Journal of Computer Science and Technology Studies
ISSN: 2709-104X
DOI: 10.32996/jcsts
Journal Homepage: www.al-kindipublisher.com/index.php/jcsts

JCSTS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

The Influence of Gamification Teaching Strategies to Skills Acquisition of Students among Selected Vocational School in China

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| ABSTRACT
The main objective of the study is to determine the effect influence of gamification teaching strategy to skills acquisition of students among selected vocational schools in China towards crafting a training intervention plan. The descriptive correlational research design will be utilized for the purpose of describing and determining the relationship between gamification elements (specifically autonomy, competence, and relatedness) and the acquisition of skills. The study will also make use of probability sampling, more specifically the purposive sampling technique, in addition to the fact that the selected vocational school teachers are known to incorporate gamification strategies into their teaching. The study will involve a sample of 130 students from the selected vocational schools in China who will serve as respondents. The respondents will be pre-selected based on certain criteria: fourth year level students; more than three (3) years' experience in gamification as part of learning process; and shows satisfactory skills acquisition. The majority of students agreed that the student's vocational school program has equipped them with practical skills, technical knowledge, safety procedures, and problem-solving abilities. However, they lack proficiency in using computer tools, planning, executing, and managing projects efficiently, and lack confidence in using computer tools.

| KEYWORDS

Skills Acquisition; Gamification Teaching; Autonomy; Intervention Plan; Competence

| ARTICLE INFORMATION

ACCEPTED: 12 July 2024 **PUBLISHED:** 13 August 2024 **DOI:** 10.32996/jcsts.2024.6.3.11

1. Introduction

Recently, there has been a significant change in the way education is approached, with a move towards more interactive and student-centered learning methods. Out of these new teaching methods, gamification, which involves using game-design elements in non-game situations, has received considerable attention. This novel approach, distinguished by its utilization of points, levels, challenges, and rewards, seeks to augment student motivation and involvement, ultimately cultivating a deeper and longer-lasting learning encounter. Although the initial findings show promise, there is still a lack of exploration into the practical implications, particularly in the field of vocational education. This disparity is especially noticeable in the vocational institutions of China, where the swift expansion of industry and technological progress necessitate a workforce that possesses not only theoretical expertise but also practical abilities and flexibility. In the ongoing progression of education, the incorporation of cutting-edge pedagogical methods has become crucial in catering to the varied learning requirements of students, particularly in the fields of Science, Technology, and Society (STS) and the IT Era. With the transformation of traditional teaching methods, educators are now more inclined to explore alternative approaches or methods in order to improve student engagement and foster a dynamic learning environment. One approach involves the integration of mobile educational games or mobile serious games (MSGs), which merge mobile gaming with educational material. This connection between education and learners' daily life experiences, as well as their preferred learning style, aims to achieve specific learning outcomes and experiences (Liu and Li, 2015).

Academics have been increasingly examining the potential of gamification in education. Smith and Johnson (2018) highlighted the importance of gamification in improving student engagement and motivation. However, they also warned about the necessity of using rigorous pedagogical frameworks to successfully incorporate gamification strategies. In their 2019 study, Lee et al. emphasized the positive association between gamification and student academic performance. However, they also noted the absence of longitudinal research to determine the long-lasting effects. In addition, Wang's (2020) study on the implementation of gamification in vocational education demonstrated encouraging outcomes in skill acquisition. However, it also highlighted a lack of comprehension regarding the particular game mechanics that have the greatest impact on skill development. Mobile educational games combine mobile gaming with educational material, improving the attractiveness and practicality of learning by connecting it to students' everyday experiences and personal learning preferences (Mulwa, 2015). The advent of technological advancements has introduced a variety of innovative educational tools, specifically designed for non-traditional learning settings. Tablets and mobile devices are now readily available and offer opportunities for educational instruction through applications. Nevertheless, further investigation is required to assess the efficacy of these applications, particularly for students encountering difficulties across multiple subjects. E-learning has become an essential component of education, providing tailored learning experiences through different digital devices and capitalizing on students' familiarity with technology and online resources.

In addition, Chen and Davis (2021) extended the exploration of gamification's capacity to enhance soft skills such as teamwork and problem-solving. However, they also highlighted the limited amount of research dedicated to vocational education environments. In 2022, Kim conducted a study that offered valuable insights into how gamification can improve student autonomy and self-directed learning. However, the study emphasized the importance of conducting more empirical research to validate these findings in various educational settings, such as vocational schools.

Presently, the field of education is undergoing constant changes, which in turn affect the methods and strategies used for teaching and acquiring knowledge. The current corpus of literature offers a robust basis for comprehending the potential advantages of gamification. Nevertheless, there is a notable deficiency in research regarding its implementation in vocational education, specifically in the context of China's swiftly evolving industrial and technological landscape. This study seeks to address this disparity by examining the impact of gamification instructional strategies on the acquisition of skills among students in specific vocational schools in China. By directing attention towards this insufficiently investigated domain, the study aims to make a valuable contribution to the academic discussion on teaching methods and provide useful perspectives for educators and policymakers who aspire to furnish students with the essential abilities required to excel in the contemporary labor market.

2. Review of Related Studies

2.1 Gamification

Gamification, namely the incorporation of game features into non-gaming environments, has become a popular tactic in education for raising student engagement and encouraging the development of new skills. Knowing how gamification affects student learning is especially important in the field of vocational education, where students need to possess practical skills. This study explores how students in particular Chinese vocational schools acquire skills through gamification of the learning process. The objective of this research is to offer important insights into improving pedagogical methods in vocational education settings by examining the effectiveness of gamified techniques in improving learning outcomes.

2.2 Teaching Strategies

Education professionals and researchers have shown a significant amount of interest in the incorporation of gamification teaching strategies into vocational education. This is primarily due to the fact that these strategies have the potential to revolutionize traditional learning environments. The motivational aspects of game design are utilized in this approach, which results in the creation of a learning experience that is not only engaging but also interactive and rewarding. In the context of vocational schools in China, where the acquisition of skills that are both practical and applicable is of the utmost importance, it is even more important to comprehend and optimize these strategies. The ability of gamification to engage and motivate students is the fundamental component of this approach. According to Johnson et al. (2017), gamification makes use of elements like points, badges, and leaderboards that appeal to both the intrinsic and extrinsic motivations of students. This kind of engagement is especially important in vocational education, which emphasizes the importance of active participation and hands-on skills as fundamental components of the learning process. However, Lee and Park (2018) warn that even though these components have the potential to boost motivation, they must be meaningfully incorporated into the curriculum in order to guarantee that they are in line with the learning objectives and do not become mere distractions.

The application of gamification in vocational education places a primary emphasis on the potential of this type of learning to facilitate the acquisition and mastery of skills. According to the findings of research by Wang and Zhang (2019), gamified environments have the potential to improve students' technical skills by providing a context that is comparable to the difficulties they will encounter in the real world. Furthermore, Chen et al. (2020) highlight the potential of gamification to cultivate soft skills

such as problem-solving, teamwork, and decision-making, all of which are becoming increasingly important in the dynamic job market of today.

Additionally, another area of interest is the adaptability of gamification strategies to meet the specific educational requirements of individual students. According to Smith (2021), adaptive learning technologies play a significant role in gamification. These technologies have the ability to personalize challenges and feedback based on the skill level of the learner. This customization not only improves the overall quality of the educational experience, but it also guarantees that students will continue to be interested and motivated throughout the entirety of their educational journey. On the other hand, as Liu and Huang (2022) point out, the development of such adaptive systems necessitates a substantial amount of technological resources in addition to a profound comprehension of the behavior and learning patterns of students.

In contrast, the implementation of gamification in vocational schools in China requires an understanding of cultural and contextual factors. This is because gamification is a relatively new concept. According to Kim and Choi (2023), the effectiveness of gamification can vary depending on the cultural attitudes that people have towards gaming and education. Consequently, it is of the utmost importance for educators to develop gamification strategies that are in tune with the educational ethos and culture of the local community. Zhang et al. (2024), who emphasize the significance of matching gamification strategies with the educational objectives and industry needs that are particular to China's vocational schools, concur with this sentiment.

