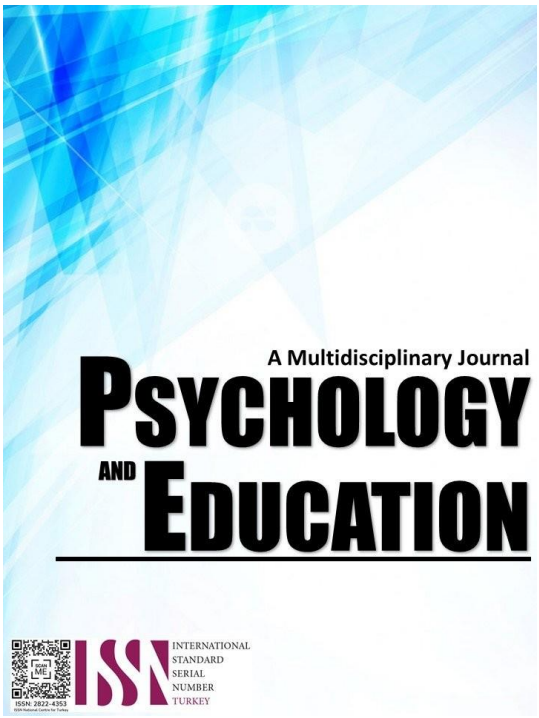
THE LEVEL OF LEARNING MOTIVATION, THE PERCEIVED IMPACT OF CHATGPT AS AN ACADEMIC ASSISTANCE TOOL, AND THE ACADEMIC PERFORMANCE OF SENIOR HIGH SCHOOL STUDENTS IN A PRIVATE INSTITUTION



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Research Article

The Level of Learning Motivation, the Perceived Impact of ChatGPT as an Academic Assistance Tool, and the Academic Performance of Senior High School Students in a Private Institution

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Abstract

As technology becomes increasingly prevalent in education, artificial intelligence (AI) tools like Chat Generative Pre-Trained Transformer (ChatGPT) have emerged as significant resources in academic settings. In this context, parents and educators play a crucial role in ensuring students effectively use these tools while maintaining high motivation and academic success. To explore this relationship, this study employed a descriptive-comparative-correlational design to assess the level of learning motivation, the perceived impact of ChatGPT as an academic assistance tool, and the academic performance of senior high school students at Saint Mary's University. By utilizing a mixed-method approach, the research combined quantitative data gathered via a Likert scale with qualitative insights from an open-ended question. Specifically, a purposive sampling technique was used to select 229 senior high school students. Analysis of the data revealed that students were motivated in their studies and perceived ChatGPT's impact positively as an academic assistance tool. Moreover, notable variations were observed in learning motivation across different sexes and levels of educational proficiency, as well as in the perceived impact of ChatGPT relative to educational proficiency levels. Furthermore, a moderately low positive correlation was found between learning motivation and academic performance, while very low correlations were noted between ChatGPT's perceived impact and both academic performance and learning motivation. However, the study has limitations due to its small sample size and the uneven distribution of participants across various strands and tracks and proficiency levels, which affected the generalizability of the results. Future researchers should address these limitations for a more comprehensive understanding of the topic. Ultimately, the findings provide a foundation for developing educational strategies and targeted interventions involving parents in boosting student motivation and academic performance.

Keywords: *academic assistance tool, academic performance, artificial intelligence, ChatGPT, descriptive-comparative-correlational design*

Introduction

As the world of education rapidly evolves, students face new challenges on their academic paths. Among these challenges is the difficulty of meeting the demands of modern learning environments. With academic work growing more intricate and performance expectations rising, students often turn to unconventional sources for assistance, one of which is Artificial Intelligence (AI). According to Coursera (2024), "AI refers to computer systems capable of performing complex tasks that historically only a human could do, such as reasoning, making decisions, or solving problems. It is an umbrella term that encompasses a wide variety of technologies, including machine learning, deep learning, and natural language processing (NLP)."

The application of AI in enhancing student learning and performance has been a significant development in the educational sector (Du Boulay, 2016). Within educational settings, AI applications have ushered in a new era of innovation and efficiency, aiming to enhance the quality of learning processes. Through AI-enabled tools such as learning management systems, virtual tutors, and adaptive learning platforms, students can personalize their learning experiences, access tailored resources, and receive targeted support (Chai et al., 2021; Chassignol et al., 2018; Ciolacu et al., 2019). Furthermore, AI-powered technologies offer unprecedented insights into student performance and learning patterns, enabling them to track their progress and identify areas for improvement effectively. An example of a notable AI chatbot system is Chat Generative Pre-Trained Transformer (ChatGPT), which utilizes sophisticated natural language processing algorithms to aid students in their academic endeavors (Caratiquit K. & Caratiquit L. J. C., 2023)

In the context of the Philippines, particularly in Cagayan, the research findings of Caratiquit K. and Caratiquit L. J. C. (2023) underscore the beneficial impact of ChatGPT as an academic support tool on students' motivation to learn. Their study suggests that ChatGPT achieves this by offering helpful tools, immediate feedback, and engaging features that stimulate students' interest and active involvement in their academic pursuits. The correlation identified between ChatGPT and learning motivation implies a positive effect on students' drive to excel in their studies. Moreover, ChatGPT indirectly contributes to improved academic performance by directly enhancing learning motivation, thereby fostering students' curiosity, enthusiasm, and dedication to learning.

Similarly, the study conducted by Yildiz (2023) reflected comparable findings, demonstrating that the group engaged in post-lesson activities with ChatGPT support showed significant improvements in both test scores and motivation levels. Specifically, this experimental group exhibited increased motivation following the integration of ChatGPT into the post-lesson activities, particularly in terms of self-regulation, intrinsic value, and alleviation of test anxiety. The perceived incorporation of AI was found to have a

significant correlation with intrinsic motivation (Martín-Núñez et al., 2023; Rajeswari & Madhusudan, 2022). Furthermore, the utilization of AI-powered chatbots has been demonstrated to bolster students' academic performance, self-efficacy, and motivation (Lee et al., 2022).

However, the implementation of AI-based chatbots like ChatGPT raises significant ethical and privacy concerns. Key areas for further research and development include enhancing transparency, improving security protocols, preserving the privacy of training data, developing AI systems capable of identifying potential data leaks or privacy violations, and incorporating stewardship requirements (Helberger & Diakopoulos, 2023). Moreover, many limitations of ChatGPT are evident in its generated texts, such as issues with hallucinations, originality, and toxicity. Despite significant improvements in the quality of its responses compared to previous chatbots, ChatGPT still occasionally produces erroneous, biased, discriminatory, offensive, or plagiarized content (Hua et al., 202

Therefore, ChatGPT emerges as a valuable tool that can significantly contribute to enhancing students' learning motivation and academic performance. By providing continuous academic support tailored to individual needs and preferences, ChatGPT offers students personalized assistance, fostering a sense of autonomy and intrinsic motivation in their learning journey. However, despite its potential benefits, this chatbot system is not without limitations. Nonetheless, with ongoing advancements in artificial intelligence technology and a commitment to addressing these limitations, ChatGPT holds promise as a valuable tool for enhancing students' learning motivation and academic performance.

ChatGPT and its Capabilities

The introduction of Generative Pre-Trained Transformer (GPT) by OpenAI, a prominent company established in December 2015 in the United States by Elon Musk, Sam Altman, Greg Brockman, Ilya Sutskever, Wojciech Zaremba, and John Schulman, in June 2018 represented a noteworthy achievement in the realm of AI, ushering in a new era of language processing capabilities. Since then, ChatGPT, an evolution of GPT created by OpenAI and launched in November 2022, has emerged as an intelligent conversational agent capable of understanding nuanced inputs and generating contextually relevant responses (Cascella et al., 2023; Hetler 2024). Additionally, ChatGPT is a generative AI model that allows users to interact with it by typing questions or prompts (Hetler, 2024). Leveraging the robust foundation laid by GPT-3.5, ChatGPT's underlying technology is a Large Language Model (LLM), which leverages Natural Language Processing (NLP) to understand and respond to text inputs. Moreover, its versatility stems from its large number of parameters, and its training on an array of topics, enabling it to be used for tasks like customer service, content creation, language translation and even coding (Haque & Li, 2024; OpenAI, 2023). This language model can also answer inquiries and create different types of written content, such as articles, social media updates, essays, code, and emails (Hetler, 2024). Furthermore, this advanced AI chatbot represents the culmination of extensive research and training on vast datasets sourced from online text repositories (Kung et al., 2023; OpenAI, 2022; Taecharungroj, 2023).

The subsequent release of GPT 4 in March 2023 marked another notable advancement, showcasing improvements in reasoning and conciseness (OpenAI, 2023). With its vast data repositories and streamlined architecture, ChatGPT can handle progressively complex requests, surpassing mere basic inquiries (Liu et al., 2022; Lund et al., 2023). These iterations of GPT, including versions 3.5 and 4, represent a continuous journey of refinement and enhancement in AI-driven conversational agents. Thus, these advancements push the boundaries of what is achievable in natural language understanding and generation, opening new possibilities for human-computer interaction and communication (Skavronskaya et al., 2023).

Moreover, OpenAI's commitment to democratizing access to machine learning innovations is evident through the availability of products such as DALL-E, an AI program developed by OpenAI that generates images from textual descriptions, and ChatGPT to the public (Lund et al., 2023). The widespread adoption of GPT by users worldwide underscores its utility and effectiveness, with one million registered users acquired within five days of its launch and 100 million active users in less than three months (Ahmed, 2023; Rudolph et al., 2023).

The core capabilities of ChatGPT are rooted in regression language modeling techniques, coupled with access to vast repositories of data. This integration of 175 billion parameters enables ChatGPT to predict subsequent words with exceptional precision, enhancing the coherence and fluidity of its responses (Taecharungroj, 2023). While alternative language models such as Bidirectional Encoder Representations from Transformers (BERT), a language model designed in 2018 to understand the context of words in a sentence by looking at both the words that come before and after them, making it bidirectional; Robustly Optimized BERT Approach (RoBERTa), an enhanced version of the BERT language model developed by Facebook AI, designed to improve performance on natural language processing tasks through larger training data, dynamic masking, and removal of the next sentence prediction objective; and XLNet or "extra-large network," a state-of-the-art language model that combines autoregressive and bidirectional context modeling to outperform previous models like BERT on various natural language processing tasks, share similar objectives, ChatGPT's superior performance is attributed to its robust design and extensive training data (Lund et al., 2023).

Central to ChatGPT's feature is its ability to comprehend and generate text that closely resembles human conversation, making it highly valuable in various applications. This accomplishment is facilitated by its extensive parameter count and sophisticated deep learning algorithms, enabling it to analyze user input in real time and generate responses that are contextually relevant and coherent (Chatterjee & Dethlefs, 2023). Additionally, its versatility as a conversational agent extends across diverse domains, encompassing customer

service, chatbots, content creation, language translation, question answering, and even programming code generation (Qadir, 2023).

Despite its impressive capabilities, it's important to note that ChatGPT, like any AI system, has its limitations. For instance, the study by Balhorn et al. (2024) on ChatGPT's answering capabilities in natural science and engineering found that the rating of ChatGPT's answers significantly decreased as the educational level of the question increased. This suggests that while ChatGPT can handle basic and intermediate questions well, its performance may not be as strong when dealing with more advanced, specialized content. Additionally, when evaluating skills beyond mere scientific knowledge, such as critical thinking and a critical attitude, ChatGPT's ratings also decreased. This highlights a limitation in the model's ability to engage in more nuanced and complex forms of reasoning that are often required in higher education and professional settings.

