to

explore educators' perceptions of GenAI in educational practices. By leveraging TAM's core constructs, perceived usefulness, and perceived ease of use, the study aimed to provide insights into factors influencing educators' willingness to adopt GenAI tools in their professional practice.

The study was conducted in TASD, a district committed to integrating emerging technologies into education. Using a census sampling approach, all full-time TASD teachers and building administrators were invited to participate, ensuring a diverse range of perspectives across different school levels. While the findings are specific to TASD, the study was designed to generate insights that may apply to similar schools and districts planning for AI integration in education.

To ensure the accuracy, reliability, and credibility of the study, several validity measures were incorporated, including construct validity, external validity, and methodological triangulation. Construct validity was reinforced by aligning survey questions with TAM's established theoretical constructs, ensuring that the study accurately captured educators' perceptions of GenAI adoption. Additionally, external validity was supported by employing a census sampling approach, which minimized selection bias and enhanced the generalizability of findings within TASD. Methodological triangulation further strengthened the study's reliability by combining Likert-scale survey questions with open-ended qualitative responses, providing a more comprehensive understanding of participants' attitudes toward GenAI.

Chapter III outlined the research methods including setting, participant criteria, data collection procedures, validity measures, and triangulation strategies used in this

study. The following chapter, Chapter IV, presents the data analysis and results, detailing key findings derived from both quantitative and qualitative responses.

CHAPTER IV

Data Analysis and Results

Chapter III detailed the methodology used in this study, including participant selection, data collection procedures, and the use of the Technology Acceptance Model (TAM) as the study's guiding framework. Chapter IV presents the analysis and results of the collected data, with the goal of exploring K–12 teachers' and administrators' perceptions of generative artificial intelligence (GenAI) in educational practices. Both quantitative and qualitative data were examined to provide a comprehensive understanding of participants' attitudes, experiences, and intentions regarding the use of GenAI in schools.

The findings in this chapter are organized around the following four research questions:

Research Question 1: What are K-12 teachers' and building administrators' perceptions of using GenAI in educational practices as measured by the Technology Acceptance Model Likert scale responses to perceived levels of usefulness and perceived levels of ease using descriptive statistics?

Research Question 2: In what ways do perceptions of GenAI in educational practices differ between K-12 teachers and building administrators as measured by a regression analysis of the Technology Acceptance Model Likert scale responses?

Research Question 3: How do demographic features (age, gender, role, building level, years of experience, and prior experience using GenAI) influence K-12 teachers' intent to use GenAI tools as measured by applying multiple regression analysis to the Technology Acceptance Model (TAM) Likert scale items?

Research Question 4: What factors do K-12 teachers identify as influencing their decisions to adopt or avoid using GenAI tools in their educational practices as measured by a content analysis of their open-ended survey responses?

This chapter presents both quantitative (Likert scale items) and qualitative (open-ended responses) data collected through an online questionnaire. The questionnaire was distributed to all full-time teachers and building administrators within the Trinity Area School District (TASD). Descriptive and inferential statistical methods are applied to the quantitative responses, while qualitative data are analyzed using content analysis.

This study was limited to full-time teachers and administrators in TASD to provide a focused, in-depth understanding of current perceptions of GenAI in educational practices. The findings presented in this chapter offer insight into participants' perceived usefulness, perceived ease of use, and behavioral intentions related to GenAI tools. These results will inform the development of a tailored professional development plan to support the integration of GenAI across K–12 classrooms in the TASD and answer the study's research questions.

Before presenting the results of the data analysis, it is important to first understand the demographic composition of the study's participants. The following section provides a breakdown of respondents by role, building level, age, gender, and years of experience.

Demographics of Participants

Based on the eligibility criteria, 248 teachers and 10 building administrators were invited to participate in the study. A total of 68 teachers and 9 administrators responded. Table 5 presents the distribution of participants by role and building level.

Table 5

Number of Participants by Role and Building Level

Role	Building Level	
	Elementary	Secondary
Teacher	30	38
Administrator	5	4

Note. Elementary refers to Grades K-5 and Secondary refers to Grades 6-12.

Additional demographic information was collected through the survey, including participants' gender, age range, and years of teaching experience. This data was used to explore whether these factors influenced perceptions of GenAI in educational practices. Table 6 displays the number of teacher participants by age range, gender, and building level. Table 7 presents the number of teacher participants by years of experience, gender, and building level.

Table 6

Number of Teacher Participants by Age Range, Gender, and Building Level

Age Range	Number of Teachers			
	Elementary		Secondary	
	Male	Female	Male	Female
Under 25	0	1	0	0
25-35	1	8	1	7
35-44	0	10	4	9
45-54	1	7	3	8
55-64	0	2	1	5
65+	0	0	0	0

Note. No participants were age 65 or over.

Table 7

Number of Teacher Participants by Years of Experience, Gender, and Building Level

Years of Experience	Number of Teachers			
	Elementary		Secondary	
	Male	Female	Male	Female
0-5	1	5	1	4
6-10	1	4	2	8
11-15	0	6	2	3
16-20	0	7	1	4
21+	0	6	3	10

Note. Elementary refers to Grades K-5 and Secondary refers to Grades 6-12.

Data Analysis

This action research study employed a mixed-methods strategy. A concurrent mixed-methods framework was used, allowing for the simultaneous but separate collection and analysis of quantitative and qualitative data before merging the results. This approach helped mitigate the limitations associated with relying on a single method and supported a more comprehensive understanding of the research problem. Accordingly, the data analysis and findings are organized into two sections: The quantitative data analysis and findings section addresses Research Questions 1, 2, and 3, while the qualitative data analysis and findings section addresses Research Question 4.

Quantitative Data Analysis & Findings

The quantitative component of the survey consisted of Likert scale items, with response options ranging from Strongly Disagree to Strongly Agree. While the questions presented to teachers and administrators were similar in structure, they were tailored slightly to reflect their respective roles. Teachers were asked to reflect on their own

instructional practices, whereas administrators responded based on their perceptions of the practices of the teachers they supervise.

Aligned with the Technology Acceptance Model (TAM), the survey measured three core constructs: Perceived Usefulness (PU), Perceived Ease of Use (PEOU), and Behavioral Intent (BI). Teachers were asked to reflect on their own instructional practices, whereas administrators responded based on their perceptions of how teachers within their buildings may use or benefit from GenAI tools. For example, a PU item for teachers asked, "*Using GenAI tools helps me engage student*s," while a corresponding administrator item stated, "*GenAI tools improve the quality of instruction in my building*." Similarly, a PEOU item for teachers asked, "*GenAI tools are easy to use in my classroom*," and for administrators, "*Teachers in my building can easily learn to use GenAI tools*." Behavioral Intent items included statements such as "*I intend to use GenAI tools more frequently in the future*." The full survey instrument, including all Likert scale and open-ended items, is provided in Appendix D.

Specifically, teachers responded to:

- 8 items related to Perceived Usefulness (PU),
- 6 items related to Perceived Ease of Use (PEOU), and
- 4 items related to Behavioral Intent (BI).

Administrators responded to:

- 8 items related to Perceived Usefulness (PU),
- 6 items related to Perceived Ease of Use (PEOU), and
- 5 items related to Behavioral Intent (BI).

Quantitative data were analyzed using IBM SPSS Statistics (Version 29). Descriptive statistics and multiple linear regression analyses were conducted to address Research Questions 1, 2, and 3. The following sections present the analysis procedures and corresponding results for each research question.

Research Question 1

Research Question 1 asked: *What are K-12 teachers' and building administrators' perceptions of using GenAI in educational practices as measured by the Technology Acceptance Model Likert scale responses to perceived levels of usefulness and perceived levels of ease using descriptive statistics?*

Data were analyzed using descriptive statistics, focusing specifically on two TAM constructs: Perceived Usefulness (PU) and Perceived Ease of Use (PEOU). Teachers (N = 68) reported a mean PU score of 3.62 (SD = 0.73), while administrators (N = 9) reported a slightly higher mean of 3.84 (SD = 0.49). Perceptions of ease of use were nearly identical between the two groups, with both teachers and administrators reporting a mean PEOU score of 3.63. Standard deviations for PEOU were 0.76 for teachers and 0.32 for administrators.

These results suggest that both teachers and administrators hold moderately positive perceptions regarding the usefulness and ease of use of GenAI tools in educational practices. The descriptive statistics for teachers are presented in Table 8, and those for administrators are presented in Table 9.

Table 8

Descriptive Statistics for Teacher Responses by Item

Item	Mean	Median	Standard Deviation
PU1	3.691176471	4	0.868303423
PU2	3.367647059	3	0.960478919
PU3	3.897058824	4	0.81294941
PU4	3.720588235	4	0.825807398
PU5	4	4	0.914232408
PU6	3.161764706	3	0.907847941
PU7	3.5	4	0.969689903
PU8	3.647058824	4	0.988964571
PEOU1	3.691176471	4	0.981277768
PEOU2	3.544117647	4	1.028458106
PEOU3	3.632352941	4	0.789944486
PEOU4	3.647058824	4	0.893838041
PEOU5	3.779411765	4	0.843687504
PEOU6	3.5	3.5	0.657902592
BI1	3.720588235	4	0.911708061
BI2	3.911764706	4	0.988520591
BI3	3.735294118	4	1.01654444
BI4	3.720588235	4	1.034416531
BI5	3.808823529	4	0.965947882

Note. PU = Perceived Usefulness; PEOU = Perceived Ease of Use; BI = Behavioral Intent. Values represent the average of all teacher responses (N = 68) to each item on a 5-point Likert scale.