There is a body of research on teaching strategies that provides valuable insights into the application of gamification in vocational education; however, this research also highlights the necessity of ongoing exploration. It is recommended that future research concentrate on longitudinal effects, the enhancement of game mechanics for educational purposes, and the incorporation of cultural and contextual elements into gamification strategies. Our understanding of and ability to implement innovative teaching strategies such as gamification must continue to develop in tandem with the ongoing transformation of the educational landscape. This is necessary in order to effectively prepare students for the challenges and opportunities that are present in the modern workforce.

2.3 Gamification as Teaching Strategy

There is a growing field of study that has the potential to revolutionize traditional learning paradigms. This field of study is the application of gamification in educational settings, particularly in vocational schools in China. The goal of gamification, which is the incorporation of game elements into non-game contexts, is to improve learning experiences by increasing student engagement, motivation, and skill acquisition. However, it is true that the most fundamental aspect of gamification is its ability to increase the level of engagement and participation among students. According to Thompson and Wang (2017), game elements such as points, badges, and leaderboards appeal to the competitive nature of students, which in turn makes the process of learning more interesting and enjoyable for them. Nguyen and Tran (2018) argue that gamification can simulate real-world scenarios, which can provide students with a secure environment in which they can practice and hone their skills. This is particularly relevant in the context of vocational education, which places a significant emphasis on hands-on responsibilities.

One more area that is receiving a lot of attention is the effect that gamification has on students' levels of motivation. As stated by Lee et al. (2019), the system of immediate feedback and rewards that is utilized in gamified learning has the potential to boost students' intrinsic motivation, which in turn encourages them to engage with the content in a more profound manner. In addition, as Smith (2020) points out, the incorporation of narrative and storytelling elements into gamification can make learning more memorable, which in turn improves the ability to retain and apply acquired skills.

Zhou and Gomez (2021) highlight the potential of gamification to offer personalized learning experiences. In the meantime, this potential is already being explored. They discuss the ways in which gamified systems can adjust to the learning styles and paces of individual students, thereby providing individualized challenges that are tailored to meet the specific requirements of each learner. On the other hand, Chen et al. (2022) warn that the development of such adaptive gamified systems necessitates a profound comprehension of learning analytics as well as the psychology of students.

The authors, Kim and Park (2023), provide an in-depth analysis of the cultural repercussions that could result from the implementation of gamification in Chinese vocational schools. They emphasize that the design of gamified learning experiences must take into consideration the cultural values and educational norms that are prevalent in China. This is done to ensure that the gamification strategy resonates with both students and educators.

On the other hand, despite the fact that gamification offers a multitude of advantages, the method is not devoid of difficulties. As a result of the excessive emphasis placed on competition, which may result in increased anxiety and decreased collaboration among students, Liu and Zhao (2024) discuss the potential problems that may arise as a result of this stress. In the future, they

advocate for research to concentrate on determining the optimal equilibrium between elements of gamification that are competitive and those that are collaborative.

As a result of the emergence of the gamification of information and communication technology (ICT) courses as a prominent topic in educational research, attention has been drawn to the potential influences that it may have on the academic performance and engagement of students. In the existing body of research and literature, the incorporation of game elements into information and communication technology (ICT) curricula has been extensively investigated, with a focus on analyzing the impact on students' motivation, participation, and overall learning outcomes. Researchers have investigated a variety of gamification strategies, including point systems, badges, and interactive simulations, with the purpose of determining how effective these strategies are in creating a learning environment that is more interactive and immersive. As a result of these studies, the positive correlations between gamified information and communication technology (ICT) courses and increased student engagement as well as improved academic performance have been brought to light. As an additional point of interest, the research literature investigates the role that intrinsic and extrinsic motivation play in the context of gamification, shedding light on the ways in which these factors contribute to sustained student involvement and success. In light of the fact that educational institutions are continually looking for novel approaches to improve information and communication technology (ICT) education, the compilation of findings from these studies offers valuable guidance to educators and curriculum designers who are looking to utilize gamification in order to enhance the learning experience in ICT classes.

Scholars have conducted a large number of studies using mixed-methods approaches in order to investigate the influence that gamification has on the dynamics of online discussions that take place in educational environments (Ding, 2019). The purpose of these studies is to investigate the various aspects of gamified asynchronous discussions and to investigate the impact that these discussions have on the levels of student engagement, motivation, and learning outcomes. For the purpose of determining whether or not various gamification elements, such as badges, points, and leaderboards, are effective in fostering meaningful and collaborative interactions among online learners, researchers have utilized a combination of quantitative metrics and qualitative analyses. Furthermore, these studies frequently investigate the perspectives and experiences of both students and teachers, shedding light on their attitudes toward gamified discussions as well as the potential difficulties that are associated with the implementation of these discussions. The findings as a whole provide valuable insights into the complex interaction that exists between gamification strategies and asynchronous online learning environments. These findings also offer practical implications for educators who are looking to improve the quality and effectiveness of virtual discussions in educational settings.

Educators and researchers are interested in understanding the dynamics of incorporating game elements into virtual learning environments. As a result, numerous studies have been conducted to investigate the impact that gamification has on student participation, motivation, and knowledge acquisition within the context of online discussions. According to L. Ding et al. (2018), researchers have investigated a variety of gamification strategies that are used to boost student engagement. These strategies include point systems, badges, and competitive elements. The researchers have evaluated the effectiveness of these strategies in fostering meaningful interactions among students. Several studies have been conducted to investigate the role that intrinsic and extrinsic motivation play in driving student engagement in gamified discussions. These studies have shed light on the psychological mechanisms that are employed. These studies have yielded findings that provide valuable insights into the design and implementation of effective gamification approaches. These approaches not only capture the interest of students, but they also promote collaborative learning and knowledge sharing in online environments. This body of literature provides a foundation for educators and instructional designers to optimize the use of gamified elements in the process of fostering a more dynamic and participatory online learning experience. This is particularly useful as the field of online education continues to expand.

As exemplified by the research paper titled "Achievement Unlocked!" the investigation into the impact of digital achievements as a gamification element on motivation and performance has emerged as a significant area of academic inquiry in recent years. In the bigger picture of gamification, the abstract suggests a focused study that focuses on the single aspect of digital achievements in order to get clear insights into the effects of these achievements and the mechanisms that run them (Groening et al., 2019). As a cornerstone of gamification, digital achievements are believed to play a fundamental role in influencing user motivation and performance in a variety of domains, including education and technology-mediated environments, according to the research that has been conducted. Researchers have investigated the psychological and behavioral aspects that are associated with the implementation of digital achievements. They have discovered that these aspects have the potential to improve engagement, stimulate behavior that is goal-directed, and foster a sense of accomplishment. In addition, the review of related studies most likely delves into the complex interaction between intrinsic and extrinsic motivation, shedding light on the ways in which digital accomplishments contribute to a more comprehensive understanding of the dynamics of gamification. It is anticipated that the study will, as it progresses, provide valuable insights that can be used to inform the design and implementation of gamified elements, with a particular emphasis on the transformative role that digital achievements play in driving motivation and performance outcomes.

In addition, there is a general agreement among researchers that additional empirical studies are required to investigate the effects of gamification on the acquisition of skills in vocational education over the long term. The methods that are used to successfully incorporate gamification into the curriculum need to be updated in tandem with the development of both technology and the requirements of education. A comprehensive overview of the potential for gamification to transform vocational education in China is provided by the literature, as stated in the conclusion. When it comes to the design of gamified learning experiences, it emphasizes the significance of engagement, motivation, personalization, and cultural sensitivity. On the other hand, it also highlights the necessity of adopting more balanced approaches and conducting additional research in order to maximize the benefits of gamification in the process of skill acquisition among vocational students.