ChatGPT as an Academic Assistance Tool

Previous studies have explored the effectiveness of chatbot systems in serving as tools for academic assistance. According to international studies, the study conducted by Lund et al. (2023) across multiple institutions in the USA, China, and India emphasizes that ChatGPT offers comprehensive academic assistance. With its capacity to generate text that mimics human conversation, ChatGPT serves not merely as a tool for elucidating concepts, but also as a conduit for delivering comprehensive responses to complex questions, thereby guiding students through the subject matter with in-depth explanations.

Also, the advantages of employing ChatGPT as a tool for academic assistance are significant. The continuous availability of academic assistance enables students to access it at any time, even outside regular school hours, thereby accommodating their diverse learning needs and schedules (Ahmadi, 2023). A study conducted by Javaid et al. (2023) from India and the USA affirmed that ChatGPT offers personalized assistance by tailoring its responses to match students' unique inquiries while adapting to their learning preferences and pace. This personalized approach to instruction has been demonstrated to enhance students' comprehension and engagement with scholarly materials, while also providing the added benefit of immediate feedback. Moreover, as highlighted by Ekin (2023), the prompt responses provided by ChatGPT enable students to address their academic inquiries promptly, thus promoting an uninterrupted learning experience. Furthermore, the digital platform of ChatGPT ensures accessibility and inclusivity by accommodating diverse communication styles and facilitating the engagement of students with physical disabilities or learning differences through typing or voice commands (Ray, 2023).

Additionally, the study conducted by Wardat et al. (2023) to assess the effectiveness of ChatGPT in improving students' understanding of mathematical concepts unveiled two key benefits. Firstly, ChatGPT can provide instant feedback and support. This is particularly advantageous for students requiring immediate mathematical problem-solving assistance. In fact, many participants in the study expressed amazement at ChatGPT's ability to solve mathematical problems. This aptitude stems from ChatGPT's extensive training in vast amounts of data, including mathematical equations. As a result, ChatGPT has developed a remarkable ability to perform mathematical operations, manipulate algebraic expressions, and solve calculus problems with ease. Secondly, ChatGPT can function as a personalized learning assistant, tailoring its approach to each student's individual needs and pace. This personalized approach can significantly enhance a student's understanding of mathematical concepts.

Building on the study of Wardat et al. (2023) about mathematics, a separate study by Lee H. (2023) from the Department of Medical Informatics, School of Medicine, Keimyung University in Daegu, Republic of Korea, explored the impact of ChatGPT on science and medical learning. The findings suggest that ChatGPT can act as a virtual tutor, offering students in-depth and relevant information on these subjects. This empowers students to grasp complex scientific and medical concepts at their own preferred pace and schedule. Furthermore, the study highlights the engaging nature of ChatGPT. Students reported finding interactive conversations with the platform to make learning more enjoyable and interesting.

Moreover, the study conducted by Qureshi et al. (2021) within the Pakistani context highlights ChatGPT's potential influence on the learning process, which also closely aligns with the principles of constructivist theory. This theory is a prevailing educational philosophy that significantly shapes contemporary approaches to learning and teaching. Constructivism emphasizes the active construction of knowledge by learners, facilitated by engaging with content, interacting with peers, and reflecting on personal experiences (Qiu, 2019). ChatGPT's capabilities resonate with these principles, offering students personalized assistance, facilitating exploration and experimentation, and promoting critical thinking and problem-solving skills. Additionally, ChatGPT's conversational interface enables students to engage in active learning by encouraging dialogue and interaction. According to constructivism, learners construct their understanding of concepts through social interaction and collaboration. By conversing with ChatGPT, students can articulate their thoughts, ask questions, and receive immediate feedback, mirroring the process of collaborative knowledge construction advocated by constructivist theorists (Ippolito et al., 2022). Through personalized suggestions and explanations tailored to students' unique learning needs, ChatGPT serves as an effective "More Knowledgeable Other" (MKO) in the learning process, guiding students toward deeper understanding and mastery of content (Geng & Razali, 2020). Furthermore, in a constructivist learning environment, learners are encouraged to actively seek out information and make meaningful connections between concepts, fostering a deeper understanding of the subject matter (Makewa, 2019).

Incorporating adaptive learning, an educational approach that tailors learning experiences to the unique needs of individual learners through personalized feedback and resources (Huang & Shiu, 2012; Yang et al., 2013), further enhances ChatGPT's role as an academic

assistance tool. ChatGPT's integration into the adaptive learning process offers several advantages consistent with constructivist theory. Firstly, ChatGPT's ability to analyze students' responses and provide personalized feedback enables educators to adapt learning experiences based on students' specific strengths, weaknesses, and learning styles (Chen et al., 2023). This personalized approach mirrors the constructivist emphasis on addressing students' individual needs and facilitating the construction of knowledge tailored to their unique cognitive structures (Schunk, 2012).

Furthermore, ChatGPT's capacity to engage students in dialogue and provide real-time support allows for adaptive learning experiences that respond to learners' changing needs and progress (Peng et al., 2019). ChatGPT's adaptability enables it to serve as a responsive learning companion, guiding students through the iterative process of knowledge construction (Rudolph et al., 2023). By leveraging students' existing knowledge as a foundation for further learning, ChatGPT facilitates the adaptive construction of knowledge consistent with constructivist theory (Rudolph et al., 2023).

Another concept is individualized feedback, rooted in the constructivist theory of learning. It is recognized as a valuable pedagogical approach that offers personalized guidance to students, ultimately enhancing their learning journey (Hattie & Timperley, 2007; Nicol & Macfarlane-Dick, 2006; Pritchard, 2017). This approach aligns with the constructivist notion that learning occurs when new knowledge is integrated into existing knowledge structures. By tailoring feedback to students' individual needs and knowledge levels, individualized feedback not only enriches their understanding of the subject matter but also boosts motivation and performance (Shute, 2008). Additionally, it fosters self-regulated learning by empowering students to set goals and develop strategies to achieve them, contributing to a supportive learning environment (Brookhart, 2008).

Moreover, ChatGPT's ability to provide individualized feedback based on students' prompts has the potential to make learning a more rewarding experience (Bridges, 2009; Weldy & Turnipseed, 2010). Its diagnostic feature can serve as an MKO, offering personalized formative feedback that helps students identify errors and improve their understanding successfully. This feedback mechanism supports students in constructing their own knowledge and understanding by encouraging them to ask questions and seek information in an adaptive and individualized manner, aligning with the principles of constructivist learning (Geng & Razali, 2020).

However, despite all these benefits, the utilization of ChatGPT in education, particularly among students, presents several challenges that need careful consideration. These challenges encompass ethical and equity considerations, maintaining academic integrity, and addressing potential bias and falsified information in information processing.

Firstly, ethical and equity considerations arise due to the potential contradiction with constructivist learning theories, which emphasize active student participation and knowledge construction. Digital inequity becomes a concern as access to technology and high-speed internet varies among students, exacerbating existing disparities in educational access (Vogels, 2021).

Secondly, maintaining academic integrity becomes challenging when using ChatGPT for academic assessments and writing tasks. Passive reliance on AI-generated content may lead to academic dishonesty, such as plagiarism, and hinder students' active involvement in constructing meaning. Responsible and ethical use of ChatGPT requires users to critically evaluate the generated information, acknowledge its source, and cite it appropriately (Keith, 2022).

Lastly, potential bias and falsified information in ChatGPT-generated content pose risks to the accuracy and reliability of students' learning experiences. Biased training data and insufficient model training can lead to outputs that reinforce misconceptions and perpetuate factual biases (Dwivedi et al., 2023). This undermines the collaborative learning and critical evaluation of information essential in constructivist theory.

Learning Motivation

Worldwide, the education sector has been increasingly focused on ensuring that students achieve optimal learning and academic success. Various factors have been linked to poor academic performance, including ineffective study habits, laziness, inadequate classroom instruction, insufficient instructional materials, and low motivation (Akpan, 2000). Additionally, motivating students to excel in school is a pressing issue for educators and is considered one of the most significant challenges of the 21st century (Awan et al., 2011). Helping students maintain interest in their studies should therefore be a central goal for teachers as well as for parents.

Motivation is widely recognized as a key factor influencing academic learning and performance (Elliot & Dweck, 2005). According to Muola (2010), motivation significantly contributes to academic success, highlighting the need for parents and teachers to foster and nurture it early in life. Feldman (2005) describes motivation as the factors that guide and energize behavior. In addition, Svinicki and Vogler (2012) describe it as the dynamic interaction between a learner and their environment, which influences how goals are chosen, initiated, pursued, and sustained. This interaction can be shaped by personal traits, environmental circumstances, or the nature of the task.

Motivated learners are typically more eager to participate and engage in their studies. Teaching motivated students is a rewarding experience for educators and learners alike. While some students are naturally driven by an inherent passion for learning, others may require the influence of a skilled teacher to make lessons engaging and inspire them to reach their potential (Nilson, 2003). Furthermore, motivation operates both consciously and unconsciously, giving purpose and direction to behavior (American Psychological Association [APA] Dictionary of Psychology, 2018). It fulfills basic physiological and social needs while influencing decision-making

and actions. In the context of modern education, Maggiolini (2013) notes a shift in student preferences toward learning environments enriched with technology, underscoring the importance of incorporating digital tools to increase motivation and foster effective learning.

In learning, motivation exists in various forms, each affecting how individuals engage and persist in their studies. Llanga et al. (2019) classify motivation into two main types: extrinsic and intrinsic. Both forms profoundly impact how students approach learning and shape their attitudes. Yunus and Abdullah (2011) and Berger and Karabenick (2011) also emphasize the significant influence of intrinsic and extrinsic motivation, which can produce either positive or negative outcomes.

Intrinsic motivation comes from within, driven by personal interest or satisfaction in an activity (Llanga et al., 2019). Students with intrinsic motivation engage in academic tasks because they find them enjoyable and rewarding (Schiefele, 1991). Harter (1978) considers this form of motivation a fundamental human trait that pushes individuals to seek out new challenges and test their capabilities. Thus, students with goals focused on mastering knowledge or skills are often motivated intrinsically (Cavallo et al., 2003).

According to Csikszentmihalyi and Nakamura (1989), intrinsically motivated individuals exhibit several key characteristics: they approach activities with full mental and physical engagement, focus intensely on tasks, set clear goals, self-critique, reflect realistically on their progress, and remain calm and unafraid of failure. Moreover, Stipek (1988) found that these students are independent learners who willingly tackle challenging tasks, integrate academic knowledge with life experiences, and actively seek answers to expand their understanding. They take pride in their achievements, express positive emotions during learning, and demonstrate a high capacity to grasp new concepts effectively.

Extrinsic motivation, in contrast, stems from external factors that influence behavior (Llanga et al., 2019). Examples include parental expectations, role model influences, financial incentives, and rewards such as good grades. In addition, Benabou and Tirole (2003) suggest that extrinsic motivation enhances effort and performance, with rewards acting as reinforcements for desired behaviors. Similarly, Ryan and Deci (2000) note that extrinsic motivation often yields immediate results and requires less effort than intrinsic motivation.

However, extrinsic motivators have limitations. They may distract students from genuine, independent learning, and their impact is typically short-lived. Once rewards are removed, students often lose interest (DeLong & Winter, 2002). Furthermore, Biehler and Snowman (1990) point out that extrinsic motivators can undermine intrinsic motivation. This observation is supported by Bain (2004), who concluded that external rewards negatively affect intrinsic drive.

In the context of learning motivation, both parents and teachers play essential roles in fostering intrinsic motivation, which is vital for academic engagement and long-term success. A study by Jungert et al. (2020) emphasizes that intrinsic motivation not only mediates the relationship between parental and teacher enthusiasm but also contributes to changes in academic achievement, particularly in STEM fields.