Table 9

Descriptive Statistics for Administrator Responses by Item

Item	Mean	Median	Standard Deviation
PU1	3.777777778	4	0.666666667
PU2	3.777777778	4	0.666666667
PU3	3.777777778	4	1.092906421
PU4	4	4	0.707106781
PU5	4	4	0.5
PU6	3.777777778	4	0.440958552
PU7	3.777777778	4	0.666666667
PU8	3.888888889	4	0.333333333
PU9	3.777777778	4	0.440958552
PEOU1	3.666666667	4	0.707106781
PEOU2	3.333333333	3	0.5
PEOU3	4	4	0.5
PEOU4	3.555555556	4	0.527046277
PEOU5	3.888888889	4	0.333333333
PEOU6	3.333333333	3	0.707106781
BI1	4	4	0.5
BI2	4	4	0.707106781
BI3	3.666666667	4	1
BI4	4.111111111	4	0.600925213

Note. PU = Perceived Usefulness; PEOU = Perceived Ease of Use; BI = Behavioral Intent. Values represent the average of all administrator responses (N = 9) to each item on a 5-point Likert scale.

Research Question 2

Research Question 2 asked: *In what ways do perceptions of GenAI in educational practices differ between K-12 teachers and building administrators as measured by a regression analysis of the Technology Acceptance Model Likert scale responses?*

To address this question, a multiple linear regression was conducted to examine whether PU and PEOU predicted BI to use GenAI tools among teachers. The overall regression model was statistically significant and explained a substantial portion of the

variance in teachers' behavioral intent to use GenAI tools. Specifically, perceptions of usefulness and ease of use together accounted for approximately 75% of the variability in teachers' intent to adopt GenAI tools (R^2 = .754, Adjusted R^2 = .746). PU was a statistically significant positive predictor of BI (β = .770, p < .001), while PEOU was not a significant predictor (β = .129, p = .152).

Before interpreting the regression model for the teacher group, key assumptions of multiple linear regression were evaluated. A visual inspection of both the histogram and the normal probability plot of standardized residuals indicated that the residuals were approximately normally distributed. Additionally, the scatterplot of standardized predicted values versus standardized residuals showed no clear patterns or funnel shapes, supporting the assumptions of linearity and consistent variance (homoscedasticity).

Multicollinearity was assessed using Variance Inflation Factor (VIF), and the results were acceptable (VIF = 2.088 for both predictors), indicating that the predictors were not too closely related. Additional collinearity diagnostics confirmed that no single predictor disproportionately influenced the model. These results suggest that, for teachers, the PU of GenAI tools is a strong and statistically meaningful predictor of their intent to use these tools, while PEOU does not significantly contribute to the prediction. The full regression results for the teacher model are presented in Table 10.

Table 10

Multiple Regression Analysis Predicting BI from PU and PEOU Among Teachers

Predictor	Unstandardized Beta (β)	Std. Error	Standardized Beta (β)	t	p-value	VIF	R^2	Adj. R^2
(Constant)	-0.296	0.303		-.976	.333		.754	.746
PU	0.967	0.112	.770	8.662	< .001	2.088		
PEOU	0.157	0.108	.129	1.450	.152	2.088		

Note. PU = Perceived Usefulness; PEOU = Perceived Ease of Use; BI = Behavioral Intent; VIF = Variance Inflation Factor. Values represent results of a multiple linear regression analysis predicting BI from PU and PEOU for teachers (N = 68).

Similar to the teacher group, a multiple linear regression was conducted to examine whether PU and PEOU predicted administrators' BI to support GenAI use within their school buildings. The overall model was not statistically significant, R^2 = 0.513, Adjusted R^2 = 0.350, indicating that although approximately 51% of the variance in BI was explained by the model, the predictors did not reach statistical significance.

Specifically, PU (β = .361, p = 0.308) and PEOU (β = .470, p = .197) were not statistically significant predictors of BI. These findings suggest that, among administrators, beliefs about the usefulness and ease of use of GenAI tools (as they relate to teacher use) did not meaningfully predict their intent to support GenAI implementation in their buildings.

The assumptions for conducting multiple linear regression were evaluated for the administrator group. Because the sample size was small (N = 9), the results should be interpreted with caution. The histogram of standardized residuals appeared fairly symmetrical but is somewhat flat, which may be due to the limited number of responses.

The normal probability plot (P–P plot) showed some deviations from the expected line, indicating that the residuals were not perfectly normally distributed.

A scatterplot of standardized predicted values versus standardized residuals showed no clear curve or funnel pattern, which supports the assumption of linearity. However, because the sample size was small, it was difficult to fully assess whether the spread of residuals was consistent (homoscedasticity). VIF values were all below 1.3, and tolerance values were above .70, indicating that multicollinearity was not an issue. Additional diagnostics also showed that the amount of shared variance between the predictors was within acceptable limits.

Although the assumptions were generally met, the small sample size and lack of statistical significance limit the interpretability of the model. The full regression results for the administrator group are presented in Table 11.

Table 11

Multiple Regression Analysis Predicting BI from PU and PEOU Among Administrators

Predictor	Unstandardized Beta (β)	Std. Error	Standardized Beta (β)	t	*p*-value	VIF	R^2	Adj. R^2
(Constant)	-1.137	2.077		-.547	.604		.513	.350
PU	0.461	0.413	.361	1.115	.308	1.292		
PEOU	0.913	0.629	.470	1.450	.197	1.292		

Note. PU = Perceived Usefulness; PEOU = Perceived Ease of Use; BI = Behavioral Intent; VIF = Variance Inflation Factor. Values represent results of a multiple linear regression analysis predicting BI from PU and PEOU for administrators (N = 9).

The regression results show a clear difference between the teacher and administrator groups. For teachers, PU was a strong and statistically significant predictor of BI (β = .770, p < .001), while PEOU was not a significant predictor (β = .129, p = .152).

For administrators, neither PU (β = .361, p = .308) nor PEOU (β = .470, p = .197) significantly predicted BI. Although PEOU had a slightly higher standardized beta than PU, it did not reach statistical significance. These findings suggest that other factors not captured by PU and PEOU may be influencing administrators' intent to support the use of GenAI tools in their school buildings. A side-by-side summary of regression results is presented in Table 12.

Table 12

Comparison of Regression Results for Teachers and Administrators

Predictor	Group	Unstandardized Beta (β)	Std. Error	Standardized Beta (β)	t	*p*-value	VIF	R^2	Adj. R^2
(Constant)	Teachers	-0.296	0.303	—	-0.976	.333	—	.754	.746
	Administrators	-1.137	2.077	—	-0.547	.604	—	.513	.350
PU	Teachers	0.967	0.112	.770	8.662	< .001	2.088		
	Administrators	0.461	0.413	.361	1.115	.308	1.292		
PEOU	Teachers	0.157	0.108	.129	1.450	.152	2.088		
	Administrators	0.913	0.629	.470	1.450	.197	1.292		

Note. PU = Perceived Usefulness; PEOU = Perceived Ease of Use; BI = Behavioral Intent; VIF = Variance Inflation Factor. Values represent the results of multiple linear regression analyses predicting BI from PU and PEOU for both teachers (N = 68) and administrators (N = 9).

Research Question 3

Research Question 3 asked: *How do demographic features (age, gender, role, building level, years of experience, and prior experience using GenAI) influence K-12 teachers' intent to use GenAI tools as measured by applying multiple regression analysis to the Technology Acceptance Model (TAM) Likert scale items?*

In addressing Research Question 3, the analysis focused on several demographic characteristics of participants. Specifically, it examined age, gender, building level, and years of professional experience, along with participants' prior experience with GenAI tools. Age and years of experience were initially collected in ranges; for statistical

analysis, each range was converted to its midpoint value to facilitate quantitative comparison. Gender and building level were treated as categorical variables in the analysis. Prior experience with GenAI was measured on a Likert-type scale from 1 to 4, with higher values indicating more frequent or more extensive use of these tools.

A multiple linear regression was conducted to examine whether demographic variables predicted teachers' BI to use GenAI tools. The overall model was statistically significant, $F(5, 62) = 10.194$, $p < .001$, $R^2 = .451$, Adjusted $R^2 = .407$, indicating that the predictors explained approximately 45% of the variance in BI.

Before interpreting the model, key assumptions of multiple linear regression were evaluated. A visual inspection of the histogram and the normal P–P plot of standardized residuals indicated that the residuals were approximately normally distributed. A scatterplot of standardized predicted values versus standardized residuals showed no clear pattern or funnel shape, supporting the assumptions of linearity and homoscedasticity.

Multicollinearity was evaluated using VIF, with all values below 2.5 and tolerance values above .40, suggesting no major concerns. Collinearity diagnostics showed that the predictors shared acceptable levels of variance. Overall, the results indicate that the assumptions for multiple linear regression were reasonably met.

Among the predictors, prior experience using GenAI tools was the only statistically significant predictor ($\beta = .692$, $p < .001$). Other variables, including age ($\beta = .128$, $p = .388$), gender ($\beta = .092$, $p = .379$), building level ($\beta = .096$, $p = .332$), and years of experience ($\beta = –.066$, $p = .650$), were not statistically significant. The full regression results are presented in Table 13.

Table 13

Multiple Regression Analysis Predicting Behavioral Intent from Demographics and Prior GenAI Experience

Predictor	Unstandardized B	Std. Error	Standardized Beta (β)	t	p-value	VIF	R^2	Adj. R^2
(Constant)	1.454	0.647		2.248	.028		.451	.407
Gender	0.228	0.257	.092	.886	.379	1.209		
Age (Midpoint)	0.012	0.014	.128	.870	.388	2.436		
Building Level	0.177	0.181	.096	.978	.332	1.095		
Years of Experience (Midpoint)	-0.007	0.016	-.066	-.456	.650	2.348		
Prior Experience with GenAI (1–4 scale)	0.618	0.094	.692	6.554	< .001	1.259		

Note. BI = Behavioral Intent; PU = Perceived Usefulness; PEOU = Perceived Ease of Use; VIF = Variance Inflation Factor. Values represent results of a multiple linear regression predicting behavioral intent based on demographic variables and prior experience using GenAI tools.