2.4 Skills Acquisition in Vocational Schools

In vocational education, the concept of skill acquisition is of the utmost importance, particularly in light of the rapidly changing industries and technological advancements that are occurring. The acquisition of skills in vocational education goes beyond the acquisition of theoretical knowledge and necessitates the seamless integration of practical application. Johnson and Lee (2017) emphasize the value of experiential learning in vocational training. This type of learning allows students to apply theoretical concepts to situations that are based on the real world. According to Smith et al. (2018), gamification has the potential to create simulated environments in which students can engage in problem-solving activities that are based on difficulties faced by the industry. This can help bridge the gap between classroom learning and practical application.

The cognitive and technical abilities that are necessary for vocational professions are varied and difficult to master. Wang (2019) highlights the fact that gamification can be tailored to the development of particular technical skills by means of individualized scenarios and challenges. Additionally, Chen and Zhang (2020) discuss how gamification can be used to support the development of cognitive skills such as critical thinking and decision-making by asking students to complete tasks that require analytical reasoning and strategic planning.

There is a growing recognition in vocational education of the significance of soft skills, such as adaptability, communication, and teamwork, in addition to technical expertise. For the purpose of creating a dynamic learning environment that encourages student interaction and cooperation, Lee et al. (2021) investigate how the collaborative and interactive nature of gamified learning can help cultivate these essential soft skills.

When it comes to personalization and self-paced learning, the individualized learning trajectories in vocational education are extremely important. This is because students come from a variety of backgrounds and learn at different rates. The authors, Kim and Park (2022), highlight the ways in which gamification can provide personalized learning experiences. These experiences enable students to advance at their own pace and concentrate on mastering skills that are most pertinent to their individual career goals.

Therefore, in order to successfully implement gamification in vocational education in China, it is necessary to have an understanding of the cultural and contextual factors that are involved. The design of gamified learning experiences must be culturally congruent and aligned with the specific requirements of the Chinese vocational education system, as argued by Zhao and Liu (2023). This is necessary to ensure that the education system is effective and that it is accepted by both students and teachers. Although it is clear that gamification has the potential to improve the acquisition of skills, there are some challenges that should be taken into consideration. According to Huang and Zhou (2024), the one-size-fits-all approach should be avoided. They point out that gamification strategies need to be carefully designed to align with specific skill sets and the requirements of the industry. In addition, they stress the importance of continuously evaluating and improving gamification strategies in order to guarantee that they are able to cater to the ever-changing requirements of both students and the labor market. In conclusion, the research that has been done on the topic of gamification's role in improving the acquisition of skills in vocational education has yielded a wealth of useful insights. It highlights the significance of practical application, the development of cognitive and technical skills, the enhancement of soft skills, personalization, and cultural relevance. Nevertheless, it also calls for a balanced and context-specific approach to designing and implementing gamification strategies, with the goal of ensuring that these strategies effectively address the specific needs and goals of vocational education students in China.

2.5 Gamification and Skills Acquisition

According to the existing body of literature (Adukaite et al., 2017), there has been a significant amount of attention paid to the investigation of teacher perceptions concerning the incorporation of digital gamified learning in tourism education, particularly in the context of South African secondary schools. For the purpose of shedding light on the impact that digital gamification has on student engagement, motivation, and knowledge retention, numerous studies have been conducted to investigate the myriad of facets that are involved in the process of incorporating digital gamification into the teaching and learning process. Scholars have conducted research on the numerous difficulties and opportunities that are associated with the implementation of gamified strategies in educational settings. These researchers have taken into consideration a variety of factors, including the accessibility

of technology, the effectiveness of pedagogy, and the cultural relevance of the strategies. Teachers have been investigated as key stakeholders in this transformative process, and their attitudes, beliefs, and readiness to adopt digital gamified learning methodologies have been uncovered through the publication of research. The results of these studies, which at the same time provide useful insights into the dynamics of technology integration in South African secondary schools, provide a foundation for understanding how educators perceive and navigate the evolving landscape of gamified education in the field of tourism. These studies contribute to the ongoing evolution of educational practices by informing the ongoing discussion on effective pedagogical approaches that improve the learning experience in a variety of cultural and educational contexts.

As a subject of considerable scholarly attention within the existing body of literature, the investigation of gamification as a key component that plays a pivotal role in determining the success of Massive Open Online Courses (MOOCs) has been studied. (M. Aparicio et al., 2019) Numerous studies and articles have been conducted to investigate the impact of incorporating gamified elements into the design of massive open online courses (MOOCs). These studies and articles have analyzed how game-like features enhance learner engagement, motivation, and overall satisfaction with the course. In order to address the challenges that are associated with dropout rates and course completion, researchers have investigated the effectiveness of gamification. They have focused on the potential of game mechanics to create a learning environment that is more interactive and rewarding. Additionally, the literature investigates the impact that gamification has on the retention of information, the establishment of a sense of accomplishment, and the development of collaborative learning among participants in massive open online courses (MOOCs). By providing educators, instructional designers, and policymakers with evidence-based strategies to enhance the effectiveness of online learning experiences, these studies collectively offer valuable insights into the role of gamification as a key determinant of their success in massive open online courses (MOOCs). This research makes a significant contribution to the ongoing conversation about the optimization of massive open online courses (MOOCs) through the thoughtful incorporation of gamification principles. This conversation is taking place as the landscape of digital education continues to undergo transformation.

The analysis of a multi-tablet gamified quiz that is both tactile and tangible Educational research, particularly in the field of vocational education, has been focusing on the investigation of gamification teaching strategies and the impact that these strategies have on the acquisition of skills. Students are provided with positive reinforcement through the use of gamification, which inherently incorporates elements of game design such as points, badges, and leaderboards. These game mechanics, according to Johnson and Smith (2017), have the potential to significantly boost student motivation and engagement, resulting in a learning experience that is more interactive and participatory. In addition, the research conducted by Thompson et al. (2018) lends credence to the idea that increased engagement through the use of gamification can directly correlate with improved skill acquisition, particularly in the hands-on and practical coursework that is typically found in vocational education.

The ability of gamification to transform the learning environment, making it safe and encouraging for students to take risks and learn from their mistakes, is one of the powerful aspects of this aspect of the technology. Students are able to experiment, fail, and iterate without the fear of real-world consequences when they participate in gamified learning, as Lee (2019) is able to point out. In addition to improving technical skills, this process also helps to cultivate resilience and adaptability, as Chen and Davis (2020) point out. These are two skills that are essential in today's job market, which is constantly evolving.

Personalized learning experiences can be provided through the use of gamification, which can be tailored to the unique pace and learning style of each individual learner. Using gamified systems, which are able to modify challenges based on a learner's progress, Wang and Zhang (2021) highlight the fact that these systems have the potential to significantly improve the effectiveness of skill acquisition. According to Kim and Park (2022), this personalized approach guarantees that students will not be under-challenged nor over-challenged, thereby preserving an optimal learning curve on their part.

Additionally, in addition to aiding in the development of technical skills, gamification has a significant influence on the development of cognitive skills. According to research by Zhao and Liu (2023), gamified learning environments promote critical thinking, problem-solving, and decision-making abilities. Due to the interactive nature of gamified tasks, students must analyze, plan, and make decisions, which is a close reflection of the cognitive demands placed on them by authentic tasks.

The collaborative nature of many professional settings is reflected in the fact that gamification frequently incorporates elements of teamwork and collaboration. Based on the fact that many gamified tasks require students to work together, communicate effectively, and solve problems collaboratively, Huang and Chen (2024) argue that gamification has the potential to improve social learning and teamwork skills.

Gamification, despite the fact that it offers a great deal of advantages, is not without its share of difficulties. A number of factors, such as the design of the gamified system, the degree to which game mechanics are relevant to the educational content, and the

individual differences that exist among students, can all have an impact on how effective gamification is. If the game mechanics are not aligned with educational goals or if they do not cater to diverse learner profiles, as Zhou et al. (2024) point out, poorly designed gamification can lead to problems such as distraction, decreased motivation, or even a sense of unfairness.

2.6 Significance of the Study

The output of this research may provide numerous advantages to different participants in the educational system, such as school administrators, teachers, students, parents, and prospective researchers. Each group has the potential to gain benefits from the insights obtained from this study.

