Integration of Gamification in Career Guidance to Improve Students' Work Skills in the Digital Era: A Systematic Literature Review

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The integration of gamification into career guidance services offers an innovative approach to addressing the challenge of student work-readiness in the digital era. This systematic literature review explores the potential of gamification to enhance students' employability skills through career guidance interventions. Following PRISMA 2020 guidelines, the study analyzed 12 peer-reviewed articles from Scopus and Google Scholar databases published between 2020-2025. The findings reveal that gamification elements, including simulations, serious games, and metaverse-based environments, effectively develop both hard skills (technical competencies, financial literacy) and soft skills (critical thinking, teamwork, communication) aligned with industry demands. Gamification significantly increases students' intrinsic motivation, self-efficacy, and engagement in career planning, facilitating more informed career decision-making and smoother transitions to the job market. The review identifies key implementation challenges, including high technological costs, limited digital literacy, and the need for faculty training. Despite these barriers, gamification demonstrates particular promise in diverse geographical contexts, from developed to developing countries, offering adaptable solutions for various institutional settings. This study contributes to the limited literature on gamification in career guidance by synthesizing current evidence and providing practical recommendations for higher education institutions seeking to systematically integrate gamified approaches into career curricula. Such integration, supported by cross-sector collaboration and attention to sociocultural factors, can enhance graduate employability and support lifelong learning in an increasingly competitive global workforce.

Keywords: gamification, career guidance, employability, higher education, digital era, systematic literature review

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INTRODUCTION

In the digital age, characterised by technological transformation and global competition, student employability has become a central issue in higher education to support personal development, career growth, and overall well-being in this digital era (Haryati et al., 2025). However, global reports indicate a gap between the capabilities of higher education graduates and the demands of the industrial sector, particularly in the fields of science, technology, engineering, and commerce (Ghanbaripour et al., 2024). This imposes a challenge for higher education to prepare students who are not only academically competent but also adaptable to changes in the job market.

Higher education plays a strategic role in equipping students with 21st-century skills such as problem-solving, data literacy, creativity, and teamwork, which are now a top priority in the sector (Mahmud & Wong, 2022). However, many graduates still face difficulties transitioning to the world of work due to a lack of soft skills and relevant practical experience (Saraswat et al., 2025). This challenge is exacerbated by high expectations for results, and the high unemployment rate among graduates has led to a crisis in the role of higher education (Hassock & Hill, 2022). This indicates the need for new strategies to improve students' work readiness.

Traditional career guidance services in higher education institutions still face obstacles, particularly regarding student motivation and engagement (Yulianti et al., 2024). A large number of students experience deficiencies in well-planned career planning due to limited access to information and low participation in guidance, resulting in a gap between education and the jobs they take after completing their studies (Soares et al., 2022). Therefore, a new approach is needed to provide career guidance services that gain attention and improve learning effectiveness.

Gamification, as defined by Christopoulos and Mystakidis (2023), refers to the strategic application in non-gaming environments, primarily through digital platforms, to increase user engagement, motivation, and interactive experiences. This approach can also enhance learners' autonomy, competence, and social relationships. In vocational learning, gamification has been proven to increase motivation, engagement, and critical thinking and problem-solving skills through interactive cognitive challenges (Omar et al., 2022).

The use of gamification in digital learning has been shown to be effective in developing students' professional competencies, psychological qualities, and soft skills that are important for adaptation to the real world of work (Tsurkan, 2023). Gamification and augmented reality (AR) technologies also increase student motivation, creativity, and engagement in the learning process and interactively shape professional competencies and work readiness (Petrovych et al., 2023). However, the use of gamification in career guidance still requires further exploration to ensure its effectiveness.