Qualitative Data Analysis & Findings

Qualitative data were collected using two open-ended questions included at the end of the survey. The questions were designed to gather insight into the factors that

influence K–12 teachers' and administrators' decisions to adopt or avoid using GenAI tools in their educational practices. Each group, teachers and administrators, received parallel questions framed around their respective roles.

The analysis of qualitative responses followed a content analysis approach. Responses were first read in full and reviewed multiple times to ensure familiarity with the data. Open coding, or coding that breaks the data into smaller units and assigns descriptive labels to those units, was used to identify initial concepts within each response. These codes were then grouped into broader categories, and emerging themes were noted to represent the shared experiences, motivations, and concerns expressed by participants. A thematic summary was created for each group, followed by a cross-group comparison of the results.

Research Question 4

Research Question 4 asked: *What factors do K-12 teachers identify as influencing their decisions to adopt or avoid using GenAI tools in their educational practices as measured by a content analysis of their open-ended survey responses?*

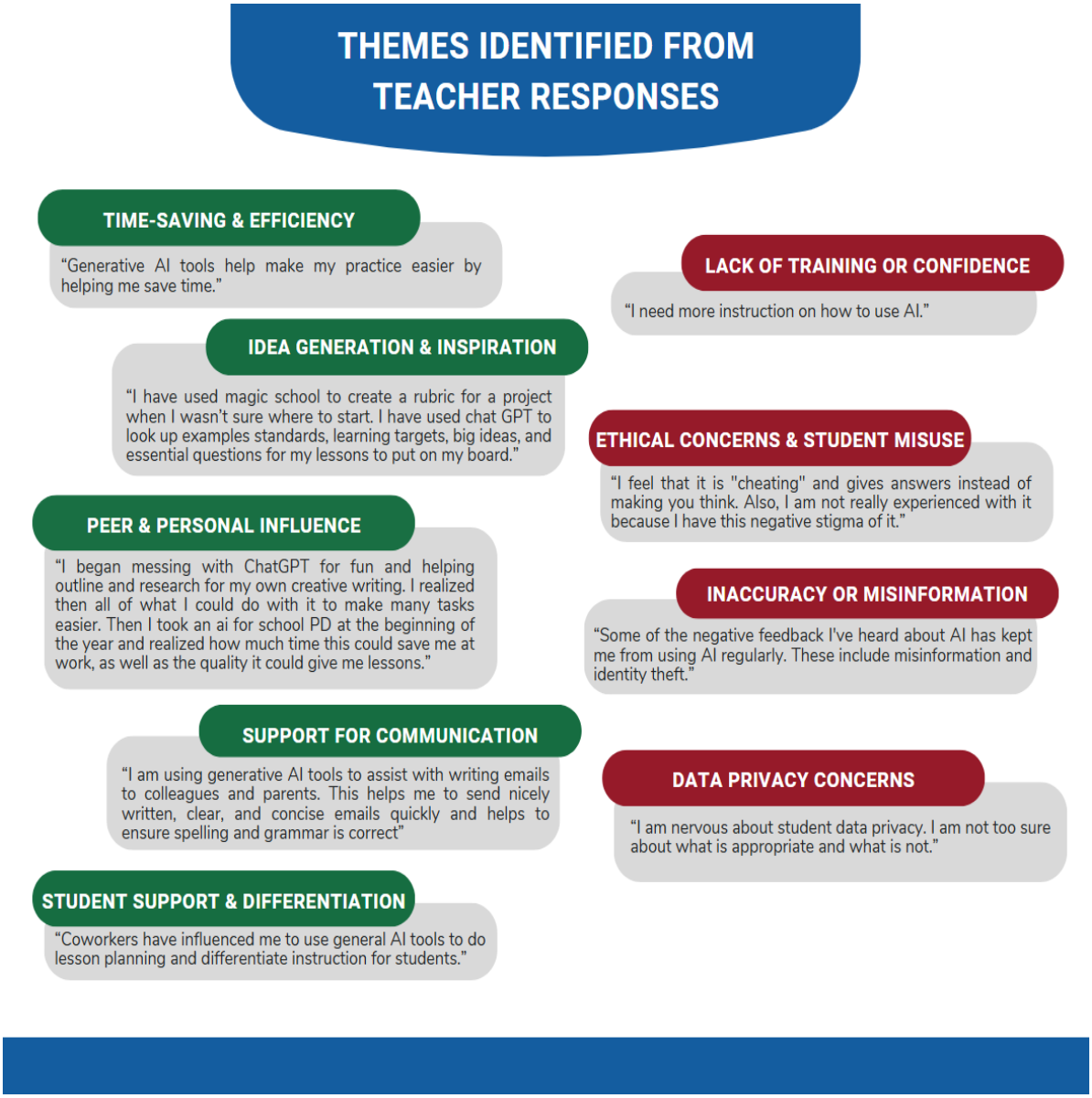
Responses to the open-ended questions on the survey revealed a wide range of perspectives, shaped by teachers' personal experiences, familiarity with GenAI tools, and perceptions of their usefulness for both instructional and personal purposes. Most teachers identified both supportive and limiting factors that influenced their decision-making.

As shown in Figure 2, several key themes emerged from teachers' responses. On the adoption side, the most frequently cited influences were related to time-saving and efficiency, idea generation, and differentiation for students with varied needs. Teachers

described how GenAI helped them streamline lesson planning and generate resources more quickly than traditional methods. However, responses also highlighted hesitations. The most common reasons cited by teachers for avoiding GenAI in educational practices included lack of training, concerns about student misuse or cheating, uncertainty about the accuracy of AI-generated content, and a fear of becoming too removed from the instructional process. Several teachers also noted ethical concerns and the need for clearer guidelines on when and how students could use AI responsibly.

Figure 2

Themes Identified from Teachers' Responses on GenAI Adoption and Avoidance



Note. The themes were identified through content analysis of open-ended survey responses. Quotes are representative of common viewpoints shared by participants and illustrate both positive influences on adoption and concerns that may limit use.

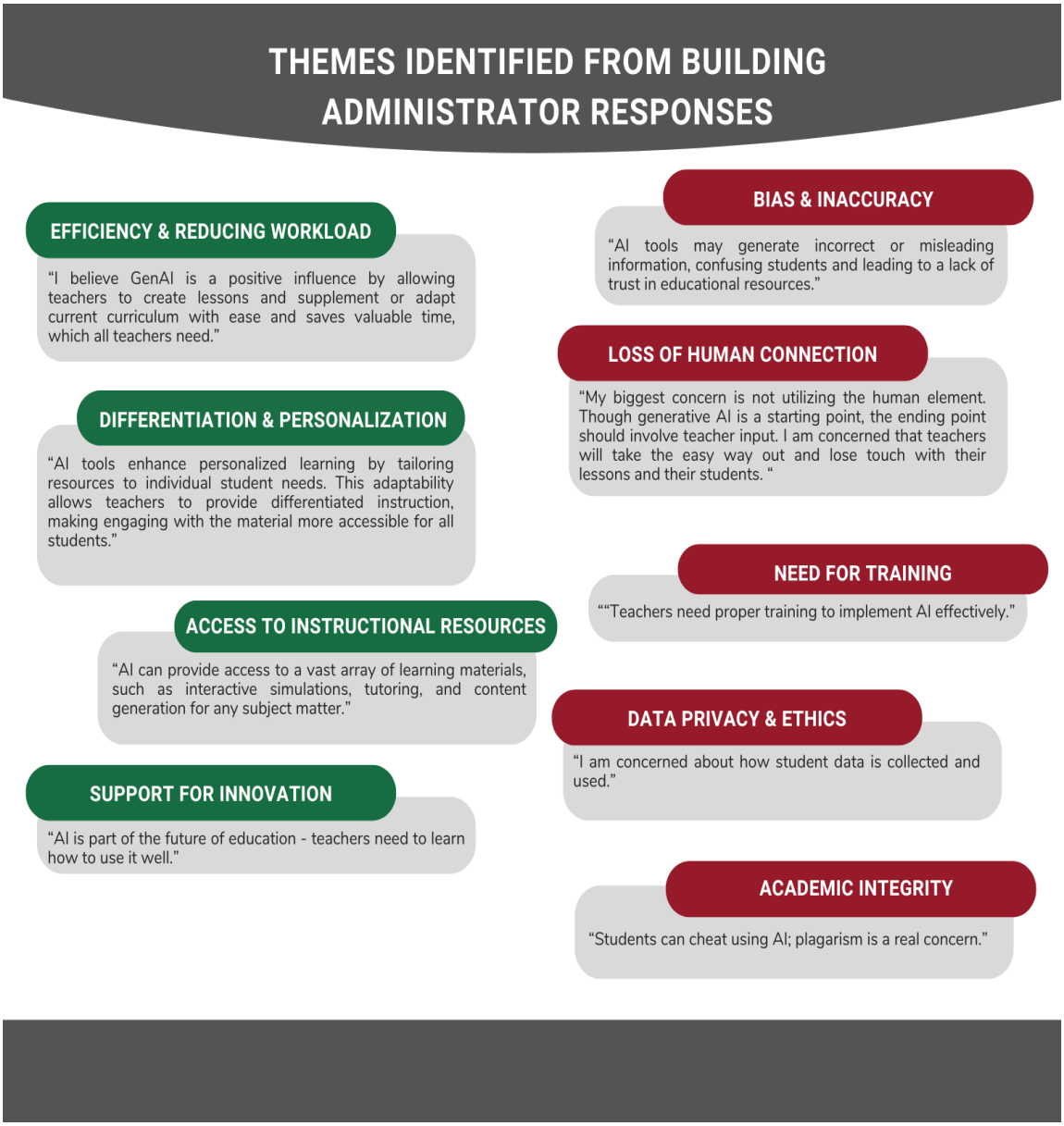
Building administrators were also asked to describe the factors that influence their decision to support or discourage teachers from using GenAI tools in educational practices. As shown in Figure 3, their responses reflected a balanced perspective in which administrators recognize the potential benefits of GenAI while also expressing concerns about its use in classrooms.