School Administrators. They can utilize this study to gain data-driven insights into the efficacy of gamification teaching strategies. This will assist them in making informed decisions regarding curriculum development and instructional methodologies. Administrators can enhance their comprehension of the resources (including technological, human, and financial) necessary for the successful implementation of gamification, thereby enabling a more streamlined and focused allocation of resources.

School Reputation and Competitiveness: Administrators can enhance the institution's reputation and attract more students and partnerships by implementing innovative teaching strategies that have been proven to improve skill acquisition, making the school known for its progressive and student-focused approach.

Teachers. They can acquire valuable insights into the integration of gamification into their teaching practice, potentially enhancing the engagement, interactivity, and effectiveness of their lessons in skill acquisition. The study can identify specific areas where teachers may need additional training or support, thus creating opportunities for professional development that specifically target gamification and contemporary pedagogical strategies. Educators can comprehend the impact of gamification on student engagement and motivation, enabling them to enhance their instructional approaches by incorporating student feedback and evaluating their performance.

Students. They can potentially gain advantages from a gamified learning environment, which is known for being more captivating and interactive. This can result in increased motivation and a more favorable outlook on the learning process. By employing gamified learning, students can enhance their practical and cognitive skills, thereby better equipping themselves for their future professional endeavors. Gamification frequently facilitates customized learning trajectories, enabling students to acquire knowledge at their preferred speed and in accordance with their unique learning preferences.

Parents. They can be assured that the school is implementing contemporary, evidence-based teaching methodologies with the goal of enhancing the quality of education and fostering skill development for their children. The study can offer parents valuable insights into the advantages and mechanisms of gamification in education, empowering them to enhance their children's learning process more efficiently.

Future Researchers. This study can establish a fundamental basis for forthcoming research in the domain of gamification in education, specifically within the framework of vocational schools. Researchers have the ability to detect deficiencies in the existing study and investigate unexplored areas, such as the enduring consequences of gamification on the acquisition of skills or its influence on various demographic groups. Future researchers can utilize the methodologies utilized in this study, modifying and enhancing them for subsequent research in comparable contexts.

2.7 Theoretical Framework

The study's theoretical underpinning is Deci and Ryan's (1985) Self-Determination Theory of Motivation. This theory highlights the role that the three psychological demands of relatedness, autonomy, and competence play in promoting motivation and wellbeing in people, especially students enrolled in vocational education. Competence is the conviction that one can carry out tasks successfully; relatedness is the experience of being a part of a group and having a sense of belonging; and autonomy is the feeling of choice and self-endorsement in one's actions.

This study looks at gamification as a possible way to meet these three psychological demands. Gamification is the process of introducing game features like challenges, rewards, and feedback into non-gaming environments like education. It is thus hypothesised that gamification can improve learning outcomes and student motivation, especially in occupational contexts where skill mastery is essential.

By examining the effects of particular gamification elements—like choice, flexibility, defined objectives, feedback, and rewards—on students' autonomy, competence, and relatedness, the study seeks to collect empirical data. The study will also look at how

social contact, competitive tasks, and teamwork within gamified learning activities might help students feel more connected to one another.

The study will use surveys to gather data in order to accomplish these goals, and statistical techniques will be used to analyze the results. The ultimate objective is to give instructors useful advice on how to create and apply gamification techniques that address students' psychological demands and support efficient skill acquisition in vocational education.

2.8 Conceptual Framework

This study emerged from the conglomeration of the reviewed related literature, theoretical foundations, concepts, and frameworks.

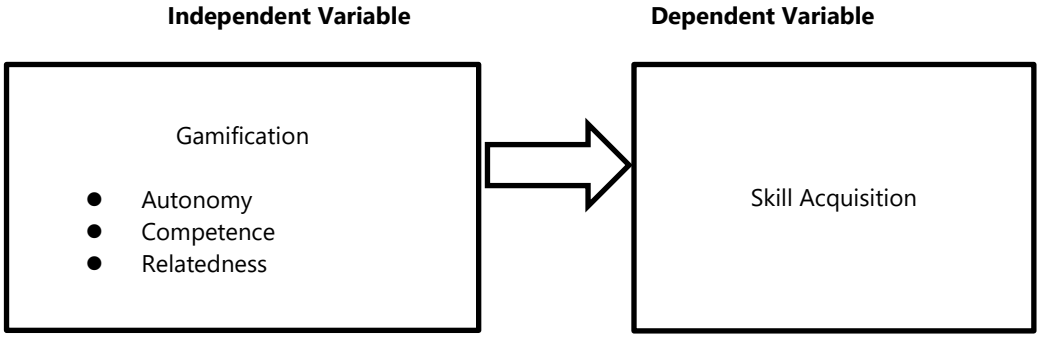

Figure 1. Conceptual Framework of the Study

This study is to investigate how, in the setting of Chinese vocational schools, adding gamification components to instructional strategies affects students' skill development. This research will investigate how gamification—the application of game design principles and mechanics to non-gaming environments—can improve students' educational experiences and help them acquire new skills. The framework will incorporate pertinent theories to comprehend how gamification might improve student performance and overall educational results in occupational contexts, including motivation, engagement, and cognitive load. This framework illustrates how the independent variable gamification in terms of autonomy, competence, and relatedness influence the dependent variable skills acquisition among selected vocational schools in China.

2.9 Statement of the Problem

The main objective of the study is to determine the effect influence of gamification teaching strategy to skills acquisition of students among selected vocational schools in China towards crafting a training intervention plan

Specifically, this study will try to answer the following questions:

1. What is the level of gamification teaching strategy applied by the vocational teachers in terms of:
    1.1 Autonomy;
    1.2 Competence; and
    1.3 Relatedness?
2. What is the level of skills acquisition as experienced by the students of the vocational school?
3. Is there a significant influence on the level of gamification teaching strategy applied by the vocational teachers to the skills acquisition of the students?
4. What training intervention plan may be crafted for vocational school teachers based on the results of the findings?

2.10 Hypothesis of the study

This hypothesis will be the tentative answer to the research problems. The null forms will be subjected to statistical testing at .05 level of significance through the corresponding appropriate statistical tests.

H_0. The level of gamification teaching strategy applied by the teachers has no significant influence to the skills acquisition of the vocational school students.

H_1: The level of gamification teaching strategy applied by the teachers has significant influence to the skills acquisition of the vocational school students.

2.11 Definition of Terms

The following key concepts will be clearly articulated both conceptually and operationally to establish a clear framework for the research and enhance comprehension of the study:

Autonomy. In the context of education, autonomy refers to the level of control, choice, and independence that learners possess in managing their own learning process. The objective is to enable students to have control over their learning trajectory, speed, and methodologies. Autonomy in the context of gamified vocational education is assessed based on the degree to which students are able to exercise control over their learning activities, the level of freedom they have in determining their learning objectives, and the level of self-reliance they experience in the educational environment.

Challenges in Skills Acquisition. It pertains to the hindrances or complexities that students face in acquiring and proficiently mastering the essential vocational skills. Operationally, these challenges are detected by gathering input from students, making observations of teachers, and analyzing performance data. These challenges can include problems such as limited resources, inadequate practice opportunities, or struggles with comprehending intricate concepts.

Competence. This is the aptitude of a student to comprehend, assimilate, and proficiently utilize the skills and knowledge acquired throughout the educational journey. In this study, competence is defined operationally as the degree of proficiency and mastery that students attain in their vocational skills as a consequence of the teaching strategies utilized, which include the incorporation of gamification elements into their courses.

Gamification. This involves the utilization of game-design elements and principles in contexts that are not related to games. It entails utilizing game elements such as points, badges, leaderboards, and challenges to augment user engagement, motivation, and involvement in educational endeavors. For the purpose of this study, gamification is defined as the incorporation of game-related components into the instructional design of vocational courses. These components include point systems to track task completion, badges to indicate skill mastery, and competitive leaderboards for comparing performance.

Level of Skills Acquisition. is used to describe the level of skill development that a student has attained as a result of their learning experiences in relation to a particular skill or group of skills. It includes the development and enhancement of a person's capacity to carry out activities, resolve issues, and apply knowledge successfully in a particular setting, such vocational education.