Although previous research shows that gamification successfully increases learning motivation and technical skills (Grijalvo et al., 2022), the application of this technique in career guidance in higher education institutions has not been widely studied, especially in developing countries such as Indonesia. Many career-related interventions fail to take into account sociocultural aspects, which hinder personalisation efforts for students from diverse backgrounds (Soares et al., 2022). There is little literature that specifically discusses the incorporation of gamification to prepare the workforce in a local context. Therefore, this study attempts to fill this gap by highlighting this innovative approach.

This research investigates how applying gamification to career guidance services can improve students' employability in the digital age, identifying potential challenges and opportunities. Its primary objectives include analyzing the effectiveness of gamification, the types of skills it can develop, and the barriers to implementation in higher education contexts. In this way, the research aims to provide a comprehensive understanding of how to optimize this method to support students' employability.

The primary objective of this research is to explore the potential of gamification to improve students' technical and interpersonal skills through career guidance services. Furthermore, it assesses the effectiveness of gamification in driving motivation, engagement, and career-related decision-making. It also analyzes the challenges and opportunities of implementing gamification in universities and provides practical guidance for educational institutions on how to adopt this approach effectively.

This study stands out for using a systematic literature review (SLR) that combines global and local perspectives and emphasizes the application of gamification in career guidance in the digital age. This study emphasizes the situation in developing countries like Indonesia, where issues such as high unemployment among graduates and lack of resources are critical (Haryati et al., 2025). Furthermore, this study explores emerging technologies such as the metaverse, which are rarely discussed in the career guidance literature, thus providing new insights into pedagogical innovation (Viswanathan & Banerji, 2025).

The Industrial Revolution 5.0 emphasizes collaboration between humans and machines to create a more efficient and human-focused work environment (Ledoh et al., 2024). In this context, the application of gamification in career guidance can transform how students prepare for the ever-changing job market. By addressing challenges such as high costs and digital literacy issues and capitalizing on opportunities such as personalized learning, this approach has the potential to enhance workplace competitiveness and support lifelong learning. This research aims to provide an empirical basis for developing career guidance services tailored to the needs of the digital era.

METHOD

This study uses a Systematic Literature Review (SLR) approach to identify, evaluate, and interpret findings on the integration of gamification into career guidance services and its impact on students' work readiness. The SLR process was conducted in accordance with the PRISMA 2020 guidelines to ensure transparency and completeness of the report, so that readers can assess the credibility and applicability of the review results and support the ability to reproduce the methods used (Page et al., 2021). Data were collected from two main sources, namely the Scopus and Google Scholar databases, using the keywords (‘gamification’) AND (‘career guidance’ OR ‘career counselling’) AND (‘work readiness’ OR ‘job readiness’) AND (‘college students’).

The article selection process was carried out systematically through the stages of identification, screening, eligibility assessment, and inclusion in accordance with PRISMA standards to ensure the quality and relevance of the data analyzed. Articles that met these criteria were then analyzed qualitatively to summarize findings related to the application, effectiveness, and challenges of gamification in career guidance services aimed at improving students' work readiness.