Administrators most frequently supported GenAI adoption due to its ability to save time, differentiate instruction, and enhance personalized learning. Several noted that GenAI provides teachers with fresh ideas for creating lessons and helps teachers create instructional materials more efficiently, allowing them to focus more on student engagement. Others highlighted how GenAI supports the development of creative lesson plans and offers accessibility benefits for students with diverse needs, including those with IEPs, 504 plans, or English language support services. Some administrators also framed GenAI as a tool for modernizing instruction and staying current with evolving educational practices.

At the same time, the administrators expressed meaningful concerns. Common themes included student cheating, over-reliance on AI, and the loss of meaningful teacher-student interaction. Others mentioned bias and inaccuracies in AI-generated content, as well as concerns around data privacy and how student information is used or stored. A few responses emphasized the importance of professional development, noting that without adequate training, teachers may not use the tools effectively or responsibly.

Figure 3

Themes Identified from Administrators' Responses on GenAI Adoption and Avoidance



Note. The themes were developed through content analysis of open-ended survey responses. Quotes are representative of common viewpoints shared by participants and illustrate both positive influences on adoption and concerns that may limit use.

A comparison of teacher and administrator responses revealed several overlapping themes as well as a few notable differences. Both groups frequently cited time-saving, efficiency, and differentiation as key reasons for supporting the use of GenAI in educational settings. Teachers focused more on how GenAI could streamline lesson planning, communication, and content creation. Administrators emphasized the role of GenAI in improving instructional effectiveness and supporting diverse learners, particularly those with special education or language needs.

In terms of concerns, both groups expressed caution around student misuse, cheating, and over-reliance on AI. However, the tone and focus of their concerns differed slightly. Teachers were more likely to raise personal barriers, such as a lack of training, uncertainty, or discomfort with new tools. Administrators were more likely to express system-level concerns, such as data privacy, ethical implications, and equitable access. Additionally, several administrators mentioned the risk of GenAI diminishing the relational aspects of teaching, something less emphasized in teacher responses.

Despite these differences, both groups acknowledged the need for intentional implementation and professional development to ensure that GenAI tools are used responsibly and effectively in the classroom.

Triangulation of Quantitative and Qualitative Data

To strengthen the validity of this study's findings, results from the quantitative and qualitative data analyses were integrated through a process of triangulation. The comparison of Likert-scale responses and open-ended reflections provided a more comprehensive understanding of the factors influencing the adoption or avoidance of GenAI tools in educational practices.

Quantitative findings showed that both teachers and administrators reported moderately positive perceptions of GenAI's usefulness and ease of use. Teachers had a mean Perceived Usefulness (PU) score of 3.62, while administrators reported a slightly higher mean of 3.84. Perceived Ease of Use (PEOU) scores were identical at 3.63 for both groups. These results aligned with qualitative responses, in which participants from both groups frequently described GenAI tools as time-saving, efficient, and supportive for differentiation.

Regression results added further context. For teachers, PU was a strong and statistically significant predictor of Behavioral Intent (BI) to use GenAI tools ($\beta = 0.770$, $p < .001$). This aligns with teacher comments that GenAI helps reduce planning time and generates high-quality resources. In contrast, administrator regression results were not statistically significant, suggesting that their intent to support GenAI use may be influenced by factors beyond PU and PEOU, such as ethical considerations, data privacy, or school policy, several of which were reflected in their open-ended responses.

Qualitatively, both groups shared concerns about student misuse, inaccurate content, and the loss of human connection in teaching and learning. However, teachers more often referenced lack of training, hesitation about classroom use, and uncertainty about policy, while administrators focused on broader concerns, such as equity, data privacy, and the importance of professional development.

Together, the triangulated findings suggest that while perceived usefulness strongly drives teachers' intent to use GenAI, administrators' support may be shaped by a more complex set of instructional and institutional concerns. This underscores the

importance of role-specific professional development and clear policy guidance to support responsible GenAI integration in schools.

Summary

Chapter IV presented the results of this mixed-methods study, exploring K-12 teachers' and administrators' perceptions of GenAI tools in educational practices. Quantitative findings revealed that both groups held moderately positive views of GenAI's usefulness and ease of use, with perceived usefulness emerging as a strong predictor of behavioral intent among teachers. In contrast, administrator responses did not show statistically significant predictors, suggesting their support may be influenced by factors beyond ease and usefulness.

Qualitative analysis further illuminated the complexity of GenAI adoption in schools. While many participants praised GenAI tools for improving efficiency, supporting differentiation, and enhancing lesson development, both groups also shared concerns about cheating, accuracy, equity, and the need for professional development. The triangulation of data confirmed a general openness to GenAI, tempered by calls for clearer guidance, training, and thoughtful implementation.

The following chapter, Chapter V: Conclusions and Recommendations, will interpret these findings considering the broader educational context. It will also provide actionable recommendations for school and district leaders seeking to support GenAI integration and prepare educators for its responsible and effective use.

CHAPTER V

Conclusions and Recommendations

Chapter IV presented the data analysis process and results. This chapter, Chapter V: Conclusions and Recommendations, presents conclusions, recommendations, the study's application to Trinity Area School District (TASD), limitations, and recommendations for future research. The conclusions are organized around key themes that emerged from the data, reflecting both the quantitative and qualitative findings. These conclusions aimed to synthesize the study's results and highlight the broader implications for educational practice, particularly regarding the integration of GenAI tools in K-12 settings. The key themes that emerged from the data include:

- Perceived usefulness as the primary driver of teacher adoption over perceived ease of use,
- Concerns about cognitive engagement and the integrity of learning, and
- Prior experience with GenAI, rather than demographic characteristics, predicting adoption.

The following sections are organized by these themes, each addressing the study's four research questions and providing a foundation for the recommendations that follow.

Conclusions

At the inception of this Capstone study, four research questions were identified to guide the study.

Research Question 1: What are K-12 teachers' and building administrators' perceptions of using GenAI in educational practices as measured by the Technology Acceptance

Model Likert scale responses to perceived levels of usefulness and perceived levels of ease using descriptive statistics?

Research Question 2: In what ways do perceptions of GenAI in educational practices differ between K-12 teachers and building administrators as measured by a regression analysis of the Technology Acceptance Model Likert scale responses?

Research Question 3: How do demographic features (age, gender, role, building level, years of experience, and prior experience using GenAI) influence K-12 teachers' intent to use GenAI tools as measured by applying multiple regression analysis to the Technology Acceptance Model (TAM) Likert scale items?

Research Question 4: What factors do K-12 teachers identify as influencing their decisions to adopt or avoid using GenAI tools in their educational practices as measured by a content analysis of their open-ended survey responses?

The sections that follow present conclusions organized by key themes that address these research questions.

Perceived Usefulness Drives Teacher Adoption More Than Ease of Use

One key theme that emerged from the data was the role of perceived usefulness (PU) in driving teachers' behavioral intentions to use GenAI tools, rather than perceived ease of use (PEOU). This finding aligns with Research Question 1 and Research Question 2, highlighting how teachers' perceptions differ from those of building administrators' and emphasizing the central role of PU within the Technology Acceptance Model (TAM) framework.

The TAM framework suggests that the acceptance of technology is influenced by users' perceptions of its usefulness and ease of use. TAM posits that PU, the extent to

which educators believe a technology enhances teaching and learning, is the strongest predictor of adoption (Venkatesh & Davis, 2000). PEOU, the degree to which educators believe a tool requires minimal effort to implement, also influences adoption, primarily by reinforcing perceived usefulness (Davis, 1989).

In the findings presented in Chapter IV, PU was a statistically significant positive predictor of behavioral intention (BI) for teachers. This finding aligns with the TAM construct. PEOU, however, was not a significant predictor in any model.

Teacher responses, both in the Likert scale items and the open-ended questions, highlighted positive perceptions of PU frequently. Teachers often cited that using GenAI saved time, particularly when generating resources, creating lessons, and differentiating instruction. For example, one teacher noted, "Using AI platforms help me immensely with planning, creating ideas, and overall bettering lessons for my students. I love using AI platforms to help me go more in detail on interacting with my students at their own levels," and another teacher shared, "Efficiency is the main reason for leveraging AI. Specifically, I use ChatGPT to develop practice sentences/questions for students' application of skills developed in class." The PU of the tools will likely lead to continued or increased use among teachers.

Building administrators, on the other hand, although recognizing the time-saving benefits for teachers, focused more heavily on the impact of GenAI on student learning. Building administrators described the potential of GenAI to differentiate instruction, tap into students' interests, and better meet students' diverse learning needs. For example, one building administrator stated, "I believe GenAI is a positive influence by allowing teachers to create lessons and supplement or adapt current curriculum with ease and saves

valuable time, which all teachers need. It allows instruction to be differentiated and reach students at their current level and can teach skills by tapping into student interests." Building administrators also expressed concerns about teacher and student over-reliance and other unintended consequences, such as bias and misinformation, resulting from GenAI use in classrooms.

While PU was a statistically significant predictor of teachers' BI to use GenAI, likely because the benefits are more immediate and personal to their instructional practices, it makes sense that PU was not significant for building administrators. For building administrators, the perceived benefits are more indirect, centered on student learning outcomes rather than their day-to-day workflows.

Thus, the perceptions of GenAI differ between K-12 teachers and building administrators in that teachers' acceptance of GenAI is more strongly influenced by the perceived usefulness of the tools for their professional practice, as shown by the statistically significant relationship between PU and BI. In contrast, for building administrators, PU was not a significant predictor of BI, indicating that their acceptance of GenAI is less directly tied to its usefulness for their work, and more reflective of broader considerations related to student learning and potential unintended consequences.