First and foremost, parents play a crucial role in the education of their children, particularly in shaping their character and academic development. The family, as the smallest unit of the educational environment, is where a child's first values, intelligence, and preparation for societal life are cultivated (Rahayu et al., 2023). In line with this, parents serve as the initial influencers by actively participating in their children's education, both at home and in school. Research highlights how parental involvement positively impacts children's motivation and academic outcomes (Gonzalez-DeHass et al., 2005; Rogers et al., 2009).

For instance, parents can significantly influence their children's academic success by actively participating in school-related activities, such as attending meetings, engaging with teachers, and volunteering at school events. However, home-based involvement tends to be more prevalent (Pomerantz et al., 2007). This type of involvement generally focuses on managing learning at home and typically includes activities like organizing children's schedules, overseeing their time, and assisting with homework (Xu, 2011). It also encompasses intellectual activities, such as reading with children, visiting museums, and discussing academic matters, including responding to children’s efforts and conversations about school-related topics (Evans & Shaw, 2008; Grolnick, 2009). In fact, studies show that positive parental engagement in numeracy activities can improve children’s skills, particularly in subjects like mathematics (Cui et al., 2019). However, it is important to note that while nurturing activities enhance intrinsic motivation, overly strict parenting and rigid discipline have been linked to negative effects on children's learning and cognitive development (Li et al., 2019).

Moreover, parental academic involvement is believed to enhance children's achievements by providing them with motivational resources, such as fostering positive perceptions of their academic abilities and emphasizing intrinsic reasons for learning. This support helps children engage more fully in school by underscoring the value of education (Hill & Taylor, 2004). Over time, such involvement can lead to the internalization of motivation, encouraging children to learn for their own reasons (Fan & Williams, 2010; Grolnick, 2009). Additionally, parents' active participation in their children’s education demonstrates strategies for handling academic challenges and can positively change how children approach school.

A study by Çelik (2024) further emphasizes the significant role of parents in supporting adolescents' autonomy. This research suggests that when adolescents perceive autonomy support from their parents, they are more likely to perform behaviors autonomously, feel competent in their actions, and view themselves as successful in forming relationships with others. This finding highlights the critical

importance of addressing parental involvement in interventions, especially for adolescents struggling with unmet psychological needs. The study underscores how fulfilling these needs through parental support can improve adolescents' sense of competence and overall well-being.

In addition to the direct effects of autonomy support, the emotional quality of parent-child interactions also plays a significant role in shaping motivation. Mata et al. (2018) examined the impact of emotional support in parent-child relationships on adolescent motivation. Their study emphasizes that positive emotional exchanges—characterized by warmth, care, and support—are crucial in satisfying adolescents' psychological needs for relatedness and competence. In contrast, negative emotional climates, such as high levels of conflict or emotional neglect, can hinder motivation and lead adolescents to adopt more controlled forms of regulation, such as external goal-seeking behaviors, rather than pursuing academic tasks for their intrinsic value.

Equally important, teachers also play a significant role in shaping intrinsic motivation. The study by Jungert et al. (2020) found that teacher enthusiasm was strongly linked to students' intrinsic motivation at their education's initial and later stages. Enthusiastic teachers who inject energy and passion into their lessons create a dynamic learning environment that makes learning enjoyable and stimulates students' interest in the subject matter. This connection between teacher enthusiasm and student motivation is widely supported by research, with studies showing that enthusiastic teachers inspire students, making them more likely to engage deeply with the content and develop a sustained interest in learning (Frenzel et al., 2010; Keller et al., 2016).

Key elements of teacher enthusiasm include both affective experiences and expressive behaviors. Affective experiences, such as intrinsic value and passion for the subject, help make lessons more engaging and enjoyable, while behavioral expressiveness—such as facial expressions, gestures, and eye contact—enhances students' perception of the teacher's enthusiasm (Babad, 2007; Coan & Gottman, 2007; Fredricks et al., 2004; Vallerand et al., 2003). Studies have shown that when students perceive their teacher as genuinely motivated and passionate, they are more likely to experience positive affect and develop intrinsic motivation themselves (Wild et al., 1997).

Additionally, Zou et al. (2023) found a strong correlation between teachers' intrinsic motivation for teaching and students' intrinsic motivation for learning, highlighting the importance of fostering a motivating environment. Intrinsically motivated teachers create engaging learning experiences and promote a passion for knowledge. Additionally, positive teacher-student relationships enhance student motivation by fostering belonging and trust. The study reveals that teachers' autonomy-supporting styles and their relationships with students serve as key mediators. Thus, enhancing student motivation involves both teachers' enthusiasm and their ability to build supportive connections.

Together, the combined influence of parents and teachers creates a powerful framework for nurturing intrinsic motivation. While parents provide the initial foundation through early engagement and positive attitudes toward learning, teachers expand on this by creating an inspiring and supportive academic environment. These joint efforts significantly enhance students' academic performance, long-term motivation, and overall success (Jungert et al., 2020).

Aside from parental and teacher involvement, various theories elucidate the intricacies of learning motivation, with Self-Determination Theory (SDT) emerging as a prominent framework. Proposed by Ryan and Deci (2000), SDT distinguishes between intrinsic and extrinsic motivation, emphasizing autonomy, competence, and relatedness as pivotal factors in fostering intrinsic motivation. Niemiec and Ryan (2009) also have demonstrated the efficacy of SDT in enhancing students' motivation and satisfaction within educational settings. Autonomy, competence, and relatedness are identified as the psychological needs that satisfy intrinsic motivation (Ryan & Deci, 2000). Autonomy pertains to self-initiated and selective actions, competence involves perceiving effective task performance with confidence, and relatedness encompasses affective support received or given during interactions (Ryan & Deci, 2000).

Researchers have applied the SDT framework to intrinsic motivation in various educational contexts, such as technology-enhanced online learning (Hsu et al., 2019), mobile learning (Jeno et al., 2018; Nikou & Economides, 2018), and gamified online learning (Bovermann et al., 2018). These studies revealed that fulfilling basic psychological needs enhances learning motivation, leading to better achievement of course objectives. Additionally, they found out that students with higher intrinsic motivation exhibit persistence in handling challenging tasks and derive greater satisfaction and enjoyment as they gain competence in new knowledge.

In connection with this, the study conducted by Kusurkar et al. (2012) from University Medical Center Utrecht, in the Netherlands, revealed that the quality of motivation, particularly Relative Autonomous Motivation (RAM), exerts a significant influence on academic performance. RAM, which assesses the balance between Autonomous Motivation (AM) originating from within the individual and Controlled Motivation (CM) stemming from external sources, emerged as a critical factor. Employing Structural Equation Modelling (SEM) analysis, the study examined a model wherein high RAM positively impacted Good Study Strategy (GSS) and study effort, subsequently leading to improved academic performance measured by grade point averages. The model demonstrated a good fit with the data and proved applicable across all tested student subgroups. Notably, differences were observed in the strength of relationships between the variables for various subgroups, such as males and females.

Therefore, motivation plays an essential role in shaping students' engagement, behavior, and overall learning experience. It influences both the initiation and persistence of goal-directed actions, whether driven by external rewards or internal satisfaction. Moreover, the Self-Determination Theory offers valuable insights into how autonomy, competence, and relatedness contribute to intrinsic motivation,

further emphasizing the need for supportive learning environments. Furthermore, empirical studies confirm that higher levels of autonomous motivation positively correlate with improved academic outcomes, persistence, and satisfaction. As educational practices continue to evolve with digital advancements, understanding and nurturing student motivation remains pivotal in creating meaningful learning experiences that promote long-term success.

Academic Performance

Understanding student achievement requires examining academic performance, which serves as a vital indicator of how well students are progressing in their educational journey. As highlighted in the research by Arokiaraj et al. (2024), academic performance is intrinsically linked to student motivation and encompasses a multifaceted evaluation of student learning and educational achievement. It is not solely reliant on grades but includes a broader spectrum of indicators such as standardized test scores, course completion rates, and the overall grasp and application of knowledge and skills. Additionally, motivated students are more likely to actively engage in their academic pursuits, leading to improved academic outcomes (Raza et al., 2022). Therefore, academic performance can be seen as a reflection of a student's active participation, knowledge acquisition, and successful completion of academic tasks, influenced significantly by their level of motivation.

In the dynamic landscape of modern education, the relationship between ChatGPT and academic performance is a subject of considerable interest and investigation. One critical aspect to consider within this relationship is the role of learning motivation. According to Brenner (2022), the SDT by Ryan and Deci (2000) suggests that both intrinsic and extrinsic motivation levels greatly influence individuals' academic engagement and success. Also, a study conducted by Lu and Cutumisu (2022) from the Department of Educational Psychology, Centre for Research in Applied Measurement and Evaluation, Faculty of Education, University of Alberta, Edmonton, Canada, explored how learning motivation acts as a mediator in the relationship between learning support systems and student performance. The results indicated that motivation serves as a crucial mediator in the impact of the intervention on academic results.

Additionally, numerous studies have delved into the impact of AI-based chatbots, like ChatGPT, on students' learning motivation and academic performance, particularly at the secondary school level. Previous international studies conducted by Lee D. and Yeo (2022), Lee H. (2023), and Wardat et al. (2023) have highlighted the positive influence of chatbot interactions on students' comprehension of complex subjects and overall academic achievements, particularly in mathematics and science. ChatGPT offers several advantages in academic support, including continuous accessibility, personalized assistance tailored to individual needs, and the promotion of self-directed learning. These benefits, as outlined by Ahmadi (2023) and Javaid et al. (2023), cater to diverse learning styles and foster critical thinking and problem-solving skills among students.

Moreover, personalized learning approaches, such as those facilitated by ChatGPT, have been shown to enhance student motivation and academic performance. Juhász et al. (2023) investigated the impact of growth mindset interventions using chatbots and found that fostering a growth mindset led to increased motivation and improved academic outcomes among students.

A recent study conducted collaboratively by Muñoz et al. (2023) across various institutions in Peru and Canada further explored the relationship between learning motivation, ChatGPT usage, and academic performance. Their findings corroborate the positive impact of ChatGPT on academic outcomes, mediated through enhanced learning motivation. In essence, interacting with ChatGPT not only improves students' motivation toward learning but also contributes to their overall academic success.

Nevertheless, the efficacy of ChatGPT hinges on the quality of its training data and necessitates regular updates to uphold accuracy (Rahman & Watanobe, 2023). Ethical considerations regarding data privacy and security further underscore the importance of maintaining ethical standards in AI development (Sebastian, 2023). Despite these challenges, integrating ChatGPT into learning environments that encourage autonomy, and a growth mindset can bolster student motivation and academic performance. Studies by Duchatelet and Donche (2019) and Agapito (2023) underscore the positive correlation between autonomy-supportive learning environments and student achievement.

The research conducted by Agapito (2023), Duchatelet and Donche (2019), Jowarder (2023), and Tanvir et al. (2023) sheds light on the multifaceted implications of integrating ChatGPT into educational environments. While Duchatelet and Donche, as well as Agapito, accentuate the positive influence of autonomy-supportive learning settings on students' academic accomplishments, a parallel discussion emerges regarding the potential misuse of ChatGPT for plagiarism, as highlighted by Ali et al. (2023).

The concern arises from the risk of overreliance on AI-generated content, which could erode students' sense of fulfillment and impede their personal development by circumventing the need for independent research and critical thinking. This reliance on immediate solutions provided by ChatGPT might inadvertently deter students from exploring diverse perspectives and developing their unique insights, consequently diminishing intrinsic motivation.

Furthermore, Jowarder (2023) and Tanvir et al. (2023) delve into the intricate dynamics surrounding the ethical usage of AI tools like ChatGPT within academic contexts. They stress the imperative of maintaining academic integrity while harnessing the benefits of AI technology to foster individual creativity. Despite ChatGPT's potential as a valuable resource, its misuse of plagiarism poses a threat to both creativity and academic integrity. Recognizing the intrinsic link between creativity and motivation, these studies underscore

the importance of nurturing creative thinking to cultivate intrinsic motivation and facilitate holistic individual growth.