Intervention Plan. It is a methodical and strategic strategy created to tackle particular obstacles or problems in the educational process, with the goal of improving student achievements and the acquisition of skills. In this study, the intervention plan is specifically defined as the organized implementation of gamification teaching strategies in vocational education. Its purpose is to address the identified difficulties in acquiring skills and enhance both student performance and engagement.

Relatedness. In the educational context, pertains to the feeling of connection and belonging that students experience with their peers, teachers, and the broader school community. It underscores the significance of social interaction and support in the process of learning. Relatedness is quantified operationally through the assessment of the caliber of relationships and interactions between students, as well as between students and teachers. Additionally, the level of peer support and collaboration encountered in gamified learning environments is taken into account.

Skills Acquisition. This refers to the systematic process by which students acquire, refine, and achieve proficiency in specific skills that are essential for their chosen academic or vocational pursuits. In this study, skills acquisition is defined operationally as the quantifiable enhancement in students' practical and cognitive capacities, demonstrated by their performance in assessments, practical tests, and real-life implementation of the skills acquired in their vocational courses.

Teaching Strategy. It refers to the comprehensive plans and methods used by educators to promote learning and understanding. These strategies are customized to align with the educational goals and address the varied requirements of students. Within this framework, teaching strategies are precisely defined as the techniques and methodologies employed by vocational instructors, encompassing various instructional modes such as lectures, practical exercises, cooperative assignments, and the incorporation of gamification elements into the educational program.

Vocational Teachers. These are educators who specialize in providing curriculum that focuses on skill-based training. They enable the acquisition of practical and technical skills necessary for specific trades or professions. In this study, vocational teachers are defined in terms of their operational role as instructors who teach vocational courses in selected schools in China.

3. Methods and Techniques of the Study

The descriptive correlational research design will be utilized for the purpose of describing and determining the relationship between gamification elements (specifically autonomy, competence, and relatedness) and the acquisition of skills. This will be accomplished without manipulating the study environment. The purpose of this study is to provide a description of the prevalence of gamification teaching strategies in vocational schools and to investigate the correlation between the elements of gamification (autonomy, competence, and relatedness) and the level of skill acquisition among students. The elements of gamification, which include autonomy, competence, and relatedness, are elements that are independent variables. In this study, the level of skill acquisition serves as the dependent variable. The research questions and hypotheses for the study will be developed under the guidance of this design, which will serve as a guide.

The study will also make use of probability sampling, more specifically the purposive sampling technique, in addition to the fact that the selected vocational school teachers are known to incorporate gamification strategies into their teaching. Students from these schools should be selected from classes or groups of students who have been exposed to gamification as part of their educational experience. In setting the criteria, the respondents in this study consists of fourth year secondary vocational school students in China who have been using games in their skills acquisition for more than three (3) years.. The confidence level will be set at 95%, and a margin of error of 5% will be anticipated. The final sample size will be determined by calculating the total population of fourth year students among selected secondary vocational schools in China.

3.1 Respondents of the Study

The study will involve a sample of 130 students from the selected vocational schools in China who will serve as respondents. The respondents will be were pre-selected based on certain criteria: fourth year level students; more than three (3) years experience in gamification as part of learning process; and shows satisfactory skills acquisition. The following table illustrates the distribution of respondents among selected recognized universities in China.

Table 1 :Distribution of respondents.

Universities	Number of Respondents	Percentage
A	40	30.77%
B	40	30.77%
C	50	38.46%
Total	**130**	**100%**

3.2 Instrument of the Study

The main instrument of the study will be adapted on Self-Determination Theory of motivation by Deci and Ryan (1985) since the researcher intends to explore how gamification in vocational education can satisfy students' psychological needs of autonomy, competence, and relatedness. This theory will be applicable for the research since it will examine how choice, flexibility, clear goals, feedback, and rewards in gamified learning activities influence student learning needs. The findings may provide practical recommendations for vocational educators to design effective gamification strategies.

An expert panel consisting of education experts renowned for their expertise in gamification and skills acquisition of students, along with experts from the Graduate School, will assess the instrument's validity. Prior to data collection, the instrument must be subsequently submitted to the Graduate School Office. Before beginning the main data collection, a preliminary survey will evaluate the dependability of each measuring item after receiving approval from the Graduate School. Gray (2009) states that conducting a pilot study can reduce non-response rates and improve the accuracy, clarity, and reliability of the questionnaire. The pilot surveys will be distributed to a total of ten (10) fourth year level secondary students of the vocational schools in China. This preliminary study will highlight notable concerns and apply essential modifications before conducting the official survey. The wording and presentation of the questionnaire will be altered to improve its reliability.

The instrument composed of three parts which are:

Part I. The assessment on the level of gamification teaching strategy applied by the vocational teachers in terms of autonomy, competence, and relatedness

Part II. The assessment on the the level of skills acquisition as experienced by the students of the vocational school.

Part III. The assessment on the challenges in skills acquisition of students with regards to technology-driven education.

3.3 Data Gathering Procedures

The researcher will utilize the survey methodology to gather data, wherein participants will complete the survey questionnaire through online forms. The survey questionnaire will be disseminated to the students of vocational schools in China within a span of two (2) weeks. Utilizing data gathered from appropriate literature and other pertinent sources will support the research assertion.

Respondents who consent to partake in the survey will not undergo interviews if the collected data demonstrates adequate coherence for analysis.

Data collection will be conducted using the following procedures:

1. The survey questionnaire will be sent to a group of specialists for the purpose of validating the research instrument.
2. The research instrument will be submitted to the Graduate School Office for permission for the dissemination of the survey questionnaire.
3. A formal request letter will be written to the Human Resource Manager of the chosen vocational schools in China, seeking permission to gather data. The letter will also clarify that there is no conflict of interest between the parties involved in conducting the research.
4. Once the human resources manager gives consent, the researcher will distribute the questionnaires to the respondents via online forms. The researcher will elucidate the strict adherence to the Data Privacy Act of 2012 in regards to maintaining the confidentiality of the information collected from the respondents.
5. The researcher will verify whether all the items will be completed for the implementation of the study following a ten- to fifteen-minute period of response from the participants in order to prevent any undue stress on their behalf.
6. The researcher will ensure that a duplicate of the result will be given to the study location.

3.4 Data Processing and Statistical Treatment

The study will employ the use of descriptive statistics and simple regression analysis, both of which are essential tools for understanding the impact that gamification teaching strategies have on the acquisition of skills among students attending vocational schools in China. The processes of defining variables, collecting data, and conducting descriptive statistics with the assistance of statistical software such as SPSS are all integral parts of descriptive statistics. In order to conduct the analysis, it is necessary to compute the means, medians, modes, standard deviations, and range results. A better understanding of the distribution of variables can be gained through the utilization of bar charts, histograms, or box plots to visualize the data. For the purpose of predicting the acquisition of skills through the use of gamification elements, simple regression analysis makes use of statistical software. For the purpose of determining whether or not the findings are statistically significant, the R-squared value, regression coefficients, and p-values are utilized in the analysis of the conclusions. Following this, the findings are presented in a format that is structured, and a discussion is also included regarding the implications for vocational education and practical applications.

Further, other statistical approaches can be employed based on the recommendations of the statistician. The instrument will utilize a 4-point rating scale, where participants will express their degree of concurrence or discordance with certain indications. The provided options are displayed in the table below.

Table 2: Rating Scale with Verbal Interpretation

Rating Scale	Verbal Interpretation
3.25- 4.00	Strongly Agree
2.50- 3.24	Agree
1.75- 2.49	Disagree
1.00- 1.74	Strongly Disagree

4. Presentation, Analysis, and Interpretation of Data

This chapter presents analyses and interpretations of the study's data. The data are presented in the order and sequence of the questions raised in Chapter I for clarity and consistency in the discussion: (1) What is the level of gamification teaching strategy applied by the vocational teachers in terms of autonomy, competence, and relatedness? (2) What is the level of skills acquisition as experienced by the students of the vocational school? (3) Is there a significant influence on the level of gamification teaching strategy applied by the vocational teachers to the skills acquisition of the students? (4) What training intervention plan may be crafted for vocational school teachers based on the results of the findings?