Prior Experience, Not Demographics, Predicts GenAI Adoption

A second theme revealed that demographic characteristics, such as age, gender, role, building level, and years of experience, did not significantly influence teachers' behavioral intentions to use GenAI tools. Instead, prior experience using GenAI emerged as the strongest predictor of future adoption. These findings address Research Question 3

and challenge common assumptions about which educators are most likely to embrace new technologies.

Rather than age or years of service serving as barriers, familiarity with GenAI tools was the factor shaping teachers' willingness to integrate GenAI tools into their educational practices. This suggests that targeted exposure and hands-on learning opportunities may be more effective strategies for increasing GenAI adoption than generalized professional development based solely on demographic groupings.

Some teachers expressed concerns about the applicability of GenAI to their specific content areas, suggesting that its perceived value was tied to their own instructional needs. However, this highlights an important shift needed in thinking: not *How can GenAI help me as the teacher?*, but *How can GenAI help my students?*

Even in disciplines where direct content generation may seem limited, GenAI offers meaningful opportunities to enhance student learning experiences. It can be used to provide scaffolding, generate alternative explanations for difficult concepts, offer language support, and deliver individualized assistance, especially for students who may not have access to academic resources outside of school. Helping teachers recognize and leverage these possibilities will be essential for meaningful GenAI integration. Expanding teachers' understanding of GenAI's potential to support diverse learners will be a critical component of future professional development efforts.

Concerns About Cognitive Engagement and the Integrity of Learning

A third major theme that emerged was teachers' and administrators' concerns regarding the impact of GenAI on cognitive engagement and the overall integrity of the learning process. This theme connects to Research Question 4, as teachers' open-ended

responses identified key factors influencing their decisions to adopt or avoid using GenAI in educational practices.

In the qualitative responses, teachers expressed concerns that GenAI could negatively impact their cognitive engagement or distance them from the educational process. One teacher stated, "I'm fearful it will make me less intelligent!" while another shared, "My use of generative AI has been limited because I worry that the use of generative AI will limit my personal engagement with the material." Concerns were also raised about student use of GenAI, specifically the potential for misuse or academic dishonesty. For example, one teacher noted, "I worry that using AI may entice students to 'cheat' while learning Spanish," and another remarked, "I feel that it is 'cheating' and gives answers instead of making you think."

These concerns point to an underlying fear that GenAI may circumvent critical thinking and deep learning by reducing germane cognitive load, the mental effort dedicated to processing information, forming meaningful connections, and developing schemas for learning (Costley, 2021). When teachers or students rely too heavily on GenAI, they may unintentionally bypass the effortful thinking that supports long-term understanding.

These conclusions point to several recommendations to guide future professional development efforts and instructional practices related to the integration of GenAI tools in K-12 education.

Recommendations for Professional Development

The literature review combined, with the findings of this study, highlighted both opportunities and challenges related to integrating GenAI into K-12 educational

practices. Informed by these conclusions, several recommendations are offered to guide future professional development efforts and instructional strategies.

Rather than asking, *How do I fit GenAI into current educational practices?*, educators must begin asking, *How do I adapt my practices to meet the needs of a new generation of learners in a world where AI is ubiquitous?* Access to information is immediate, and the ability to recognize gaps in knowledge and seek answers responsibly is an essential skill in today's society. In the workplace, taking the initiative to find credible information is highly valued, and schools must reflect this reality by preparing students not only to access information but also to engage critically and thoughtfully with it.

Instead of discouraging students from using AI tools to seek information, educators have a responsibility to guide them in doing so responsibly and effectively. Students need to learn how to evaluate multiple perspectives, identify credible sources, and critically assess the information they encounter. When used appropriately, GenAI can support this process by serving as a tool for exploration and reflection. Instructional practices that position GenAI outputs as starting points, rather than final answers, create space for deeper inquiry, critical thinking, and meaningful application.

Equipping teachers to facilitate these kinds of learning experiences requires professional development that goes beyond simply introducing GenAI tools. Professional development must prepare teachers to design learning experiences that use GenAI to support, rather than replace, germane cognitive load, the mental effort dedicated to building understanding and long-term memory. Teachers need the skills to create assignments where students use GenAI to generate ideas, explore different perspectives,

and then synthesize, critique, and apply information independently. Teachers can further support cognitive engagement by modeling how to engage critically with GenAI, including strategies such as asking follow-up questions, comparing outputs across multiple sources, and reflecting on the reasoning behind answers.

Given that perceived usefulness was a significant predictor of teachers' intent to use GenAI, professional development that emphasizes the practical value of these tools becomes essential. Highlighting how GenAI supports instructional planning, resource creation, differentiation, and overall efficiency helps position it as a meaningful aid to teaching and learning. When teachers engage with GenAI in ways that directly enhance their professional practice, they are more likely to perceive it as a valuable and worthwhile instructional tool.

Furthermore, findings from this study indicated that prior experience using GenAI, rather than demographic characteristics such as age, role, or years of experience, influenced adoption. As a result, teachers must be given opportunities to experiment with GenAI tools in authentic contexts. Allowing teachers to develop lessons, create assessments, differentiate instructional materials, and simulate student interactions using GenAI can help build familiarity, confidence, and a deeper understanding of the tools' potential applications.

Through professional development that models student-centered use, fosters critical evaluation skills, emphasizes practical usefulness, and provides opportunities for experiential learning, teachers might be better equipped to thoughtfully and responsibly integrate GenAI into their classrooms. These strategies aim to help preserve the integrity of the learning process while preparing students to navigate an increasingly AI-driven

world. These recommendations will serve as the foundation for TASD's AI professional development plan.

Application to the Trinity Area School District

The overall purpose of this study was to inform the development of a comprehensive GenAI professional development plan for teachers and building administrators within the Trinity Area School District (TASD). The results and conclusions of this study provide valuable guidance for building this plan. Implementation will be structured in two phases. The first phase will focus on equipping teachers with the knowledge, skills, and confidence needed to effectively integrate GenAI into their instructional practices. Once teachers are prepared to model responsible and purposeful GenAI use, the second phase will shift toward supporting students in developing their own skills for engaging with GenAI tools in ethical, meaningful, and academically enriching ways.

First, professional development will focus on teacher applications for GenAI in the classroom, giving educators the opportunity to see firsthand the value it brings to instructional practices. The goal of this phase is not only to strengthen teachers' perceptions of GenAI's usefulness, but also to begin shifting mindsets - from viewing GenAI as optional or experimental to recognizing its role in preparing students for a technology-rich future. Hands-on exploration opportunities will be prioritized to build teacher confidence and skill.

In the second phase, professional development will shift its focus toward improving student learning outcomes. Teachers will learn how GenAI can be used to benefit students directly and will receive training on how to teach students to engage with

GenAI tools purposefully, ethically, and responsibly. This phase will also involve the procurement of GenAI tools that are age-appropriate, educationally aligned, and designed with strong data privacy protections for students.

The implementation of this plan will carry several fiscal implications for the district. Based on the study's findings, targeted professional development is essential to support teacher adoption of GenAI tools. Investments will be required for training sessions, substitute coverage, teacher stipends, and potential partnerships with external training providers. Additional costs may include the purchase of GenAI tools and supporting technologies, particularly those that require paid subscriptions or offer enhanced educational functionality. Ensuring equitable access to devices and reliable internet connectivity for all students and staff will also be an important consideration.

Although these investments represent new costs, they are essential to preparing educators and students for a future in which AI will play an increasingly central role in academic, professional, and civic life. To ensure a return on investment, the district will prioritize equitable access, teacher readiness, and measurable outcomes. Strategic planning will guide the allocation of resources toward professional development, age-appropriate GenAI tools, and student-centered instructional practices that align with both academic standards and workforce demands. Ongoing evaluation and stakeholder communication will ensure transparency and sustained impact. The urgency of this work has been further reinforced by the Executive Order issued on April 23, 2025, by President Donald Trump which prioritizes AI education for K–12 schools nationwide (Exec. Order No. 14277, 2025).

Limitations

While this study provides important insights into K-12 teachers' and building administrators' perceptions of GenAI in educational practices, several limitations must be acknowledged.

The study was conducted within a single school district, which limits the generalizability of the findings. Districts with different demographics, technology infrastructures, professional development experiences, or institutional cultures surrounding innovation and AI adoption may have different perceptions. Future research should include broader and more diverse district samples to better understand contextual differences.

The survey response rate (29.84%) narrowly missed the commonly sought 30% benchmark in survey research, potentially affecting the representativeness of the findings. In addition, the study did not collect information about the subject areas taught by participants. Understanding how content area needs influence GenAI perceptions would offer important insights, and future studies should incorporate subject-specific data to explore these variations.

While the survey provided a useful overview of general perceptions, it offered limited depth. Participants were at different stages in their GenAI adoption journeys, with some having extensive prior experience and others having little or none. More in-depth qualitative approaches, such as semi-structured interviews or focus groups, could better capture the range and complexity of participants' experiences and attitudes toward GenAI.

External factors may also have shaped participants' perceptions during the study. For example, recent professional development sessions for building administrators on the opportunities and risks of AI use in education could have influenced their views. Future research would benefit from examining the impact of recent training, policy changes, or broader societal discourse on participants' responses.

Finally, the dynamic nature of GenAI technologies presents an inherent limitation. This study captured perceptions at a particular moment in time, but as GenAI tools continue to evolve rapidly, so too will educators' experiences and beliefs. Longitudinal research will be important to track how perceptions shift as GenAI becomes more commonplace in educational settings.

Acknowledging these limitations provides important context for interpreting the results and highlights the need for ongoing investigation. Future research might expand across diverse educational settings, gather deeper qualitative insights, incorporate longitudinal data, and account for contextual influences. Continued study will be essential to inform effective professional development, guide policy, and support equitable and meaningful integration of GenAI into K-12 education.