Studies have demonstrated that interactions with ChatGPT can positively impact students' learning motivation, thereby contributing to improved academic outcomes. However, challenges such as data quality, ethical considerations, and the risk of overreliance on AI-generated content highlight the importance of maintaining a balanced approach to leveraging technology in education. By fostering autonomy-supportive learning environments and nurturing creativity, educators can harness the potential of ChatGPT to enhance learning motivation and facilitate holistic individual growth while upholding academic integrity.

The present study aims to address several gaps in the existing body of knowledge First, research on the use of ChatGPT has primarily focused on college students in disciplines such as nursing and engineering, leaving senior high school students underrepresented. Second, while there is existing evidence of a connection between ChatGPT, learning motivation, and academic performance, few studies have thoroughly examined this triad in a senior high school context. Third, demographic factors, particularly strands or tracks, have been largely overlooked, with previous studies prioritizing college-level programs instead. Lastly, the anchor study primarily concentrated on correlations without investigating variations in these variables across demographic groups, further underscoring the need to explore these dimensions in greater depth.

The primary objective of this study is to explore the level of learning motivation, the perceived impact of ChatGPT as an academic assistance tool, and the academic performance of senior high school students at Saint Mary's University. Understanding these aspects can empower students, teachers, and parents alike. Students can utilize these insights to optimize their learning experiences and achieve academic success more effectively. Teachers, armed with this knowledge, can tailor their instructional approaches to foster intrinsic motivation among students, thereby promoting positive learning outcomes within the classroom. Additionally, parents can use the study's findings to better understand what drives their children's learning motivation and academic performance. This insight can help them create supportive environments that nurture intrinsic motivation, encourage effective use of ChatGPT, and promote habits for academic success.

Moreover, this study serves as a foundational piece for both current and future researchers in the realm of educational technology and student motivation. It addresses critical gaps in the existing literature, offering valuable insights into the intricate relationship between learning motivation, the impact of ChatGPT, and academic performance. Furthermore, by shedding light on this complex interplay, the study has the potential to inspire future researchers to delve deeper into this dynamic relationship. This could involve refining conceptual frameworks, exploring additional variables, and investigating alternative methodologies. Ultimately, this study lays the groundwork for future research endeavors aimed at promoting academic success and well-being among students in the digital age.

Research Questions

This study aimed to determine the level of learning motivation, the perceived impact of ChatGPT as an academic assistance tool, and the academic performance of senior high school students at Saint Mary's University. Specifically, this study sought to answer the following questions:

1. What is the level of learning motivation among senior high school students?
2. What is the perceived impact of ChatGPT as an academic assistance tool among senior high school students?
3. Is there a significant difference in the level of learning motivation among senior high school students when they are grouped according to:
    1.1. sex;
    3.2. strand or track; and
    3.3. academic performance based on the level of educational proficiency for the a.y. 2023-2024?
4. Is there a significant difference in the perceived impact of ChatGPT as an academic assistance tool among senior high school students when they are grouped according to:
    4.1. sex;
    4.2. strand or track; and
    4.3. academic performance based on the level of educational proficiency for the a.y. 2023-2024?
5. Is there a significant relationship between the level of learning motivation and the academic performance of senior high school students?
6. Is there a significant relationship between the perceived impact of ChatGPT as an academic assistance tool and the academic performance of senior high school? students
7. Is there a significant relationship between the level of learning motivation and the perceived impact of ChatGPT as an academic assistance tool among senior high school students?
8. In which ways does ChatGPT influence the academic performance of senior high school students?

Methodology

Research Design

This study utilized a mixed-method approach, combining descriptive-comparative-correlational and thematic research strategies. By

integrating both qualitative and quantitative methods, the research thoroughly explored the differences and correlations among learning motivation levels, the perceived impact of ChatGPT as an academic assistance tool, and the academic performance of senior high school students.

The quantitative aspect of the research employed a descriptive-comparative-correlational research approach to scrutinize the differentiation and correlation between the variables. In this regard, the descriptive-comparative described the differences and patterns that existed between the levels of learning motivation and the perceived impact of ChatGPT based on demographic variables, including sex, strand or track, and academic performance based on the level of educational proficiency for the academic year 2023-2024. Conversely, the descriptive-correlational aspect measured the degree and direction of the relationship between learning motivation, the perceived impact of ChatGPT, and the academic performance of senior high school students, which helped to understand the themes of correlation between the variables.

On the other hand, the qualitative aspect of the study adopted a thematic approach to delve into the subjective experiences and perceptions of senior high school students regarding their interaction with ChatGPT and its influence on their academic performance. This thematic approach involved identifying the specific mechanisms through which ChatGPT influenced the academic performance of senior high school students. Furthermore, this qualitative investigation aimed to uncover nuanced insights into the efficacy of ChatGPT as a tool for academic assistance.

The researchers employed both quantitative and qualitative methods to thoroughly comprehend the intricate relationship between learning motivation, ChatGPT, and academic performance. This mixed-method approach allowed the researchers to examine the phenomenon from various angles, thereby enhancing the validity and depth of their conclusions.

Respondents

The study involved 229 senior high school students from SMU during the 2024-2025 academic year. Participants were selected through purposive sampling, a method allowing researchers to deliberately choose individuals based on criteria relevant to the research objectives. In this case, senior high school students using ChatGPT as an academic assistance tool were selected for their direct experience with the technology. To implement this sampling method, researchers conducted a preliminary survey to identify students actively using ChatGPT in their studies. This pre-survey was essential for selecting participants who met specific criteria aligned with the research goals. Additionally, this strategy ensured that the sample accurately represented the target population of students who regularly use ChatGPT, thereby enhancing the study's validity and relevance. By leveraging purposive sampling informed by pre-survey results, researchers maximized data collection efficiency and ensured the study effectively addressed key research questions concerning ChatGPT's role as an academic assistance tool.

The study's inclusion criteria target senior high school students in both Grade 11 and Grade 12, currently enrolled at Saint Mary's University Senior High School for the academic year 2024-2025, who actively utilize ChatGPT as an academic assistance tool. Consequently, individuals not meeting these criteria, including students from other institutions, those in different grades, individuals not using ChatGPT for academic purposes, and those outside the typical age range of 15 to 19 years old, were excluded from participation. These criteria ensured the relevance and coherence of the study by selecting participants with specific characteristics and experiences aligned with the research objectives.

Drawing from the study by Sison et al. (2017), which highlighted variations in learning styles among senior high school students across different strands and tracks, this research aimed to build upon existing findings. By focusing on this population, the study sought to explore how ChatGPT usage may interact with students' diverse learning styles and preferences, thereby addressing a gap in previous studies that often treat students as a homogeneous group without considering individual differences. By acknowledging potential variations in learning styles and personal preferences within this demographic, the study aimed to provide a more nuanced understanding of the relationship between learning motivation, the perceived impact of ChatGPT, and academic performance.

Table 1. *Frequency and Percentage Counts of the Demographic Profile of Participants*

Variables	*Groups*	*Frequency*	*Percentage*
Sex	Male	102	44.54%
	Female	127	55.46%
Total		229	100.00%
Strand	STEM	145	63.32%
	HUMSS	33	14.41%
	ABM	25	10.92%
	AD	15	6.55%
	TVL-HE	7	3.06%
	TVL-ICT	4	1.74%
Total		229	100.00%
Academic Performance	Advanced	144	62.88%
Based on the Level of	Proficient	76	33.19%
Educational Proficiency for the A.Y 2023-2024	Approaching Proficiency	7	3.06%
	Developing	2	0.87%

Total	229	100.00%

Table 1 shows the frequency and percentage counts of the demographic profile of the participants, classified by sex, strand or track, and academic performance based on the level of educational proficiency for the academic year 2023-2024. Out of the 229 respondents, 102 are male, making up 44.54% of the total, while 127 are female, accounting for 55.46%. This indicates a slightly higher representation of female respondents.

In terms of strand or track, the majority of participants, 145 individuals or 63.32%, belong to the STEM strand. Other strands and tracks include HUMSS with 33 respondents (14.41%), ABM with 25 respondents (10.92%), AD with 15 respondents (6.55%), TVL-HE with 7 respondents (3.06%), and TVL-ICT with the smallest representation of 4 respondents (1.74%). This indicates that the majority of students are pursuing STEM strand, with relatively fewer students in other academic areas.

As for the participants' academic performance based on the level of educational proficiency for the academic year 2023-2024, 144 individuals, or 62.88%, are classified as advanced, while 76 respondents (33.19%) are proficient. A smaller group of 7 participants (3.06%) is approaching proficiency, and only 2 respondents (0.87%) are in the developing category. This indicates that most participants are performing at an advanced educational level, with only a small portion in lower proficiency categories.

Instrument

In this study, the primary tool for data collection was a survey questionnaire. This instrument was adapted from a previous study titled "ChatGPT as an Academic Support Tool on Academic Performance Among Students: The Mediating Role of Learning Motivation," conducted by Kevin Caratiquit and Lovely Jean Caratiquit in 2023.

The questionnaire comprises three distinct sections. The initial section focuses on gathering essential demographic details about the participants, encompassing factors such as sex, strand or track, and academic performance based on the level of educational proficiency for the academic year 2023-2024.

The second section employs a 4-point Likert scale format to evaluate the level of learning motivation and the perceived impact of ChatGPT as an academic assistance tool. This section assessed the participants' perspectives based on specific criteria derived from the aforementioned study. Responses to the 4-point Likert scale items were assigned numerical values and aggregated to generate quantitative scores for analysis. Specifically, a score of 1 was assigned to "Strongly Disagree," 2 to "Disagree," 3 to "Agree," and 4 to "Strongly Agree." These scores were totaled for each respondent to calculate their overall score on the Likert scale.

Lastly, the third section was dedicated to gathering qualitative data, allowing participants to express their perspectives and insights on the subject matter. This qualitative component provided a deeper understanding of the students' experiences and perceptions regarding the use of ChatGPT as an academic support tool. By incorporating both quantitative and qualitative approaches, this survey instrument enabled a comprehensive exploration of the research objectives.

Moreover, the questionnaire encompassed several key constructs, including demographic information, learning motivation, ChatGPT, and academic performance indicators. Each construct was operationalized through a series of carefully crafted items designed to capture the nuances of students' experiences and perceptions. Employing a combination of Likert scale items for quantitative assessment and open-ended questions for qualitative exploration, the questionnaire facilitated a comprehensive understanding of the research variables

Aside from the questionnaire, the study also used the Levels of Educational Proficiency created by DepEd to describe the academic performance of senior high school students. These levels, which categorize students into five proficiency stages—Beginner (below 75%), Developing (75% to 79%), Approaching Proficiency (80% to 84%), Proficient (85% to 89%), and Advanced (90% and above)—provided a clear framework for assessing students' mastery of the required learning competencies. By evaluating students' academic performance based on these levels, the study was able to provide a more detailed understanding of how well students were meeting educational standards, and how these performance levels might relate to other factors such as learning motivation and the use of AI tools like ChatGPT.

Table 2. *Cronbach's Alpha for Reliability Test*

Variables	*Cronbach's Alpha*	*N*
Learning Motivation	0.958	15
ChatGPT as An Academic Assistance Tool	0.931	12

Table 2 displays the Cronbach's Alpha results for two variables: Learning Motivation and ChatGPT as an Academic Assistance Tool. The Learning Motivation variable achieves a high reliability score of 0.958 across 15 items. Similarly, the ChatGPT variable demonstrates a robust reliability score of 0.931 with 12 items. These scores reflect excellent internal consistency ($\alpha \geq 0.9$) among the items. Both variables surpass the acceptable threshold of 0.70, confirming that the instruments employed are reliable for further research.