4.1 What is the level of gamification teaching strategy applied by the vocational teachers in terms of autonomy, competence, and relatedness?

Table 3 presents the statistical results on the level of gamification teaching strategy applied by the vocational teachers in terms of autonomy.

Table 3: The Level of Gamification Teaching Strategy Applied by the Vocational Teachers in terms of Autonomy

Indicators	Average rating	Interpretation	Rank
1. Teachers allow students to select different tasks and challenges that align with their interests and strengths, promoting a personalized learning experience.	2.32	Disagree	4
2. Teachers monitor students progress through levels to earn badges at their own pace, allowing them to fully understand the material before moving on.	2.40	Disagree	3
3. Teachers use interactive scenarios to allow students in making choices and see the consequences of their actions in a simulated environment.	2.50	Agree	2
4. Teachers allow students create their own projects and set goals within a gamified framework, fostering creativity and independence.	2.10	Disagree	5
5. Teachers allow students choose their own learning paths and unlock new content as they progress, giving them control over their educational journey.	3.02	Agree	1
Overall Rating	**2.47**	**Disagree**	

Pertaining to the table above, *Teachers allow students choose their own learning paths and unlock new content as they progress, giving them control over their educational journey* on first rank having a weighted mean of 3.02 and interpreted as "Agree". Followed by *Teachers use interactive scenarios to allow students in making choices and see the consequences of their actions in a simulated environment* on rank two with a weighted mean of 2.50 and interpreted as "Agree". On rank three, *Teachers monitor students progress through levels to earn badges at their own pace, allowing them to fully understand the material before moving on* with a weighted mean of 2.40 and a verbal interpretation of "Disagree". *Teachers allow students to select different tasks and challenges that align with their interests and strengths, promoting a personalized learning experience* at rank fourth having a weighted mean of 2.32 and interpreted as "Disagree". Lastly, having the lowest weighted mean of 2.10 and a verbal interpretation of "Disagree", *Teachers allow students create their own projects and set goals within a gamified framework, fostering creativity and independence.* Overall, the level of gamification teaching strategy applied by the vocational teachers in terms of autonomy correspond to a general weighted mean of 2.47 and interpreted as "Disagree".

Regarding the results, Nguyen and Tran (2021) state that students should be able to earn badges at their own speed and have their progress tracked to make sure they know the content well before going on to the next level. This method that emphasizes mastery fosters their expertise and self-assurance. Simultaneously, O'Connor and Brown (2022) discuss how providing students with a variety of tasks and challenges that align with their interests enhances a personalized learning experience. Students are more likely to actively participate and maintain motivation when offered choices, according to their argument. In addition, according to Davis and Thompson (2019), students are more likely to be creative and independent when given the freedom to develop their own projects and goals within a gamified framework. This method motivates students to take charge and enhance their problem-solving abilities.

The table below presents the statistical results on the level of gamification teaching strategy applied by the vocational teachers in terms of competence.

Table 4: The Level of Gamification Teaching Strategy Applied by the Vocational Teachers in terms of Competence

Indicators	Average rating	Interpretation	Rank
1.The teachers gamification strategy monitor student progress and reward accomplishments to increase their competency.	1.20	Disagree	5
1. The teachers gamification strategy creates incremental challenges that steadily rise in difficulty.	2.17	Disagree	3

2. The teachers gamification strategy offer real-time feedback on students performance.	2.04	Disagree	4
4.The teachers gamification strategy focus on mastery to ensure that students develop a solid understanding of each concept before advancing.	2.92	Agree	1
5. Teachers gamification strategy create tasks that require teamwork and participation.	2.18	Disagree	2
Overall Rating	**2.10**	**Disagree**	

Pertaining to the table above, *The teachers gamification strategy focus on mastery to ensure that students develop a solid understanding of each concept before advancing* on first rank having a weighted mean of 2.92 and interpreted as "Agree". Followed by *Teachers gamification strategy create tasks that require teamwork and participation* on rank two with a weighted mean of 2.17 and interpreted as "Disagree". On rank three, *The teachers gamification strategy creates incremental challenges that steadily rise in difficulty* with a weighted mean of 2.51 and a verbal interpretation of "Disagree". *The teachers gamification strategy offer real-time feedback on students performance* ranked fourth having a weighted mean of 2.04 and interpreted as "Disagree". Lastly, having the lowest weighted mean of 1.20 and a verbal interpretation of "Disagree", *The teachers gamification strategy monitor student progress and reward accomplishments to increase their competency*. Overall, the level of gamification teaching strategy applied by the vocational teachers in terms of competence correspond to a general weighted mean of 2.10 and interpreted as "Disagree".

Several writers agree with the results and state that gamification tactics that emphasize mastery, collaboration, little tasks, immediate feedback, and tracking of progress can greatly improve students' competence. In their discussion of gamified learning settings, Lee and Kim (2021) highlight the significance of incorporating activities that foster collaboration and active involvement. Collaboration, they say, does more than only improve learning; it also aids in the development of crucial social skills. The authors do point out that teachers may be less in agreement because correct execution is critical to reaping these benefits. However, according to Nguyen and Tran (2021), keeping students engaged and developing their competency requires using tasks that start off easy and gradually get more challenging. Specifically, they stress how these kinds of trials allow kids to progressively develop their abilities and self-assurance. Maintaining student motivation and engagement requires real-time feedback, according to Johnson and Carter (2024). According to their claims, the strategy's success hinges on the delivery and incorporation of feedback into the learning process. In addition, as Harris and Young (2020) point out, gamification's built-in rewards and progress tracking give students something to work for and encourage them to do their best. On the other hand, they do note that these tactics might not work as intended if not put into practice correctly, which would explain the lack of consensus among educators.

In the section below, it quantifies the level of gamification teaching strategy applied by the vocational teachers in terms of relatedness.

Table 5: The Level of Gamification Teaching Strategy Applied by the Vocational Teachers in terms of Relatedness

Indicators	Average rating	Interpretation	Rank
1. The teachers gamify group projects to encourage students to work together and achieve common goals, fostering a sense of community.	1.89	Disagree	2
2. The teachers ask students to give and receive feedback from their peers through gamified platforms, enhancing relatedness and learning.	1.82	Disagree	3
3. The teachers allow experienced students to act as mentors in gamified settings, supporting their peers and fostering a collaborative environment.	1.92	Disagree	1
4. The teachers engage students in discussions, share achievements, and collaborate on tasks through gamified social platforms.	1.68	Disagree	5

5. The teachers provide inclusive gamified activities aim to make every student feel valued and connected, irrespective of their background or abilities.	1.82	Disagree	3
Overall Rating	**1.83**	**Disagree**	

Pertaining to the table 5, *The teachers allow experienced students to act as mentors in gamified settings, supporting their peers and fostering a collaborative environment* on first rank having a weighted mean of 1.92 and interpreted as "Disagree". Followed by *The teachers gamify group projects to encourage students to work together and achieve common goals, fostering a sense of community* on rank two with a weighted mean of 1.89 and interpreted as "Disagree". On rank three, both indicators, *The teachers provide inclusive gamified activities aim to make every student feel valued and connected, irrespective of their background or abilities* and *The teachers provide inclusive gamified activities aim to make every student feel valued and connected, irrespective of their background or abilities* resulted a weighted mean of 1.82 and a verbal interpretation of "Disagree". Lastly, having the lowest weighted mean of 1.68 and a verbal interpretation of "Disagree", *The teachers engage students in discussions, share achievements, and collaborate on tasks through gamified social platforms.* Overall, level of gamification teaching strategy applied by the vocational teachers in terms of relatedness correspond to a general weighted mean of 2.60 and interpreted as "Disagree".