Recommendations for Future Research

Several areas for future research emerged from the findings and limitations of this study. Future studies might explore perceptions of GenAI adoption across a broader range of school districts, particularly those with different demographic profiles, varying levels of access to technology, and different resource allocations. Conducting studies in rural, urban, and suburban settings would provide a more comprehensive understanding

of how contextual factors influence the acceptance, use, and perceived value of GenAI tools in K-12 education.

Future research might also consider collecting more detailed participant information, including the specific subjects and grade levels taught. Different disciplines may have unique opportunities or challenges related to GenAI integration. For example, perceptions of GenAI's usefulness may differ significantly between math, science, humanities, or arts educators based on the nature of instructional content and the types of tasks GenAI can support. Gaining a clearer picture of how subject area influences adoption could inform the design of more discipline-specific professional development and instructional support.

In addition to expanding the sample and refining participant data collection, future studies would benefit from incorporating qualitative methods such as semi-structured interviews or focus groups. While this study captured valuable initial perceptions through surveys, richer narrative data, such as detailed descriptions of classroom experiences, decision-making processes, or implementation challenges, could deepen understanding of how teachers and administrators conceptualize and apply GenAI in their daily practice. Interviews would also allow researchers to explore emerging themes such as ethical concerns, creativity, student engagement, and instructional redesign in greater depth.

Given the rapid pace of GenAI development, longitudinal studies are also recommended. Tracking how teacher and administrator perceptions evolve, especially as GenAI tools become more integrated into educational platforms and learning management systems, would offer insights into adoption trends, shifts in instructional leadership, and changes in classroom practice. For teachers, such research could

illuminate how GenAI influences planning, differentiation, and student engagement. For administrators, it may reveal how comfort with GenAI tools grows, how professional development needs shift, and how policy decisions affect implementation. Longitudinal research would also help identify any unintended consequences or benefits that may not be visible in short-term studies.

Importantly, expanding future research to include student perceptions of GenAI use in educational settings will provide a more complete understanding of its impact. Students are the direct users and beneficiaries (or critics) of GenAI tools in the classroom, and their voices are essential in understanding the full impact of GenAI integration. Future studies might examine how students perceive the usefulness, fairness, ethical implications, and influence of GenAI on their learning. Research should also explore patterns of student use, as well as differences in perceptions across grade levels, socioeconomic backgrounds, and academic achievement levels.

Finally, future studies can examine the effectiveness of different professional development models for preparing teachers to use GenAI meaningfully, as a means of enhancing instruction, supporting student learning, and promoting ethical use. Research could compare the impact of hands-on workshops, coaching models, collaborative teacher inquiry groups, or online modules on building teacher confidence in using AI, critical thinking, and ethical use of GenAI tools. Such findings could help districts better design PD programs that are responsive to teacher needs and technological advancements.

Together, these avenues of future research would contribute to a deeper and more comprehensive understanding of GenAI's role in transforming K-12 educational practices

and help ensure that its integration supports meaningful, ethical, and equitable learning experiences for all students.

Summary

This Doctoral Capstone Action Research Project explored K-12 teachers' and building administrators' perceptions of GenAI in educational practices within the Trinity Area School District (TASD). Guided by the Technology Acceptance Model (TAM), the study examined factors influencing GenAI adoption, including perceived usefulness, perceived ease of use, demographic characteristics, and prior experience with GenAI tools.

Chapter V presented conclusions organized around three key themes: the central role of perceived usefulness in driving adoption of GenAI, the importance of prior experience over demographic characteristics, and concerns regarding cognitive engagement and the integrity of learning. Recommendations emphasized the need for professional development that models student-centered use of GenAI, fosters critical evaluation skills, and provides hands-on exploration opportunities for teachers and administrators. Application plans for TASD were outlined, including fiscal considerations necessary to support responsible GenAI integration in the classroom and to prepare students for living and working in an AI-driven world. Recognizing the limitations of the study, including sample size, the evolving nature of GenAI technologies, and the need for deeper qualitative insights, several recommendations for future research were offered. These included exploring perceptions across diverse educational settings, investigating content-area differences, incorporating longitudinal studies, capturing student perspectives, and examining effective models of professional

development - such as those that result in increased teacher confidence, observable changes in instructional practice, or improved student understanding and responsible use of GenAI tools.

Overall, this study contributes to the growing understanding of how GenAI tools are perceived and adopted within K-12 education. It highlights the opportunities and challenges associated with integrating emerging technologies into classrooms and underscores the importance of thoughtful, student-centered approaches. As GenAI continues to evolve, educators, administrators, and researchers must work collaboratively to ensure that its use enhances, not replaces, the critical thinking, creativity, and meaningful learning experiences essential for student success in an increasingly AI-driven world.

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APPENDICES

Appendix A

Institutional Review Board Approval

Institutional Review Board
250 University Avenue
California, PA 15419
instreviewboard@calu.edu
Melissa Sovak, Ph.D.

Dear Samantha Shinsky,

Please consider this email as official notification that your proposal titled "Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools in Educational Practices" (Proposal #PW24-020) has been approved by the Pennsylvania Western University Institutional Review Board as submitted.

The effective date of approval is 07/18/2024 and the expiration date is 07/17/2025. These dates must appear on the consent form.

Please note that Federal Policy requires that you notify the IRB promptly regarding any of the following:

(1) Any additions or changes in procedures you might wish for your study (additions or changes must be approved by the IRB before they are implemented)

(2) Any events that affect the safety or well-being of subjects

(3) Any modifications of your study or other responses that are necessitated by any events reported in (2).

(4) To continue your research beyond the approval expiration date of 07/17/2024, you must file additional information to be considered for continuing review. Please contact instreviewboard@calu.edu

Please notify the Board when data collection is complete.

Regards,

Melissa Sovak, PhD.
Chair, Institutional Review Board

Appendix B

Trinity Area School District Letter of Approval

TRINITY AREA SCHOOL DISTRICT
231 Park Avenue, Washington, PA 15301
Phone: 724.223.2000

Dr. Michael P. Lucas
Superintendent
lucasm@trinitypride.org

June 5, 2024

Mrs. Samantha Shinsky
1015 Timber Run Dr,
Mc Donald, PA 15057

Dear Samantha Shinsky,

I am pleased to write a letter in support of your doctoral capstone exploring teachers' perceptions of generative artificial intelligence. Your proposed research is of significant value as it will provide essential insights for developing and tailoring professional development initiatives, curricular resources, and policies that align with the needs of Trinity Area teachers and students.

I have reviewed the project proposal and understand the following related to participation:

- Teacher participation involves completing an anonymous, digital questionnaire containing Likert scale and open-ended items.
- Participation is voluntary, and teachers may withdraw from the study at any time.
- Data collected will be kept confidential and secure via password-protected electronic files.
- Potential risks are minimal and include data breaches, perceived lack of anonymity, fear of repercussions, and social desirability bias. These risks will be mitigated by not collecting email addresses or personally identifiable information, clearly communicating the voluntary nature of the study, and through questionnaire design ensuring it is user-friendly and non-intrusive.

Please accept this letter as my formal consent and support for the district's participation in the proposed research project.

Sincerely,

Dr. Michael P. Lucas
Superintendent

Appendix C

Survey Disclosure Letter

Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools in Educational Practices

Informed Consent
Title of Study: Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools in Educational Practices

KEY INFORMATION
You are being asked by Samantha Shinsky and Faculty Capstone Committee Advisor Dr. John F. Ziegler to participate in a research study. Participation in the study is voluntary, and you may stop anytime.

The purpose of the study is to explore K-12 teachers' and building administrators' perceptions of generative artificial intelligence (GenAI) tools in educational practices.

Generative AI Tools
GenAI tools are designed to create lesson plans, tests, and personalized learning experiences for students. However, they also come with risks like privacy issues and bias. Since GenAI is new and rapidly changing, and there is little guidance from governments, school leaders need to make decisions about using AI in schools.

Educational Practices
Educational practices encompass the methods and strategies used by educators to facilitate learning and develop students' knowledge and skills. This includes designing curricular resources, planning and delivering instruction, assessing students, managing classrooms, and using educational technology.

This study focuses on the Trinity Area School District (TASD) in Washington, Pennsylvania and aims to fill a gap in research by exploring K-12 teachers' and building administrators' perceptions. By doing so, the study will help TASD develop policies and training programs for teachers to effectively and safely use AI in education. The research uses a mix of methods to gain a complete picture of how teachers and administrators feel about using GenAI tools in their educational practices.

In this study, you will be asked to answer questions about your perceptions of generative artificial intelligence as they relate to educational practices:

- 6 demographic questions to understand your background.
- 24 Likert scale questions to gauge your perceptions on the usefulness and intent to use GenAI tools.
- 2 open-ended questions to provide deeper insights into your personal experiences and considerations regarding GenAI tools in education.

It will take about 15 minutes to complete the study.

The potential risks during the study are minimal and similar to those encountered in daily life. Risks are mitigated by not collecting email addresses or personally identifiable information, clearly communicating the voluntary nature of the study, and through questionnaire design ensuring it is user-friendly and non-intrusive.

Remember, you may stop taking the survey at any time. In addition, if you feel the need to talk with someone, you may contact the PennWest Edinboro counseling center at 814-732-2252, or for emergencies, call 814-732-2911.

There are no direct benefits to participants from the research. It will help researchers better understand how K-12 teachers and building administrators perceive generative artificial intelligence to inform TASD's strategic approaches to integrating this emerging technology effectively, ultimately developing effective policies and professional development programs that address the unique needs of teachers and students.

SECURITY OF DATA

The online study is completely anonymous; you will not be asked to give any information that could identify you (e.g., name). The survey is NOT linked to IP addresses. Individual responses will not be presented, just the aggregated data.

Remember, taking part in this study is voluntary. If, while taking the survey, you feel uncomfortable or no longer want to participate, you may stop at any time.