Procedure

Firstly, the researchers adopted a pre-existing questionnaire and subjected it to content validation with the guidance of the research adviser. Subsequently, a written permit was submitted to the Senior High School department of Saint Mary's University, seeking

permission from the principal to administer the questionnaires. Following the approval of the request, the researchers conducted a pre-survey to determine the number of students actively using ChatGPT as an academic assistance tool. Afterward, the questionnaires were distributed among senior high school respondents, following a purposive sampling approach. Upon collection, the gathered data underwent tabulation, analysis, and interpretation. Finally, after a comprehensive interpretation process, the researchers reported the results.

Data Analysis

In treating the collected data, the researchers employed the following statistical tools in the study:

Frequency and percentage counts were utilized to identify the demographic profile of the participants concerning their sex, strand or track, and academic performance based on the level of educational proficiency for the academic year 2023-2024. This method was employed to describe the demographic composition of the sample accurately.

The mean scores and standard deviations of the 4-point Likert scale were calculated to examine the levels of motivation and the perceived impact of ChatGPT among senior high school students. Mean scores for Likert scale items provided insights into participants' attitudes or perceptions, indicating the average level of agreement or disagreement with specific statements related to the study. While standard deviations measured the dispersion of responses around the mean, highlighting the degree of agreement or disagreement among participants.

Consequently, the interpretation of each descriptor's mean score was guided by the following system:

Table 3.1. *4-point Likert Scale Interpretation of the Level of Learning Motivation*

Mean Score Range	*Likert Scale*	*Qualitative Description*
3.50-4.00	Strongly Agree	Highly Motivated
2.50-3.49	Agree	Motivated
1.50-2.49	Disagree	Unmotivated
1.00-1.49	Strongly Disagree	Highly Unmotivated

Table 3.2. *4-point Likert Scale Interpretation of the Perceived Impact of ChatGPT as an Academic Assistance Tool*

Mean Score Range	*Likert Scale*	*Qualitative Description*
3.50-4.00	Strongly Agree	Highly Positive
2.50-3.49	Agree	Positive
1.50-2.49	Disagree	Negative
1.00-1.49	Strongly Disagree	Highly Negative

Independent samples T-test was employed to compare the means between males and females to determine if there is a statistically significant difference in the level of learning motivation and the perceived impact of ChatGPT as an academic assistance tool among senior high school students.

One-way analysis of variance (ANOVA) was utilized to assess the significance of differences in the levels of learning motivation and the perceived impact of ChatGPT as an academic assistance tool among senior high school students in terms of their strand or track and academic performance based on the level of educational proficiency for the academic year 2023-2024. This statistical analysis enabled the examination of whether there are statistically significant variations in the level of learning motivation and the perceived impact of ChatGPT. The analysis was conducted separately for each variable to determine the individual effects of each factor on the outcome measures.

Pearson's correlation was employed to quantitatively analyze the strength and direction of the relationship between the levels of learning motivation, the perceived impact of ChatGPT, and the academic performance of senior high school students. This statistical method enabled the research to determine the degree to which variations in learning motivation correspond with variations in academic performance, providing insights into the extent to which motivation influences students' academic performance in the context of ChatGPT usage.

Table 4. *Interpretation of Pearson's r Values and Corresponding Correlation Strengths*

Pearson's r Value	*Qualitative Description*
±0.80 – ±0.99	Very High
±0.60 – ±0.79	Moderately High
±0.40 – ±0.59	High
±0.20 – ±0.39	Moderately Low
±0.01 – ±0.19	Very Low

Thematic analysis was utilized to thoroughly examine and interpret the qualitative feedback from the participants. The focus was on identifying consistent patterns, recurring themes, and valuable insights within the qualitative responses regarding how ChatGPT aids

in improving the academic performance of senior high school students.

Results and Discussion

This section presents the research results and offers a thorough discussion of the findings. It underscores the key outcomes from the data analysis, incorporating both statistical results from PSPP and insightful qualitative responses. The discussion interprets these results in relation to the research questions, examining their implications for understanding learning motivation levels, the perceived impact of ChatGPT as an academic assistance tool, and the academic performance of senior high school students. The chapter is structured into six sections, featuring eleven tables. The initial tables present quantitative data, while the final table showcases qualitative insights.

Section 1. The Level of Learning Motivation among Participants

This section presents the level of learning motivation among participants in the study. It includes descriptive statistics, such as mean scores and standard deviations, for various statements related to learning motivation. Additionally, each statement reflects different aspects of learning motivation, with corresponding scores that indicate the participants' levels of motivation. The overall motivation level is summarized, providing a clear overview of how the participants perceive their academic engagement.

Table 5. *Descriptive Statistics on the Level of Learning Motivation among Participants*

	Statements	*M*	*SD*	*QD*
1.	I am driven to learn and acquire knowledge in my academic subjects.	3.45	0.57	Motivated
2.	I am motivated to set and achieve challenging academic goals.	3.38	0.60	Motivated
3.	I enjoy the process of learning and find it intrinsically rewarding.	3.24	0.59	Motivated
4.	I am excited about expanding my understanding of academic concepts and topics.	3.39	0.61	Motivated
5.	I am enthusiastic about participating in class discussions and engaging with the material.	3.17	0.67	Motivated
6.	I believe that putting effort into my studies will lead to positive outcomes.	3.62	0.54	Highly Motivated
7.	I am determined to overcome obstacles and persevere in my academic pursuits.	3.38	0.64	Motivated
8.	I have a strong desire to excel academically and achieve high grades.	3.37	0.65	Motivated
9.	I am curious and actively seek additional resources and information related to my studies.	3.30	0.64	Motivated
10.	I feel a sense of pride and satisfaction when I make progress in my academic performance.	3.37	0.66	Motivated
11.	I am motivated by the opportunity to apply my knowledge and skills in real-world contexts.	3.33	0.63	Motivated
12.	I am driven by the belief that education will open doors to future opportunities and success.	3.50	0.62	Highly Motivated
13.	I am self-motivated to take responsibility for my own learning and academic progress.	3.34	0.65	Motivated
14.	I am inspired by the positive feedback and recognition I receive for my academic achievements.	3.39	0.62	Motivated
15.	I am motivated by the prospect of making a meaningful contribution through my academic pursuits.	3.38	0.62	Motivated
	Total	3.37	0.44	Motivated

Legend: 1.00-1.49 (Highly Unmotivated), 1.50-2.49 (Unmotivated), 2.50-3.49 (Motivated), and 3.50-4.00 (Highly Motivated)
M – Mean Scores, SD – Standard Deviations, and QD – Qualitative Descriptions

Table 5 comprises the descriptive statistics on the level of learning motivation among participants. Based on the obtained data, the overall mean score across all statements is 3.37 with a standard deviation of 0.44, which falls under the "Motivated" level.

Moreover, among the statements, the highest-rated one is, "I believe that putting effort into my studies will lead to positive outcomes," with a mean of 3.62 (SD = 0.54), placing it in the "Highly Motivated" level. This finding indicates that students hold a strong belief in the importance of effort in their academic endeavors, which plays a key role in sustaining their motivation and persistence. On the other hand, the statement with the lowest mean is, "I am enthusiastic about participating in class discussions and engaging with the material," which scored a mean of 3.17 (SD = 0.67), placing it in the "Motivated" level. This suggests that while students are generally motivated, they may lack enthusiasm for actively participating in class discussions and engaging with the course material. This may be due to factors such as a lack of confidence, fear of judgment, or limited interest in the material being discussed, which can hinder active participation despite overall motivation.

The overall mean score of 3.37 suggests that participants generally exhibit a motivated attitude toward their academic pursuits. This finding is consistent with recent research, such as the study by Bosire (2024), which emphasizes the importance of motivation in academic settings, highlighting that students' self-efficacy and intrinsic motivation significantly influence their engagement and performance in learning environments. The results imply that fostering motivation among students could be a key factor in enhancing their academic performance. Educational institutions might consider implementing strategies that boost self-efficacy and intrinsic motivation, as these are shown to significantly impact student engagement. By focusing on motivational aspects, educators can create more effective learning environments that encourage students to excel in their studies.

Also, parental academic involvement is believed to enhance children's achievements by providing them with motivational resources, such as fostering positive perceptions of their academic abilities and emphasizing intrinsic reasons for learning. This support helps children engage more fully in school by underscoring the value of education (Hill & Taylor, 2004). Over time, such involvement can lead to the internalization of motivation, encouraging children to learn for their own reasons (Fan & Williams, 2010; Grolnick, 2009).

This implies that parental involvement not only boosts short-term academic performance but also fosters long-term intrinsic motivation. By promoting a positive view of education and emphasizing the personal value of learning, parents help children internalize motivation, leading to a deeper, self-driven approach to their studies and sustained academic success.

Additionally, the highest mean score of 3.62 for the statement about the belief that effort leads to positive outcomes aligns with the study of Pan and Hsu (2024), who found that students with a strong belief in their abilities are more likely to set challenging goals and persist in the face of difficulties. This underscores the relevance of fostering self-efficacy as a critical component of student motivation.

Conversely, the lowest mean score of 3.17 for the statement regarding enthusiasm for participating in class discussions and engaging with the material indicates an area for potential enhancement. The study by Brandmiller et al. (2023) suggests that teacher perceptions of student motivation and engagement play a crucial role in predicting student outcomes, including academic achievement and learning motivation. Their study indicates that students who exhibit higher levels of engagement, such as enthusiasm for participating in class discussions, are more likely to achieve better academic results over time.

Section 2. The Perceived Impact of ChatGPT as an Academic Assistance Tool among Participants

This section shows the perceived impact of ChatGPT as an academic assistance tool among participants in the study. It includes descriptive statistics, such as mean scores and standard deviations, for various statements related to the perceptions of participants regarding ChatGPT's impact as an academic assistance tool. Additionally, each statement reflects different aspects of the tool's perceived impact, with corresponding scores that indicate the participants' views on its utility. The overall perceived impact is summarized, offering a comprehensive overview of how participants perceive ChatGPT's role in their academic endeavors.

Table 6. *Descriptive Statistics of the Perceived Impact of ChatGPT as an Academic Assistance Tool among Participants*

	Statements	*M*	*SD*	*QD*
1.	Using ChatGPT has improved my ability to solve academic problems independently.	2.63	0.76	Positive
2.	ChatGPT has provided me with valuable resources and references for further learning.	2.91	0.72	Positive
3.	Interacting with ChatGPT has made my studying experience more interactive and engaging.	2.62	0.81	Positive
4.	ChatGPT has increased my confidence in tackling challenging academic tasks.	2.51	0.78	Positive
5.	ChatGPT has adapted well to my individual learning needs and preferences.	2.64	0.76	Positive
6.	I find ChatGPT's explanations and responses to be clear and understandable.	2.75	0.78	Positive
7.	ChatGPT has helped me stay organized and manage my academic workload effectively.	2.60	0.83	Positive
8.	ChatGPT has enhanced my critical thinking and analytical skills in academic contexts.	2.53	0.84	Positive
9.	ChatGPT has facilitated collaborative learning by promoting discussions and knowledge sharing.	2.68	0.74	Positive
10.	Using ChatGPT has saved me time finding relevant information for my academic assignments.	2.95	0.78	Positive
11.	ChatGPT has provided me with constructive feedback to improve my academic performance.	2.70	0.80	Positive
12.	I trust the accuracy and reliability of the information provided by ChatGPT.	2.33	0.87	Negative
	Total	2.66	0.57	Positive

Legend: 1.00-1.49 (Strongly Negative), 1.50-2.49 (Negative), 2.50-3.49 (Positive), and 3.50-4.00 (Strongly Positive)

Table 6 contains the descriptive statistics on the perceived impact of ChatGPT as an academic assistance tool among participants. As seen from the data, the overall mean score across all statements is 2.66 (SD = 0.57), placing it within the "Positive" category.