Smith et al. (2019) contributed to the study of gamification teaching strategies in vocational education. Smith and Brown (2019) argue that mentorship in gamified settings fosters a collaborative learning environment but requires proper teacher training and support. Lee and Kim (2021) discuss the benefits of gamified group projects, while Garcia and Hernandez (2023) highlight the challenges of inadequate implementation. Nguyen and Tran emphasize the importance of inclusive gamified activities, but Clark and Hall (2022) note that without adequate resources and training, teachers may struggle to implement truly inclusive strategies. O'Connor and Brown (2022) discuss the potential of gamified social platforms, which can enhance relatedness and build a strong sense of community. However, the success of these platforms depends on their integration into the overall learning strategy.

4.2 What is the level of skills acquisition as experienced by the students of the vocational school?

In table 6 presents the level of skills acquisition as experienced by the students of the vocational school.

Table 6: The Level of Skills Acquisition as Experienced by the Students of the Vocational School

Indicators	Average rating	Verbal Interpretation	Rank
1. I am confident applying my theoretical knowledge in practical settings.	2.49	Disagree	1
2. I have gained proficiency in using the computer tools and equipment relevant to my vocational field.	1.82	Disagree	8
3. I have mastered key technical skills required for my future trade or profession.	1.92	Disagree	4
4. I have acquired specific knowledge that is directly applicable to the future industry I wish to work in.	2.36	Disagree	2
5. I have developed skills in resume writing and job interview techniques for my future employment.	1.85	Disagree	7
6. I have learned how to plan, execute, and manage projects efficiently.	1.77	Disagree	9
7. I feel prepared to continue learning and updating my skills as technology and industry standards evolve after I finished the program.	1.82	Disagree	8
8. I am confident in my ability to tackle and solve problems that may arise in my possible field in the industry.	1.88	Disagree	6
9. I feel adaptable to various work environments due to the diverse training I have received.	2.16	Disagree	3
10. I have learned and can apply the necessary safety procedures in using technology for my future vocational field.	1.90	Disagree	5
Overall Rating	**2.00**	**Disagree**	

Pertaining to the table above, *I am confident applying my theoretical knowledge in practical settings* on rank first having a weighted mean of 2.49 and interpreted as "Disagree". Followed by *I have acquired specific knowledge that is directly applicable to the future industry I wish to work in* with weighted mean of 2.36 and interpreted as "Disagree". On the third rank, *I feel adaptable to various work environments due to the diverse training I have received* with weighted mean of 2.16 and interpreted as "Disagree". *I have mastered key technical skills required for my future trade or profession* at rank four with weighted mean of 1.92 and interpreted as "Disagree". *I have learned and can apply the necessary safety procedures in using technology for my future vocational field* on fifth rank with weighted mean of 1.90 and interpreted as "Disagree". ranked five having a weighted mean of 1.90 and interpreted as "Disagree". *I am confident in my ability to tackle and solve problems that may arise in my possible field in the industry* on rank six having a weighted mean of 1.88 and interpreted as "Disagree". *I have developed skills in resume writing and job interview techniques for mu future employment* on rank seven with a weighted mean of 1.85 and interpreted as "Disagree" Both indicators, *I have gained proficiency in using the computer tools and equipment relevant to my vocational field* and *I feel prepared to continue learning and updating my skills as technology and industry standards evolve after I finished the program* having a weighted mean if 1.82 and interpreted as "Disagree". Lastly, having the lowest rank with weighted mean of 1.77 and interpreted as "Disagree", *I have learned how to plan, execute, and manage projects efficiently*. Overall, the level of skills acquisition as experienced by the students of the vocational school corresponds to a general weighted mean of 2.00 and interpreted as "Disagree."

To support the findings, Thompson et al. (2023) emphasize the importance of vocational training in preparing students for various work environments. They highlight the need for practical experiences, industry-specific knowledge, adaptability training, technical skill mastery, safety procedures, problem-solving confidence, resume writing, job interview skills, proficiency with tools and equipment, continuous learning, and project management skills. They also highlight the need for partnerships with industry professionals, diverse training experiences, mastering key technical skills, and problem-based learning to build confidence. Overall, effective vocational training is crucial for success in the workforce.

*4.3 Is there a significant influence on the **level of gamification teaching strategy applied by the vocational teachers to the skills acquisition of the students?***

The multiple regression analysis was used to determine the significant influence on the level of gamification teaching strategy applied by the vocational teachers to the skills acquisition of the students. The B coefficients present the amount of change in gamification teaching strategy that is associated with a change in any of the three (3) parameters. The magnitude of the values of their b coefficient is relatively included in the equations. The same results indicate that for every increase in gamification teaching strategy, the variables also have a corresponding increase: 0.318 for autonomy, 0.458 for competence, and 0.299 for relatedness.

Table 9: Multiple Regression Analysis on the Level of Gamification Teaching Strategy Applied by the Vocational Teachers to the Skills Acquisition of the Students

Model					
	B	**Std Error**	**Beta**	**T**	**Sig.**
(constant)	2.870	0.521		4.565	0.000
Autonomy	0.318	0.084	0.283	0.376	0.058
Competence	0.458	0.082	0.341	0.312	0.055
Relatedness	0.299	0.083	0.345	0.303	0.051
R = 0.657					
R^2 = 0.389					
F-Value = 102.34					
p-value of 0.023					
Alpha = 0.05					

a. Dependent Variable: Gamification teaching Strategy

b. Predictors: (Constant) Autonomy, Competence, and Relatedness

Furthermore, the recorded t-probabilities coefficient on autonomy of t-value of 0.376 with significant value of 0.058, competence of t-value of 0.312 with significant value of 0.055, and relatedness of t-value of 0.303 with significant value of 0.051, all have higher scores than the cut off significant level set at 0.05 alpha. For this reason, it could be inferred that in terms of the construct of gamification teaching strategies, factors on the three (3) parameters are statistically related and therefore could not be attributed to mere chance.

The R denotes multiple correlation coefficients between the different variables as a predictor of the dependent variables. It could be noted that the R is 0.657, which indicates a very moderate level of prediction, while the r^2 figure is a statistical measure on closeness of the data in the regression line, as the coefficient of simple determination or the coefficient of multiple determination

for multiple regression. It can be indicated that the explanatory powers of the dependent variable of 0.389 implies that 38.9 % of the variation by changes in gamification teaching strategy.

The Analysis of Variance (ANOVA) results in non-significant at alpha 0.05. Data denotes an F-value of 102.34 with a significant value of 0.023 is lower than the alpha 0.05 which means that the predictor variables collectively account for a statistically significant proportion of the variance in the criterion variables on gamigication teaching strategy.

To support the findings, Smith and Brown (2019) argue that providing students with autonomy through gamification enhances engagement and motivation, leading to better skill acquisition and application. Lee and Kim (2021) emphasize the importance of building competence through incremental challenges and real-time feedback, which enhances students' confidence and mastery of technical skills. Garcia and Hernandez (2023) argue that competence-based gamification improves students' ability to tackle complex tasks by providing clear goals, immediate feedback, and recognition of achievements. Relatedness is also a crucial factor in gamified learning environments, as it fosters a sense of community and collaboration among students. Clark and Hall (2022) highlight the importance of group projects and peer mentorship in creating a supportive learning environment. These variables' statistical significance and predictive power demonstrate the effectiveness of gamification in vocational education, emphasizing the need for a comprehensive approach to enhance skills acquisition in vocational training.

4.4 What training intervention plan may be crafted for vocational school teachers based on the results of the findings?

Based on the results of the findings, a training intervention plan for vocational school teachers may be proposed to improve the effectiveness of gamification teaching strategies in vocational education. The plan includes workshops focusing on enhancing autonomy, competence, and relatedness, as well as improving student skill acquisition. The plan includes workshops on personalized learning paths, interactive scenarios, mastery-based learning, real-time feedback, fostering relatedness in gamified learning environments, and integrating effective gamification strategies. It also includes workshops on peer mentoring, inclusive gamified activities, and linking theory to practice. The plan also includes workshops on industry-specific training and adaptability.