To stop taking the survey, you may either:
(1) proceed to the last page of the survey and press "Submit," or
(2) if you wish to exit the survey, close your browser completely.

There are no consequences if you decide to stop participating in this study.

There is no identifiable information collected from you during this study; all other information from this study will be confidential within local, state, and federal laws. The PennWest University Institutional Review Board (IRB) may review the research records. The study results may be shared in aggregate form at a meeting or journal, but there is no identifiable information to be revealed. The records from this study will be maintained for a minimum of three (3) years after the study is complete.

Your information collected in this research will not be used or distributed for future research, even if all your identifiers are removed.

If you have questions about the research or a research-related injury, you can contact Dr. John F. Ziegler at jfziegler@pennwest.edu. If you have a question about your rights as a research participant that you need to discuss with someone, you can contact the PennWest University Institutional Review Board at

InstReviewBoard@pennwest.edu.

If you would like a copy of this informed consent, please print this screen or contact Samantha Shinsky at shi2805@pennwest.edu.

Approved by the PennWest University Institutional Review Board. This approval is effective from 7/18/2024 to 7/17/2025.

*** By selecting "I agree" and continuing with the survey, you have acknowledged that you have read the informed consent and are at least 18 years old. Also, you acknowledge that you agree to participate in the study and have the right not to answer any or all the questions in the survey. Finally, you understand your participation is entirely voluntary, and you may quit the study at any time without penalty.**

Appendix D

Survey Questions

Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools Educational Practices

Section 1

In this section, we will collect some demographic information to help us understand how different factors may influence your perceptions and use of generative AI tools.

Definition of Generative AI
Generative AI refers to artificial intelligence systems that can create new content, such as text, images, or music, based on the data they have been trained on. Unlike traditional AI, which operates within predefined rules, GenAI can generate human-like responses and content in response to prompts. Below are examples of GenAI tools, with hyperlinks provided for you to learn more about each one if you wish.
Examples of Generative AI

- **ChatGPT**
- **Gemini**
- **Magic School AI**
- **Diffit for Teachers**
- **DALL-E**
- **GPT-4**

Definition of Educational Practices
For the context of this survey, educational practices refer to the various methods, strategies, and techniques employed by educators to facilitate learning and foster the development of knowledge and skills in students. Specifically, these practices include: designing curricular resources, planning for instruction, delivering instruction, assessing students, classroom management, and use of educational technology.

* What is your gender?

* Please select your age range:

- Under 25
- 25-34 35-
- 44 45-54
- 55-64
- 65+

* Please select your current role within the school:

- ◯ Teacher
- ◯ Building Administrator
- ◯ Other (please specify)

* At what educational level is the school in which you work?

- ◯ Elementary
- ◯ Secondary
- ◯ Other (please specify)

* How many years of experience do you have in your current role (teaching or administrative)?

- ◯ 0-5 6-
- ◯ 10
- ◯ 11-15
- ◯ 16-20
- ◯ 21+

* Please indicate your prior experience using generative artificial intelligence or chatbots, including tools such as ChatGPT, Gemini, Diffit for Teachers, Magic School AI, DALLE, GPT-4.

- ◯ A lot (daily to several times per week)
- ◯ Neither more or less (a few times a month)
- ◯ Little (a few times a year)
- ◯ No Prior Experience

Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools Educational Practices

Section 2 - Teachers

This section of the survey uses the Technology Acceptance Model (TAM) to assess your views on the usefulness, ease of use, and your behavioral intent to use generative AI tools in your educational practices.
Instructions
Please read each statement carefully.
Indicate your level of agreement with each statement by selecting one of the five response options: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree."

There are no right or wrong answers; we are interested in your honest opinions based on your personal experiences and beliefs.
Understanding Educational Practices
For the context of this survey, educational practices refer to the various methods, strategies, and techniques employed by educators to facilitate learning and foster the development of knowledge and skills in students. Specifically, these practices include: designing curricular resources, planning for instruction, delivering instruction, assessing students, classroom management, and use of educational technology.

* Using generative AI tools in my educational practice enhances my effectiveness.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools improve the overall quality of my instructional methods.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools make my job easier.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools are useful in my educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools help me accomplish tasks more quickly.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools improve students' learning outcomes.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Learning to operate generative AI tools is easy for me.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* My interaction with generative AI tools is clear and understandable.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I find generative AI tools to be flexible to interact with.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* It is easy for me to become skillful at using generative AI tools.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I find generative AI tools easy to use.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools require minimal effort to use effectively.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Using generative AI tools in my educational practices is a good idea.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I have a positive attitude towards using generative AI tools in my educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I believe that using generative AI tools would be pleasant.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I like the idea of using generative AI tools in my educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Using generative AI tools is beneficial to my educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I intend to use generative AI tools in my educational practices in the future.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I predict that I will use generative AI tools in my educational practices regularly.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I plan to incorporate generative AI tools into my educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I am likely to use generative AI tools in my educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Using generative AI tools in educational practices will positively impact student learning outcomes.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I believe that using generative AI tools is necessary for modern educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I am open to learning more about the potential of generative AI tools in educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools Educational Practices

Section 2 - Building Administrator

This section of the survey uses the Technology Acceptance Model (TAM) to assess your views on the usefulness, ease of use, and your behavioral intent to support the use of generative AI tools by teachers in your school.
Instructions
Please read each statement carefully.
Indicate your level of agreement with each statement by selecting one of the five response options: "Strongly Disagree," "Disagree," "Neutral," "Agree," and "Strongly Agree."
There are no right or wrong answers; we are inter
ested in your honest opinions based on your personal experiences and beliefs.
Understanding Educational Practices
For the context of this survey, educational practices refer to the various methods, strategies, and techniques employed by educators to facilitate learning and foster the development of knowledge and skills in students. Specifically, these practices include designing curricular resources, planning for instruction, delivering instruction, assessing students, classroom management, and the use of educational technology.

* The integration of generative AI tools enhances the effectiveness overall educational practices in my school.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools improve the quality of instructional methods across the school.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools simplify the administrative processes at our school.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools are a valuable addition to our educational resources.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools facilitate more efficient task completion across departments.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools lead to better learning outcomes for students.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Training staff to use generative AI tools is manageable.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Interactions between staff and generative AI tools are straightforward and productive.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools adapt well to the diverse needs of our educational environment.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* It is easy for teachers to become skillful at using generative AI tools.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Staff can easily become adept at using generative AI tools.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Generative AI tools are user-friendly and require minimal effort to implement effectively.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Adopting generative AI tools is a forward-thinking step for our educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I am positive about the role of generative AI tools in transforming educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I am enthusiastic about incorporating generative AI tools into our school's educational strategies.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I like the idea of teachers using generative AI tools in their educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* The use of generative AI tools is beneficial for our school's educational framework.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I support the ongoing use of generative AI tools in our educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I foresee a regular use of generative AI tools in our school's operations.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I am proactive in integrating generative AI tools into our educational strategies.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I anticipate frequent use of generative AI tools in our educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* Using generative AI tools in educational practices will positively impact student learning outcomes.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I believe that using generative AI tools is necessary for modern educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

* I am open to learning more about the potential of generative AI tools in educational practices.

Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
○	○	○	○	○

Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools Educational Practices

Section 3 - Teachers

Please see the two open-ended questions below. We encourage you to share your thoughts and experiences related to using generative AI tools in education.

- **Be Detailed: Feel free to explain your experiences fully, but keep your responses clear and to the point.**
- **Be Honest: There are no right or wrong answers. We value your honest opinions.**

Type your answers in the space provided after each question.

Reminder: For the context of this survey, educational practices refer to the various methods, strategies, and techniques employed by educators to facilitate learning and foster the development of knowledge and skills in students. Specifically, these practices include: designing curricular resources, planning for instruction, delivering instruction, assessing students, classroom management, and use of educational technology.

Describe any experiences or factors that have influenced your decision to adopt generative AI tools in your educational practices? Please include both positive or negative influences.

What are the main reasons you might avoid using generative AI tools in your educational practices? Please share specific concerns or challenges you have encountered.

Exploring K-12 Teachers' and Administrators' Perceptions of Generative AI Tools Educational Practices

Section 3 - Building Administrators

Please see the two open-ended questions below. We encourage you to share your thoughts and experiences related to using generative AI tools in education.

- **Be Detailed: Feel free to explain your experiences fully, but keep your responses clear and to the point.**
- **Be Honest: There are no right or wrong answers. We value your honest opinions.**

Type your answers in the space provided after each question.

Reminder: For the context of this survey, educational practices refer to the various methods, strategies, and techniques employed by educators to facilitate learning and foster the development of knowledge and skills in students. Specifically, these practices include: designing curricular resources, planning for instruction, delivering instruction, assessing students, classroom management, and use of educational technology.

Describe any experiences or factors that have influenced your decision to support teachers' decisions to adopt generative AI tools in educational practices? Please include both positive or negative influences.

What are the main reasons you might want teachers to avoid using generative AI tools in their educational practices? Please share specific concerns or challenges you have encountered.

Appendix E

Emails to Teachers and Building Administrators

Samantha Shinsky <sshinsky@trinityhillers.net>

Fwd: Invitation to Participate in Doctoral Research Study on Perceptions of GenAI in Educational Practices

1 message

Carolyn Miller <cmiller4@trinityhillers.net> Fri, Nov 1, 2024 at 1:54 PM
To: Samantha Shinsky <sshinsky@trinityhillers.net>

---------- Forwarded message ---------
From: **Carolyn Miller** <cmiller4@trinityhillers.net>
Date: Fri, Nov 1, 2024 at 1:39 PM
Subject: Invitation to Participate in Doctoral Research Study on Perceptions of GenAI in Educational Practices
To: Carolyn Miller <cmiller4@trinityhillers.net>

Dear Trinity Area Teachers and Principals,

I hope this email finds you well. I am writing to invite you to participate in an important research study led by Samantha Shinsky, a doctoral candidate at PennWest University. This study, overseen by Faculty Capstone Committee Advisor Dr. John F. Ziegler, aims to explore K-12 teachers' and building administrators' perceptions of generative artificial intelligence (GenAI) tools in educational practices.