Moreover, of all the statements, the statement, "Using ChatGPT has saved me time finding relevant information for my academic assignments," received the highest rating, with a mean score of 2.95 (SD = 0.78), placing it in the "Positive" category. This suggests that students see ChatGPT as a useful tool for making their academic work easier and quicker, indicating that they appreciate its ability to help them find the resources they need. However, relying on ChatGPT for quick information may impede their critical thinking and analytical abilities, as they might be tempted to use AI-generated content inappropriately, resulting in plagiarism or a lack of originality in their work. If they depend on ChatGPT for research, they may not engage deeply with the material or develop their own understanding. Furthermore, those who trust ChatGPT without fact-checking could include inaccuracies in their assignments, which could adversely affect their learning and grades.

In contrast, the statement with the lowest mean is, "I trust the accuracy and reliability of the information provided by ChatGPT," which scored a mean of 2.33 (SD = 0.87), placing it in the "Negative" category. This shows a considerable degree of skepticism among students about the accuracy and reliability of information produced by ChatGPT, indicating that they are aware of its limitations. This awareness can help students think critically about AI-generated information, leading to better and more informed choices. Additionally, not trusting the tool may encourage students to check information from different sources before believing it, which can improve their research skills and help them understand the material more deeply.

The overall positive mean score of 2.66 shows that students generally see ChatGPT as a helpful tool for academics. This is supported by the report from the U.S. Department of Education (2023), which discusses how AI technology is increasingly being used in schools and its potential to improve learning experiences. It underscores that AI can make learning easier and increase student engagement, which matches the positive opinions students have toward ChatGPT.

In addition, the highest-rated statement, which says that using ChatGPT has helped students save time when looking for information for their school assignments, shows that students see ChatGPT as a useful tool for making their academic work more efficient. This

matches the findings from the World Economic Forum (2024), which mentions that using ChatGPT in education can simplify administrative tasks, allowing students to focus more on engaging with the material and creating personalized learning experiences.

On the contrary, the lowest-rated statement, indicating skepticism among students about the reliability of information from ChatGPT, suggests that many students doubt the accuracy and trustworthiness of AI-generated content. The study by Acosta-Enriquez et al. (2024) supports this concern, discussing the ethical issues surrounding AI in education and highlighting the importance of establishing clear guidelines and training to build trust in AI tools.

Lastly, the variability in responses, as indicated by the standard deviations, points to varying views and experiences among participants when using ChatGPT. The SD values, ranging from 0.72 to 0.87, suggest that while many users report positive experiences, students have different opinions on how well the tool works.

This variability aligns with the findings of Timoteheou et al. (2022), which emphasize that learners' engagement with technology can differ significantly based on their prior experiences and expectations. This indicates the need for personalized approaches when integrating AI tools in educational settings, as students' diverse experiences and expectations influence their engagement. Educators should consider tailoring guidance and support to accommodate varying levels of familiarity and comfort with technology to maximize the benefits of tools like ChatGPT.

Section 3. The Significant Difference in the Level of Learning Motivation among Participants when Grouped According to Profile Variables

This section examines the significant differences in the level of learning motivation among participants when grouped according to profile variables, including sex, strand or track, and level of educational proficiency. The tables below present a comparison of learning motivation levels between groups, detailing the frequency, mean scores, standard deviations, t-values, and p-values. Furthermore, this analysis aims to highlight how demographic factors may influence the learning motivation of the participants.

Table 7.1. *Comparison of the Level of Learning Motivation among Participants across Sexes*

	Sex	*f*	*M*	*SD*	*t*	*p*
Level of Learning Motivation	Male	102	3.31	0.44	-2.10*	0.037
	Female	127	3.43	0.44		
	Total	229	2.66	0.57		

Legend: f – frequencies, M – Mean Scores, SD – Standard Deviations, t – t-value, and p – probability value
**Statistically Significant (p<0.05)*

Table 7.1 displays a comparison of the level of learning motivation among participants across sexes. The data reveals that female students have a higher mean learning motivation score of 3.43 (SD = 0.44) compared to 3.31 (SD = 0.44) for male students, with a statistically significant difference indicated by a t-value of -2.10 and a p-value of 0.037. This trend suggests that sex might affect how motivated participants are to learn. The higher motivation levels seen in females could be due to several reasons, such as differences in how they engage with education, their social experiences, or personal factors that make learning more appealing for female learners in this situation.

A meta-analysis conducted by Yu and Deng (2022) found that sex influences certain aspects of academic motivation, although the degree of influence varies. It indicates that females often report higher levels of motivation in specific areas of learning, particularly in self-regulation and organization. Furthermore, another study highlighted that motivational differences across sexes could depend on the subject, with girls showing greater interest and motivation in language subjects, while boys tend to dominate in STEM aspirations (Olive et al., 2022). These findings align with the present data, where females displayed a higher average level of motivation.

The findings also suggest that educational strategies should consider the varying motivational levels across sexes, with an emphasis on enhancing motivation where it may be lacking. Tailoring approaches to bolster self-regulation and organization could particularly benefit male students. Educational policies should aim to create environments that support all students, recognizing and addressing these motivational differences to optimize learning outcomes.

Table 7.2. *Comparison of the Level of Learning Motivation among Participants across Strands or Tracks*

	Groups	*f*	*M*	*SD*	*F*	*p*
Level of Learning Motivation	STEM	145	3.38	0.44	1.79ns	0.117
	HUMSS	33	3.24	0.49		
	Groups	f	M	SD	F	p
Level of Learning Motivation	ABM	25	3.55	0.42	1.79ns	0.117
	AD	15	3.37	0.41		
	TVL-HE	7	3.35	0.33		
	TVL-ICT	4	3.10	0.16		
	Total	229	3.37	0.44		

Legend: f – frequencies, M – Mean Scores, SD – Standard Deviations, F – F-value, and p – probability value ns Not statistically significant (p>0.05)

Table 7.2 exhibits a comparison of the level of learning motivation among participants across strands or tracks. The analysis indicates that ABM has the highest mean motivation score (M = 3.55, SD = 0.42). In comparison, STEM follows with a mean score of (M = 3.38, SD = 0.44). AD comes next with a mean motivation score of (M = 3.37, SD = 0.41), while TVL-HE has a slightly lower mean of (M = 3.35, SD = 0.33). Moreover, HUMSS presents a mean motivation score of (M = 3.24, SD = 0.49), and TVL-ICT exhibits the lowest level of learning motivation with a mean score of (M = 3.10, SD = 0.16).

However, despite these observable differences, the analysis did not reveal a statistically significant difference (F = 1.79, p = 0.117). The lack of statistically significant differences in motivation across the various strands and tracks implies that while there are observable differences in mean motivation scores, they are not substantial enough to conclude that the strand or track alone significantly impacts learning motivation. Consequently, learning motivation appears to be consistent across various strands and tracks, indicating no significant influence from these factors alone. This implies that other elements may play a more crucial role in shaping students' motivation to learn.

Peng's (2021) study on academic motivation highlights the pivotal role of teacher-student relationships in influencing students' motivation. Interactions with peers also play a crucial part in fostering motivation. This indicates that the content or subject matter of a specific course is not the primary factor driving students' desire to learn. Instead, the connections formed with teachers and classmates within the classroom are more influential in sparking their interest and dedication toward their studies. These relationships are key to shaping students' willingness to engage and excel academically.

Table 7.3. *Comparison of the Level of Learning Motivation among Participants across Levels of Educational Proficiency*

	Groups	*f*	*M*	*SD*	*F*	*p*
Level of Learning Motivation	Advanced	144	3.45	0.41	4.39*	0.005
	Proficient	76	3.27	0.45		
Level of Learning Motivation	Approaching Proficiency	7	3.01	0.69	4.39*	0.005
	Developing	2	3.33	0.09		
	Total	229	3.37	0.44		

**Statistically Significant (p<0.05)*

Table 7.3 illustrates a comparison of the level of learning motivation among participants across levels of educational proficiency. The results indicate that participants categorized as Advanced in their educational proficiency exhibit the highest mean motivation score (M = 3.45, SD = 0.41). Following closely, participants in the Developing group have a slightly lower mean score (M = 3.33, SD = 0.09). Meanwhile, the Proficient group shows a mean motivation of (M = 3.27, SD = 0.45), and the lowest scores are observed in the Approaching Proficiency group (M = 3.01, SD = 0.69). Importantly, a statistically significant difference is found among the groups (F = 4.39, p = 0.005), indicating that the level of educational proficiency significantly impacts students' learning motivation.

The significant difference in motivation levels across educational proficiency levels suggests that advanced students are more motivated to learn. This could be due to several factors, including confidence in academic skills, greater enjoyment of learning, or access to more engaging learning materials at higher levels of proficiency. In contrast, students with lower proficiency may struggle with learning challenges that reduce their motivation. This disparity in motivation implies that educational interventions should focus on enhancing the engagement and confidence of lower proficiency students to boost their motivation. Additionally, providing access to stimulating learning materials at all levels could help bridge the motivation gap.

Recent studies support the idea that proficiency is linked to motivation. One study by Vu et al. (2021) examined the relationship between motivation and academic achievement, finding that students with higher academic skills tend to exhibit greater intrinsic motivation. This increased intrinsic motivation is attributed to their feelings of competence and engagement in their studies, suggesting that students become more proficient and more motivated to learn and succeed. The link between proficiency and motivation implies that enhancing students' academic skills could naturally boost their intrinsic motivation, leading to a positive cycle of learning and achievement. Educators might focus on developing students' competencies to foster a more engaging and motivating educational environment.

Table 7.3.1 presents the post-hoc pairwise comparisons of the level of learning motivation among participants across levels of educational proficiency. This further examines the specific differences among the means of educational proficiency groups after a significant result has been identified in an analysis of variance (ANOVA) test. The analysis reveals that there are statistically significant differences in the level of learning motivation between certain educational proficiency levels, specifically between Advanced and Proficient groups (MD = 0.17, p = 0.026) and between Advanced and Approaching Proficiency groups (MD = 0.44, p = 0.047), while no significant differences were found between the Developing group and the other educational proficiency levels.

This finding suggests that students in the Advanced and Proficient groups exhibit significantly higher levels of learning motivation compared to those in the Approaching Proficiency group, indicating that educational proficiency may play a crucial role in influencing students' motivation to learn. Additionally, students in the Developing stage do not show significant motivational differences compared to other groups, which could imply that their motivational levels are more varied or unstable at early stages of learning.

Table 7.3.1. *Post-hoc Pairwise Comparisons of the Level of Learning Motivation among Participants across Levels of Educational Proficiency*

	Groups		*MD*	*SE*	*p*
Level of Learning Motivation	Advanced	Proficient	0.17A	0.06	0.026*
		Approaching Proficiency	0.44 B	0.17	0.047*
		Developing	0.11	0.31	0.983
	Proficient	Approaching Proficiency	0.26	0.17	0.415
		Developing	-0.06	0.31	0.997
		Advanced	-0.17A	0.06	0.026*
	Approaching Proficiency	Developing	-0.32	0.35	0.787
		Advanced	-0.44 B	0.17	0.047*
		Proficient	-0.26	0.17	0.415
	Developing	Advanced	-0.11	0.31	0.983
		Proficient	0.06	0.31	0.997
		Approaching Proficiency	0.32	0.35	0.787

Note: Groups that share the same letter, i.e., A and B, are statistically significant (p<0.05)

The study conducted by Bo and Fu (2018) supports the finding, showing that students with higher proficiency, like those in the Advanced and Proficient groups, often have more stable learning motivation. These students tend to stay focused and feel confident in their abilities, which keeps their motivation consistent. This suggests that building confidence and focus can enhance educational outcomes. In contrast, less proficient students, such as those in the Approaching Proficiency or Developing groups, may have varying motivations, especially when they notice a gap between their skills and those of more advanced students. The pressure to perform well and compare themselves to others can make their motivation decrease. Therefore, addressing the motivational fluctuations in less proficient students may involve reducing performance pressure and minimizing comparisons with peers to foster a more supportive learning environment.