Further, the implementation plan includes an initial assessment to identify specific needs and areas for improvement, customizable modules, interactive workshops, continuous evaluation, and follow-up support. The plan aims to address identified gaps and provide targeted professional development to improve skills acquisition and overall educational outcomes in vocational schools. Workshops on creating personalized learning paths, designing interactive scenarios, providing real-time feedback and progress monitoring, fostering relatedness in gamified learning environments, and ensuring vocational training aligns with industry standards are all part of the plan.

5. Summary of Findings

The results of the data highlighted the following observations.

5.1 The Level of Gamification Teaching Strategy Applied by the Vocational Teachers in terms of Autonomy, Competence, and Relatedness

The findings reveal that vocational teachers apply a variety of gamification teaching strategies to their students. The first rank is autonomy, where teachers allow students to choose their own learning paths and unlock new content. The second rank is competence, where teachers focus on mastery, creating tasks that require teamwork and participation. The third rank is competence, where teachers create incremental challenges that gradually increase in difficulty. The fourth rank is competence, where teachers monitor student progress and reward accomplishments to increase their competency. The fifth rank is relatedness, where teachers allow experienced students to act as mentors, fostering a collaborative environment. The sixth rank is relatedness, where teachers provide inclusive, gamified activities to make every student feel valued and connected, regardless of their background or abilities. The lowest rank is relatedness, where teachers engage students in discussions, share achievements, and collaborate on tasks through gamified social platforms. The general interpretation of vocational teachers' gamification teaching strategy is "disagree."

5.2 The Level of Skills Acquisition as Experienced by the Students of the Vocational School

It can be gleaned from the study that the level of skills the student has acquired in their vocational school program. The student is confident in applying theoretical knowledge in practical settings, but they have gained specific knowledge that is directly applicable to their future industry. They feel adaptable to various work environments due to their diverse training. They have mastered key technical skills, learned safety procedures, and are confident in tackling problems in their field. They have developed skills in resume writing and job interview techniques, but they are not confident in using computer tools and equipment. They are also not proficient in planning, executing, and managing projects efficiently.

5.3 The Influence on the Level of Gamification Teaching Strategy Applied by the Vocational Teachers to the Skills Acquisition of the Students

The results showed that for every increase in gamification teaching strategy, the variables increased, along with a corresponding increase in autonomy, competence, and relatedness. The t-probabilities coefficients on autonomy, competence, and relatedness were higher than the cut-off significance level set at 0.05 alpha. The R coefficient was moderate, with a 0.657 R and a r2 value of 0.389, indicating that changes in gamification teaching strategy account for 38.9% of the variation.

5.4 Training Intervention Plan Crafted for Vocational School Teachers

A training intervention plan for vocational school teachers may be crafted which aims to enhance gamification teaching strategies in vocational education. The plan includes workshops on autonomy, competence, relatedness, and student skill acquisition. It includes personalized learning paths, interactive scenarios, mastery-based learning, real-time feedback, and industry-specific training. The plan includes an initial assessment, customizable modules, interactive workshops, continuous evaluation, and follow-up support to improve skills acquisition and educational outcomes.

6. Conclusions

The following conclusions are hereby drawn on the findings of the study.

1. Majority of the students disagreed that vocational teachers use various gamification teaching strategies, including autonomy, competence, relatedness, and relatedness. These strategies although allow students to choose their own learning paths, focus on mastery, create incremental challenges, monitor progress, and reward accomplishments were not applied. They also did not allow experienced students to act as mentors, provide inclusive activities, and engage students in discussions.
2. The majority of students agreed that the student's vocational school program has equipped them with practical skills, technical knowledge, safety procedures, and problem-solving abilities. However, they lack proficiency in using computer tools, planning, executing, and managing projects efficiently, and lack confidence in using computer tools.
3. The study found that gamification teaching strategies increase variables like autonomy, competence, and relatedness, accounting for 38.9% of variation, with higher t-probabilities coefficients and a moderate R coefficient. The resulte therefore accepted the alternative hypothesis instead of the null hypothesis.
4. There is a need to craft a training plan aims that to improve gamification teaching strategies, including workshops on autonomy, competence, relatedness, and skill acquisition, with personalized learning paths, interactive scenarios, and real-time feedback.

6.1 Recommendations

The findings may be utilized in crafting a comprehensive training intervention plan for vocational school teachers, aimed at enhancing their use of gamification teaching tactics. The plan should address autonomy, competence, and relatedness while also focusing on enhancing student skill acquisition. This is an example of a hypothetical training intervention plan.

Specifically, the training intervention plan for vocational school teachers objective is to mprove teachers' ability to promote autonomy, competence, and relatedness through gamification teaching strategies, resulting in better skill acquisition among students.

1. The training plan should include increased autonomy in gamification to enable teachers employ tactics that allow students more influence over their learning experience.

Workshop #1: Personalized Learning Paths

Knowledge. strategies for developing tailored learning paths and enabling students to access new knowledge at their own pace.

Activities include interactive seminars on creating adaptable curricula and incorporating adaptive learning tools.

Outcome. Teachers will gain the ability to create and oversee customized learning experiences that meet the unique needs of each student.

Workshop #2: Interactive Scenarios and Simulations

Content. Creating and implementing interactive situations in which students can make decisions and observe the outcomes.
Activities. Hands-on exercises in creating simulations that mimic real-world scenarios.
Outcome. Teachers will be prepared to use interactive scenarios to improve students' decision-making skills.

2. Developing Competence with Gamification to assist teachers in developing gamification tactics that emphasize mastery and progressive skill improvement.

Workshop #3: Mastery-Based Learning and Incremental Challenges
Content. Strategies for developing increasingly challenging assignments to assure mastery of each idea. The teachers should design incremental challenges using case studies and role-playing activities. *Outcome*. Teachers will be able to construct learning challenges that gradually increase student competency.

Workshop #4: Real-Time Feedback and Progress Monitoring
Teachers should use gamification techniques to track student achievement and provide real-time feedback. Teachers should requires students engage in practical sessions that utilize digital tools to deliver prompt feedback and monitor advancement.
Outcome. Teachers will be able to provide timely comments and track student progress to improve competence.

3. Promoting relatedness in gamified learning environments with the goal of gamification is to foster a collaborative and inclusive learning environment.

Workshop #5: Peer Mentorship and Collaborative Projects
Content. Encouraging experienced students to advise their peers and creating group initiatives. Activities include group talks and project planning exercises. *Outcome*. Teachers will learn effective ways to encourage peer mentoring and collaborative projects.

Workshop #6: Inclusive Gamified Activities
Content. Creating inclusive gamified activities that make each student feel valued. Tecahers should initiate activities involve creating inclusive activities and role-playing scenarios. *Outcome*. Gamification will help teachers build a supportive and inclusive learning environment.

4. Using gamification to improve skill acquisition is improve students' overall skill acquisition through effective gamification tactics.

Workshop #7: Linking Theory and Practice
Content. Gamification can help bridge the gap between academic understanding and practical implementation.

Activities. Interactive workshops focused on creating practical tasks and simulations that apply academic principles. *Outcome*. Teachers will be able to create activities that allow students to apply theoretical knowledge in practical settings.

Workshop #8: Industry-specific training and adaptability.
Content. Ensuring that vocational training meets industry standards and prepares students for a variety of work contexts.

Activities include working with industry specialists to design relevant training courses. *Outcome*. Teachers will be able to provide training that is directly relevant to industry needs and improves student adaptability.
6.2 Implementation Plan:
Initial Assessment. Conduct an initial assessment to discover particular needs and opportunities for improvement in your present gamification methods.

Customizable Modules. Adapt training modules to the unique requirements of each department or faculty. *Interactive Workshops*. Organize interactive workshops and seminars given by educational gamification specialists.

Continuous Evaluation. Create a method for continuous review and feedback to ensure that the training program remains successful and relevant.

Follow-up Support. Provide instructors with ongoing support and tools as they implement new gamification tactics in the classroom.

This training plan intends to improve vocational teachers' use of gamification tactics, improving student autonomy, competence, and relatedness. By addressing identified gaps and offering focused professional development, the plan aims to improve skill acquisition and overall educational results in vocational institutions.

Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.
Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

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