Study Purpose: The purpose of this research is to understand your perceptions on the use of GenAI tools—such as those used to create lesson plans, tests, and personalized learning experiences – in educational practices. This study aims to inform TASD's strategic approaches to effectively integrating this emerging technology, ultimately developing effective policies and professional development programs that address the unique needs of our teachers and students.

Generative AI Tools
Generative AI refers to artificial intelligence systems that can create new content, such as text, images, or music, based on the data they have been trained on. Unlike traditional AI, which operates within predefined rules, GenAI can generate human-like responses and content in response to prompts. Within the educational context, GenAI tools are designed to serve as teaching assistants, creating lesson plans, providing feedback, developing assessments, and personalizing learning experiences for students. Examples of GenAI tools include ChatGPT, Gemini, Magic School AI, Diffit for Teachers, DALL-E, and GPT-4. However, these tools also come with risks, such as privacy issues and biases.

Educational Practices
Educational practices refer to the various methods, strategies, and techniques employed by educators to facilitate learning and foster the development of knowledge and skills in students. Specifically, these practices include: designing curricular resources, planning for instruction, delivering instruction, assessing students, classroom management, and use of educational technology.

Participation: Participation in this study is voluntary and you may withdraw at any time. It involves completing an online survey that should take approximately 15 minutes.

Informed Consent: Before you decide to participate, it is important that you understand the purpose and nature of this study. Upon accessing the survey, you will be provided with detailed information about the research. You will be asked to provide your consent before you proceed with the questionnaire. Please note that your responses will be kept strictly confidential, and data will be reported in aggregate form only.

How to Participate: To participate, simply click on the link below: https://www.surveymonkey.com/r/TASD_AI

Deadline for Participation: Please complete the survey by December 16, 2024.

Contact Information: Should you have any questions or require further information, please do not hesitate to contact Samantha Shinsky at shi2805@pennwest.edu or her Faculty Capstone Committee Advisor Dr. John F. Ziegler at jfzeigler@pennwest.edu.

Thank you for considering this opportunity to contribute to our understanding and effective use of generative AI in educational practices.

Warm regards,

Carolyn Miller

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Carolyn Miller

Trinity Area School District
Enrollment Registrar/PIMS/Technology Coordinator

Samantha Shinsky <sshinsky@trinityhillers.net>

Follow-Up: Invitation to Participate in Doctoral Research Study on Perceptions of GenAI in Educational Practices

1 message

Carolyn Miller <cmiller4@trinityhillers.net> Tue, Dec 3, 2024 at 7:36 AM
To: Carolyn Miller <cmiller4@trinityhillers.net>
Bcc: sshinsky@trinityhillers.net

Dear Trinity Area Teachers and Principals,

I hope this email finds you well. I am writing to remind you of the ongoing research study led by Samantha Shinsky, a doctoral candidate at PennWest University. This study, overseen by Faculty Capstone Committee Advisor Dr. John F. Ziegler, aims to explore K-12 teachers' and building administrators' perceptions of generative artificial intelligence (GenAI) tools in educational practices.

If you have already participated, we sincerely thank you for your input. If you have not yet had the opportunity to complete the survey, we encourage you to do so

Study Overview: This study aims to gather insights on how K-12 teachers and building administrators like yourself perceive the integration and impact of GenAI tools—such as those used to create lesson plans, tests, and personalized learning experiences—in educational settings. Your feedback will help inform TASD's strategic approaches to effectively integrating this emerging technology, shaping policies and professional development programs tailored to our unique educational needs.

Participation in this study is voluntary and you may withdraw at any time. It involves completing an online survey that should take approximately 15 minutes.

Informed Consent: Before you decide to participate, it is important that you understand the purpose and nature of this study. Upon accessing the survey, you will be provided with detailed information about the research. You will be asked to provide your consent before you proceed with the questionnaire. Please note that your responses will be kept strictly confidential, and data will be reported in aggregate form only.

How to Participate: To participate, simply click on the link below: https://www.surveymonkey.com/r/TASD_AI

Deadline for Participation: Please complete the survey by **December 16, 2024.**

Contact Information: Should you have any questions or require further information, please do not hesitate to contact Samantha Shinsky at shi2805@pennwest.edu or her Faculty Capstone Committee Advisor Dr. John F. Ziegler at jfzeigler@pennwest.edu.

Thank you for considering this opportunity to contribute to our understanding and effective use of generative AI in educational practices.

Warm regards,

Carolyn Miller

TASD Enrollment Registrar / Technology / PIMS Coordinator

231 Park Avenue
Washington, PA 15301

Phone: (724)223-2000 ext 6510
Fax: (724)228-8272

Samantha Shinsky <sshinsky@trinityhillers.net>

Fwd: Subject: Follow-Up: Invitation to Participate in Doctoral Research Study on Perceptions of GenAI in Educational Practices - Final Week to Participate

1 message

Carolyn Miller <cmiller4@trinityhillers.net> Mon, Dec 9, 2024 at 2:58 PM
To: Samantha Shinsky <sshinsky@trinityhillers.net>

---------- Forwarded message ---------
From: **Carolyn Miller** <cmiller4@trinityhillers.net>
Date: Mon, Dec 9, 2024 at 1:44 PM
Subject: Subject: Follow-Up: Invitation to Participate in Doctoral Research Study on Perceptions of GenAI in Educational Practices - Final Week to Participate
To: Carolyn Miller <cmiller4@trinityhillers.net>

Dear Trinity Area Teachers and Principals,
I hope this email finds you well. I am writing to remind you of the ongoing research study led by Samantha Shinsky, a doctoral candidate at PennWest University. This study, overseen by Faculty Capstone Committee Advisor Dr. John F. Ziegler, aims to explore K-12 teachers' and building administrators' perceptions of generative artificial intelligence (GenAI) tools in educational practices.

If you have already participated, we sincerely thank you for your input. If you have not yet had the opportunity to complete the survey, we encourage you to do so

Study Overview: This study aims to gather insights on how K-12 teachers and building administrators like yourself perceive the integration and impact of GenAI tools—such as those used to create lesson plans, tests, and personalized learning experiences—in educational settings. Your feedback will help inform TASD's strategic approaches to effectively integrating this emerging technology, shaping policies and professional development programs tailored to our unique educational needs.

Participation in this study is voluntary and you may withdraw at any time. It involves completing an online survey that should take approximately 15 minutes.

Informed Consent: Before you decide to participate, it is important that you understand the purpose and nature of this study. Upon accessing the survey, you will be provided with detailed information about the research. You will be asked to provide your consent before you proceed with the questionnaire. Please note that your responses will be kept strictly confidential, and data will be reported in aggregate form only.

How to Participate: To participate, simply click on the link below: https://www.surveymonkey.com/r/TASD_AI

Deadline for Participation: Please complete the survey by **December 16, 2024.**

Contact Information: Should you have any questions or require further information, please do not hesitate to contact Samantha Shinsky at shi2805@pennwest.edu or her Faculty Capstone Committee Advisor Dr. John F. Ziegler at jfzeigler@pennwest.edu.

Thank you for considering this opportunity to contribute to our understanding and effective use of generative AI in educational practices.

Warm regards,

Carolyn Miller

TASD Enrollment Registrar / Technology / PIMS Coordinator

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Carolyn Miller, M.Ed., CHRM, CHRS

Trinity Area School District
Assistant Director of Human Resources and Accountability
Phone: (724)223-2000 x7121

Enrollment Registrar/PIMS/Technology Secretary
Phone: (724)223-2000 x6510

231 Park Avenue
Washington, PA 15301

Samantha Shinsky <sshinsky@trinityhillers.net>

Deadline Extended: Invitation to Participate in Doctoral Research Study on Perceptions of GenAI in Educational Practices

Alyssa Thomas <athomas@trinityhillers.net> Mon, Jan 6, 2025 at 7:14 PM
To: TAEA <TAEA@trinityhillers.net>
Bcc: sshinsky@trinityhillers.net

Dear Trinity Area Teachers and Principals,

I hope this email finds you well. I am writing to remind you of the ongoing research study led by Samantha Shinsky, a doctoral candidate at PennWest University. This study, overseen by Faculty Capstone Committee Advisor Dr. John F. Ziegler, aims to explore K-12 teachers' and building administrators' perceptions of generative artificial intelligence (GenAI) tools in educational practices.

If you have already participated, we sincerely thank you for your input. If you have not yet had the opportunity to complete the survey, we encourage you to do so.

Study Overview: This study aims to gather insights on how K-12 teachers and building administrators like yourself perceive the integration and impact of GenAI tools—such as those used to create lesson plans, tests, and personalized learning experiences—in educational settings. ***Your feedback will help inform TASD's strategic approaches to effectively integrating this emerging technology, shaping policies and professional development programs tailored to our unique educational needs.***

Participation in this study is voluntary and you may withdraw at any time. It involves completing an online survey that should take approximately 15 minutes.

Informed Consent: Before you decide to participate, it is important that you understand the purpose and nature of this study. Upon accessing the survey, you will be provided with detailed information about the research. You will be asked to provide your consent before you proceed with the questionnaire. Please note that your responses will be kept strictly confidential, and data will be reported in aggregate form only.

How to Participate: To participate, simply click on the link below: https://www.surveymonkey.com/r/TASD_AI

Contact Information: Should you have any questions or require further information, please do not hesitate to contact Samantha Shinsky at shi2805@pennwest.edu or her Faculty Capstone Committee Advisor Dr. John F. Ziegler at jfzeigler@pennwest.edu.

Thank you for considering this opportunity to contribute to our understanding and effective use of generative AI in educational practices.