Section 4. The Significant Difference in the Perceived Impact of ChatGPT as an Academic Assistance Tool among Participants when Grouped According to Profile Variables

This section analyzes the notable differences in how participants perceive the impact of ChatGPT as an academic assistance tool based on various profile variables, including sex, strand or track, and level of educational proficiency. The tables are provided below to compare the perceived impact of ChatGPT among these groups, presenting data on frequency, mean scores, standard deviations, t-values, and p-values. The purpose of this analysis is to demonstrate how demographic factors may influence participants' perceptions of ChatGPT as an academic assistance tool, thereby providing a foundation for a deeper understanding of the underlying trends.

Table 8.1. Comparison of the Perceived Impact of ChatGPT as an Academic Assistance Tool among Participants across Sexes

	Sex	*f*	*M*	*SD*	*t*	*p*
Perceived Impact of ChatGPT as an Academic Assistance Tool	Male	102	2.68	0.56	0.51ns	0.612
	Female	127	2.64	0.59		
	Total	229	2.66	0.57		

ns Not statistically significant (p>0.05)

Table 8.1 presents a comparison of the perceived impact of ChatGPT as an academic assistance tool among participants across sexes. The data reveals that male students have a higher mean score of 2.68 (SD = 0.56), while female students have a slightly lower mean score of 2.64 (SD = 0.59). In addition, the t-value is 0.51, with a p-value of 0.612, indicating that there is no statistically significant difference between the perceived impact of ChatGPT on male and female students. This suggests that both male and female students perceive ChatGPT as a similarly beneficial academic tool, with no notable differences in their perceptions.

The study conducted by Matari et al. (2024) indicates that there are no notable differences in how male and female students perceive the effectiveness of ChatGPT. Both sexes demonstrated similar levels of engagement while utilizing the tool, suggesting that perceptions regarding ChatGPT's utility are consistent across the sexes. Also, these findings align with another study that highlights sex differences in technology usage but indicates that such differences may not significantly affect perceptions of tools like ChatGPT. For instance, the study by Bouzar et al. (2024) found that while males tend to use ChatGPT for longer periods and females are more worried about becoming too dependent on it, there is no major difference in whether they accept and adopt ChatGPT.

The findings also suggest that educational tools like ChatGPT can be effectively integrated across diverse student groups without needing gender-specific adaptations, as both male and female students perceive its usefulness similarly. This consistency implies that educational strategies using ChatGPT can focus on enhancing overall engagement without considering gender-based modifications. Moreover, institutions can confidently promote technology-driven learning environments, recognizing that gender differences in technology usage do not significantly impact the acceptance and adoption of tools like ChatGPT. This insight can guide future research and development efforts toward creating universally appealing and effective educational technologies.

Table 8.2. *Comparison of the Perceived Impact of ChatGPT as an Academic Assistance Tool among Participants across Strands or Tracks*

	Groups	*f*	*M*	*SD*	*F*	*p*
Perceived Impact of ChatGPT as an Academic Assistance Tool	STEM	145	2.67	0.56	1.23ns	0.294
	HUMSS	33	2.62	0.52		
	ABM	25	2.48	0.68		
	AD	15	2.77	0.64		
	TVL-HE	7	2.57	0.55		
	TVL-ICT	4	3.15	0.62		
	Total	229	2.66	0.57		

ns Not statistically significant (p>0.05)

Table 8.2 shows a comparison of the perceived impact of ChatGPT as an academic assistance tool among participants across strands or tracks. The results show that TVL-ICT report the highest perceived impact of ChatGPT (M = 3.15, SD = 0.62), followed by AD (M = 2.77, SD = 0.64), and STEM (M = 2.67, SD = 0.56). HUMSS comes next with a slightly lower perceived impact (M = 2.62, SD = 0.52), followed by TVL-HE (M = 2.57, SD = 0.55). Notably, ABM exhibits the lowest perceived impact (M = 2.48, SD = 0.68).

However, despite these observed differences, the ANOVA test shows no statistically significant difference between the groups (F = 1.23, p = 0.294), indicating that the strand or track alone does not significantly influence students' perceived impact of ChatGPT as an academic tool. This suggests that students across different strands or tracks tend to have similar views on ChatGPT's impact, implying a level of consistency in how this tool is regarded, regardless of the academic discipline. This consistency implies that the tool's benefits and drawbacks are broadly applicable, regardless of the students' specific fields of study.

The study by Bettayeb et al. (2024) highlights that ChatGPT offers similar benefits to students across different academic disciplines. It emphasizes that students from various fields, such as STEM, humanities, and vocational tracks, use ChatGPT for personalized assistance, instant feedback, and explanations of complex topics. This aligns with the finding that the perceived impact of ChatGPT is consistent across different strands or tracks, suggesting that the tool is regarded similarly regardless of the academic discipline. The study suggests that ChatGPT is a universally beneficial tool for students across all academic disciplines, providing consistent advantages such as personalized assistance and instant feedback.

Table 8.3. *Comparison of the Perceived Impact of ChatGPT as an Academic Assistance Tool among Participants across Levels of Educational Proficiency*

	Groups	*f*	*M*	*SD*	*F*	*p*
Perceived Impact of ChatGPT as an Academic Assistance Tool	Advanced	144	2.59	0.58	2.84*	0.039
	Proficient	76	2.78	0.52		
	Approaching Proficiency	7	2.82	0.46		
	Developing	2	2.00	1.41		
	Total	229	2.66	0.57		

**Statistically Significant (p<0.05)*
Note: The post-hoc pairwise comparison is not presented because the sample sizes for the other groups are small, i.e., Approaching Proficiency and Developing groups, which prevents the identification of specific significant differences between them.

Table 8.3 displays a comparison of the perceived impact of ChatGPT as an academic assistance tool among participants across levels of educational proficiency. The analysis reveals that participants classified as Approaching Proficiency have the highest mean score (M = 2.82, SD = 0.46), followed by those in the Proficient group (M = 2.78, SD = 0.52). The Advanced group has a mean score of 2.59 (SD = 0.58), while the Developing group scores the lowest at 2.00 (SD = 1.41). Remarkably, the statistical analysis indicates a significant difference among these groups (F = 2.84, p = 0.039), suggesting that educational proficiency level significantly influences perceptions of ChatGPT's effectiveness as an academic tool.

The observed variations in perceptions among different educational proficiency levels imply that advanced users may possess high expectations and, consequently, a more critical perspective on ChatGPT's capabilities. In contrast, less proficient users may exhibit greater appreciation for the tool's assistance, as they are likely to rely on it more heavily for academic support.

The study conducted by Sandu et al. (2024) emphasizes that students with higher proficiency levels tend to have more critical perspectives on ChatGPT's capabilities. These advanced users often have elevated expectations and are more inclined to examine the limitations of the tool closely. In contrast, students with lower proficiency levels exhibit a greater appreciation for ChatGPT's assistance, relying on it more heavily for academic support. This observation aligns with the finding that less proficient users may perceive ChatGPT as more beneficial. Furthermore, the quantitative analysis from the study identified significant differences in how various proficiency levels perceive the benefits of ChatGPT, reinforcing the idea that educational proficiency plays a crucial role in shaping students' perceptions and usage of this AI tool.

The study suggests that educational proficiency influences how students perceive and utilize AI tools like ChatGPT. Advanced users with high expectations may drive further improvements in AI capabilities by critically assessing its limitations. Meanwhile, less proficient users' reliance on ChatGPT could highlight its role as a valuable educational aid, particularly in providing support for those

needing additional academic assistance.

Section 5. The Significant Relationship between and among the Level of Learning Motivation, the Perceived Impact of ChatGPT as an Academic Assistance Tool, and the Academic Performance of Participants

This section investigates the significant relationships between the level of learning motivation, the perceived impact of ChatGPT as an academic assistance tool, and the academic performance of participants. The table presents Pearson correlation coefficients, p-values, and qualitative descriptors for the relationships among these variables. Each correlation indicates the strength and direction of the relationships, providing insights into how learning motivation and the perceived utility of ChatGPT may relate to academic performance. This analysis aims to clarify the interconnectedness of these factors in the context of academic achievement.

Table 9. *Relationship between the Level of Learning Motivation, the Perceived Impact of ChatGPT as an Academic Assistance Tool, and the Academic Performance of Participants*

	Pearson's r	*p*	*QD*
Level of Learning Motivation Academic Performance	0.246***	0.000	Moderately Low Positive Correlation
Perceived Impact of ChatGPT as an Academic Assistance Tool Academic Performance	-0.089	0.181	Very Low Negative Correlation
Level of Learning Motivation Perceived Impact of ChatGPT as an Academic Assistance Tool	0.024	0.718	Very Low Positive Correlation

Legend: Pearson's r: ±0.01 - ±0.19 (Very Low) | ±0.20 - ±0.39 (Moderately Low) | ±0.40 - ±0.59 (High) | ±0.60 - ±0.79 (Moderately High) | ±0.80 - ±0.99 (Very High) Significant (p<0.001)

Table 9 examines the relationships between the level of learning motivation, the perceived impact of ChatGPT as an academic assistance tool, and the academic performance of participants. The data indicates that the most significant finding is the moderately low positive correlation between learning motivation and academic performance ($r = 0.246$, $p = 0.000$). Although the correlation is not particularly strong, it is statistically significant, indicating that as students' learning motivation increases, their academic performance tends to improve. In contrast, the second relationship, which examines the perceived impact of ChatGPT as an academic assistance tool on academic performance, shows a very low negative correlation ($r = -0.089$, $p = 0.181$). This suggests that there is no meaningful connection between ChatGPT's perceived impact and academic performance, and this result is not statistically significant. Lastly, the third relationship, between learning motivation and the perceived impact of ChatGPT, presents a very low positive correlation ($r = 0.024$, $p = 0.718$), indicating an almost negligible association between these variables, and this result is likewise not statistically significant.

The findings reveal several important patterns concerning learning motivation, the perceived impact of ChatGPT, and academic performance. First, the moderately low positive correlation between learning motivation and academic performance highlights the crucial role that motivation plays in academic success. Although the strength of the relationship is not particularly high, the significant correlation indicates that more motivated students tend to achieve better academic outcomes. However, the relatively low correlation suggests that additional factors may also contribute to academic performance. On the other hand, the very low negative correlation between the perceived impact of ChatGPT and academic performance suggests that the use of ChatGPT does not significantly influence academic outcomes. This could imply that students may not be fully utilizing the tool in ways that directly enhance their academic performance, or that the tool's assistance does not translate into measurable academic improvements. Lastly, the very low positive correlation between learning motivation and the perceived impact of ChatGPT suggests that motivation levels do not meaningfully affect how students perceive or use ChatGPT. This lack of a strong connection may be attributed to students viewing the tool as neutral, without it influencing their motivation to learn. Consequently, while learning motivation appears to have a clear, albeit modest, impact on academic performance, the perceived impact of ChatGPT does not seem to contribute significantly to academic success, suggesting that more targeted use of ChatGPT may be necessary for it to be an effective academic aid.

A study by Hmoud et al. (2024) highlights the crucial role of task motivation in academic achievement, particularly in contexts where AI tools like ChatGPT are utilized. Their research shows that students with higher motivation levels tend to perform better academically when using such tools, reflecting a moderately low positive correlation between learning motivation and academic performance. This finding underscores that motivation enhances the academic benefits gained from AI tools, even though the correlation remains modest. Furthermore, the study implies that fostering higher motivation in students is key to maximizing the academic benefits of AI tools like ChatGPT. Despite a modest correlation, motivated students are more likely to achieve better academic results with AI assistance.

Moreover, Silitonga et al. (2023) delved into students' perceptions of ChatGPT in educational settings, finding that while students view the tool as helpful for certain academic tasks, this perception does not necessarily improve their academic performance. Their results align with the insignificant and very low negative correlation between the perceived impact of ChatGPT and academic performance. This suggests that while ChatGPT might aid in task execution, its utility is not directly reflected in students' grades, implying a gap between perceived usefulness and actual academic outcomes.

Furthermore, Lo's study (2023) illustrates that although ChatGPT aids in academic tasks, it does not directly impact students' intrinsic

motivation to learn. This absence of a connection can be linked to ChatGPT's role as an academic tool, which assists students in completing assignments and clarifying concepts, rather than encouraging deeper personal engagement with the subject matter.

Section 6. Thematic Analysis of the Qualitative Responses from Participants

This section examines key themes from qualitative responses on ChatGPT's impact on students' academic performance. The table shows example responses, frequency, and percentage for each theme, providing insights into students' views on ChatGPT's role in their academics. Each theme highlights different aspects of ChatGPT's influence, both positive and negative, on learning. This analysis reveals how ChatGPT affects academic performance, enhancing efficiency while raising concerns about over-reliance.

Table 10. *Thematic Analysis of Qualitative Responses from Participants on the Impact of ChatGPT on Academic Performance*

Themes	*Example Responses*	*f*	*%*
Negative Impact on Critical Thinking	"ChatGPT is not gonna help you to think critically to improve your knowledge in academic." "When students use ChatGPT, they are not thinking critically." "Relying on generative AIs can make me dependent on it completely."	72	31.44%
Enhanced Academic Performance	"ChatGPT has greatly impacted my academic performance in different subjects." "ChatGPT has helped me improve in terms of my academic performance. It has helped me improve on my problem-solving skills and it provided me with very useful feedback." "ChatGPT helped me a lot, especially in progressing with my academic performance in a way that it elaborates words that I am not familiar with, and also when it comes to problem-solving, it explains the step-by-step process which helps me to understand it easily."	35	15.28%
Time-Saving Tool	"When explanations are too vague and obscure, I resort to ChatGPT for simpler explanations. It's very quick and instant, which is its positive contribution: the explanations are easily absorbed." "Using ChatGPT has, without a doubt, helped me in conveniently searching for answers without having to waste time searching sites. I use ChatGPT in making essays and completing my activities, which improved my performance in various subjects." "It affects my performance positively. I found ChatGPT helpful whenever I rush to gather information about a new topic that is relevant to my studies."	26	11.35%
Unreliable or Inaccurate Information	"Negative- sometimes the answers it provides are not relevant." "ChatGPT sometimes provides a wrong answer." "It is helpful when it provides accurate resources, but it is not when it provides inaccurate resources."	25	10.92%
Assists with Understanding Complex Topics	"ChatGPT helped me to better understand difficult topics in our specialized subject, especially in accounting." "ChatGPT helped me to elaborate on topics more and widen my knowledge about certain topics. It is helpful for me because it helps me save time to understand certain topics since ChatGPT has already summarized them for me." "ChatGPT has greatly impacted my academic performance in different subjects. There are times when I don't have the resources to expound my ideas on my activities; therefore, I use ChatGPT to provide me context on topics, especially in our General Biology subject and other science-related subjects."	21	9.17%
Assists with Grammar and Vocabulary	"It corrects my common grammatical errors and suggests better wording regarding a concept. It also suggests ideas regarding a concept. It also suggests names and sentence structures that I can use as reference." "ChatGPT helped me to check grammatical errors for my essays and it improved my language use and the coherence and cohesion of my essays. ChatGPT is helpful to me because it provides explanations that are easy to understand for a student like me, however not every information in ChatGPT is factful, that's why we also need to research sometimes." "ChatGPT has helped me in a way that it improves my composition of grammar in expressing my knowledge academically."	15	6.55%

Table 10 encompasses the thematic analysis of participants' responses concerning ChatGPT's impact on their academic performance. The themes identified include a Negative Impact on Critical Thinking (31.44%), Enhanced Academic Performance (15.28%), Time-Saving Tool (11.35%), Unreliable or Inaccurate Information (10.92%), Assists with Understanding Complex Topics (9.17%), and Assists with Grammar and Vocabulary (6.55%). The most prominent theme, "Negative Impact on Critical Thinking," indicates a significant concern among participants regarding over-reliance on AI tools, specifically ChatGPT, which they believe hampers their ability to think critically and independently.

There is a clear tension between how ChatGPT is seen as a helpful educational tool and its drawbacks. Participants who value ChatGPT for improving their academic performance mention specific advantages, such as assisting with problem-solving and providing feedback. These benefits are important in today's learning environment, which emphasizes quick understanding and using various resources. However, the negative impact on critical thinking is a major concern. This suggests that using ChatGPT may reduce deeper intellectual engagement by offering easy answers instead of encouraging independent problem-solving. Additionally, the issue of unreliable information complicates matters, as participants recognize the need to check the accuracy of AI-generated content. This

highlights the importance of using AI carefully and responsibly in academic settings.

The first theme regarding the negative impact of ChatGPT on critical thinking is supported by the research performed by Kaledio et al. (2024), which suggests that overreliance on AI tools like ChatGPT can hinder students' ability to think critically and solve problems independently. This is because when students become too dependent on AI, they may become less inclined to engage in the cognitive processes necessary for critical thinking, such as analyzing information, evaluating arguments, and generating original ideas. Additionally, excessive reliance on AI can lead to a decreased motivation to learn and develop problem-solving skills, as students may perceive AI as a shortcut to achieving academic success.

Next, the second theme, which addresses how ChatGPT can enhance students' academic performance, is substantiated by the study of Rawat et al. (2023). The study found that ChatGPT can significantly enhance students' academic performance, particularly in the areas of problem-solving and understanding complex topics. When used effectively, ChatGPT can assist students in breaking down complex problems into smaller, more manageable steps, understanding difficult concepts through clear explanations and examples, applying knowledge to real-world scenarios, and identifying and correcting errors in their work. These findings suggest that ChatGPT can serve as a valuable resource for students seeking to deepen their understanding of subject matter and develop essential problem-solving skills.

Moreover, the third theme concerning the ability of ChatGPT to save time is corroborated by the investigation undertaken by De Silva et al. (2023), which demonstrates that ChatGPT can be a valuable time-saving tool for students, especially when conducting research and completing assignments. By automating tasks such as information gathering, summarizing text, and generating ideas, ChatGPT can significantly reduce the time students spend on these activities. This allows students to focus on higher-order thinking tasks, such as analysis, evaluation, and synthesis. Additionally, ChatGPT can provide students with access to a vast amount of information, making it easier for them to find relevant sources and conduct thorough research.

Aside from the negative impact of ChatGPT on critical thinking, another theme highlights the unreliability and inaccuracy of ChatGPT's responses. This finding is echoed by the research conducted by Zheng et al. (2024), which examined ChatGPT's factual errors, particularly in open-domain question answering. Researchers found that nearly half of ChatGPT's failures were due to inaccuracies in factual responses. While newer models like GPT-4 show some improvements, they still face significant challenges when it comes to factual reliability.

Furthermore, the fifth theme about the finding that ChatGPT can help students understand complex topics is reinforced by the study of Kasneci et al. (2023). The study found that ChatGPT can be a valuable tool for helping students understand complex topics, especially when used in conjunction with traditional teaching methods. By providing personalized explanations, answering questions, and offering additional examples, ChatGPT can supplement classroom instruction and enhance students' comprehension. When used in conjunction with traditional teaching methods, ChatGPT can provide students with multiple perspectives on a topic, allowing them to develop a deeper understanding.

Finally, the last theme about the ability of ChatGPT to assist students in grammar and vocabulary is supported by the research performed by Masoudi (2024), showing that ChatGPT can be a valuable tool for helping students improve their grammar, vocabulary, and overall writing skills. By providing feedback on grammar errors, suggesting alternative word choices, and offering examples of effective writing, ChatGPT can help students develop their writing abilities. Additionally, ChatGPT can be used to practice writing different types of texts, such as essays, reports, and emails, which can help students become more versatile writers.

Conclusions

As AI tools, particularly ChatGPT, become more embedded in education, their impact on students is increasingly significant. Therefore, it is crucial to assess whether this impact is beneficial or harmful and to examine how it influences students' learning motivation and academic performance. Among senior high school students, there is a motivated attitude toward academics, with ChatGPT perceived positively for its efficiency in locating relevant information, though skepticism remains regarding its accuracy. Notably, there are significant differences in learning motivation based on sex and educational proficiency levels, with diverse perceptions of ChatGPT's effectiveness across educational proficiency groups. These findings correlate with a moderately low positive relationship between learning motivation and academic performance, underscoring the role of intrinsic motivation in academic success. Although ChatGPT is seen as a valuable resource for accessing information and supporting academic tasks, its influence does not directly enhance academic performance or boost learning motivation. This research fills the gap regarding how learning motivation and the perceived impact of ChatGPT vary among senior high school students according to demographic factors, such as sex and educational proficiency level. Additionally, the study elucidates the mechanisms by which learning motivation affects academic success. However, the research is constrained by its sample size, and the uneven distribution of participants across different strands and tracks and educational proficiency levels limits the generalizability of the findings. Future studies should address this limitation for a more comprehensive understanding of the topic.

With the significant findings of this study, the researchers suggest the following recommendations:

The school may utilize this as a foundation for developing educational strategies and targeted interventions to increase student learning motivation and enhance overall academic performance in the context of senior high school education.

To enhance student learning motivation, the school may implement programs that actively engage students, families, and teachers in nurturing intrinsic motivation. This could include workshops for students that emphasize self-efficacy, a growth mindset, and setting personal learning goals.

To improve academic performance, the school may implement personalized academic support programs that address individual student needs. This can include mentorship programs and the integration of adaptive learning technologies tailored to students' proficiency levels.

The Department of Education can collaborate with schools to provide professional development opportunities for educators, which ensures that teachers are equipped with the latest teaching methods and technologies.

For future researchers:

Other variables, such as the influence of technology readiness, learning styles, and parent-student relationships, can be explored to further examine their impact on students' use of AI tools like ChatGPT, level of learning motivation, and academic performance.

Future studies may explore the differences in ChatGPT efficacy across academic disciplines. Since subjects like mathematics, science, and humanities may require different types of cognitive engagement, future studies could analyze whether ChatGPT impacts academic performance differently depending on the subject matter.

Future studies may examine the long-term effects of using ChatGPT on students' critical thinking and analytical skills through longitudinal studies. While students find it helpful for efficiency, understanding how reliance on AI tools affects their learning processes is crucial.

Future studies may consider incorporating participants from various age groups, such as elementary, junior high, and college students. This broader range can provide more accurate insights into developmental differences in learning motivation, the perceived impact of ChatGPT, and academic performance.

The sample size may be increased, and it is recommended that future studies be conducted in diverse geographic locations to generate data that better represents broader populations, contributing to more generalizable findings.

The distribution of questionnaires may be done equally across different academic profiles (e.g., strands or tracks) and educational proficiency groups. Ensuring equal representation will allow a more balanced comparison of students' experiences and perspectives.

Participants may be given thorough instructions and proper orientation about the contents of the questionnaire to avoid misunderstandings and ensure all parts are truthfully and completely answered.

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