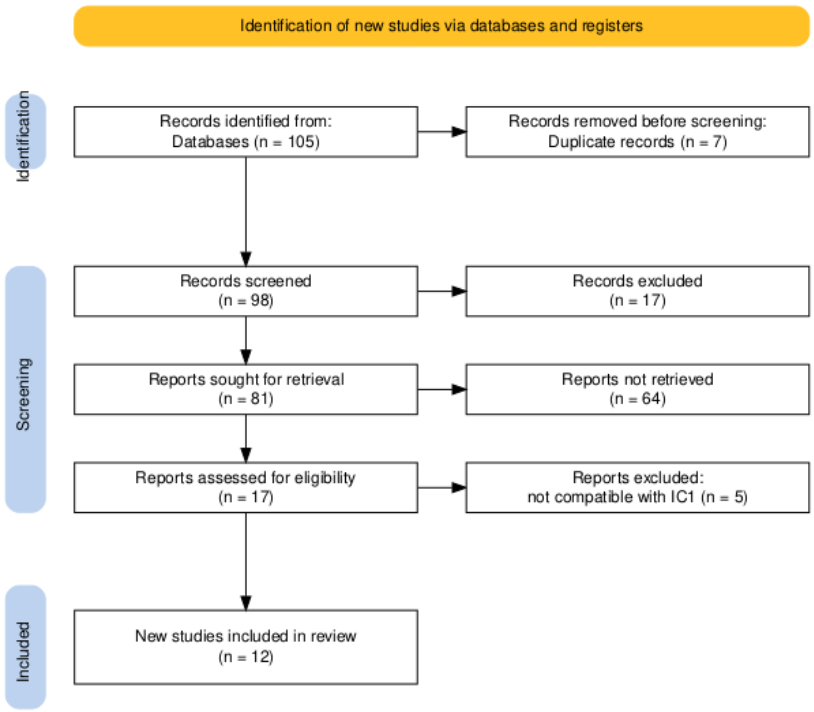

Figure 1. PRISMA Diagram Identification of Studies

The process began with the identification of studies through databases. A total of 105 articles were identified from Scopus and Google Scholar. Of these, 7 duplicate articles were removed, leaving 98 articles for initial screening. The authors considered the selection of reputable data sources important to ensure the quality and reliability of the data used in the study.

The screening stage was conducted twice to filter out suitable studies. First, 98 articles were screened based on their titles, abstracts, and keywords, in line with the inclusion criteria (IC1: studies discussing the integration of gamification into career guidance, work readiness, or student career development services). As a result, 17 articles were selected for feasibility evaluation. Second, these articles were read in full, evaluated in depth against IC1, and checked for compatibility with IC2 (peer-reviewed articles indexed in Scopus/Google Scholar), IC3 (English language), and IC4 (published 2020–2025). A total of 64 articles were excluded because they were not suitable, for example, the population was not students, or it was not an empirical study. The authors considered this process effective for filtering relevant and up-to-date literature.

The eligibility stage resulted in 17 articles that met the initial criteria. Of these, 5 articles were excluded for incompatibility with IC1, leaving 12 new studies for inclusion in the review. This process reflects the rigor in ensuring that each article supports the research focus on integrating gamification into student career guidance. The authors argue that this step-by-step approach increases the validity of the analysis by eliminating irrelevant studies.

Study quality was assessed using the CASP (Critical Appraisal Skills Programme) checklist to evaluate the methodology, data reliability, and scientific contribution of each selected article. This process ensured that only high-quality studies were used in synthesizing the results. The authors view this step as crucial to strengthening the

research's scientific basis, especially given the focus on student employability, which requires robust empirical evidence.

The PRISMA diagram illustrates the systematic flow from the initial 105 articles to the 12 selected articles, with a total of 81 articles excluded during the process. This figure demonstrates the strictness of the inclusion criteria applied. The authors consider this diagram to not only map the research process but also increase the transparency and reproducibility of the methods used.

Overall, the PRISMA method used in this study was designed to identify high-quality literature relevant to integrating gamification into career counseling services. This approach supports an in-depth analysis of student employability by drawing on reliable data sources, strict inclusion criteria, and systematic quality assessment.

RESULTS AND DISCUSSION

Results

Through the process of identifying various articles using the PRISMA method, the following selected articles will be analyzed in this study.

Table 1.
Study Characteristics

No.	Author & Year	Study Title	Study Type	Population/ Sample	Key Findings (Summary)
1.	Grijalvo et al. (2022)	Computer-based business games in higher education: A proposal of a gamified learning framework	Development Research	Students at Polytechnic University of Madrid	Developed a gamified framework effective in improving financial competencies aligned with industry needs.
2.	Abbas et al. (2022)	Graduate Employability Learning Through Self-Determined Learning Model Of Instruction (SDLMI) Driven Digital App	Mixed Methods (Quant. & Qual.)	Higher Education Students	Developed a Digital App (GES-App) to increase awareness and development of 5 categories of employability skills (hard skills, organizational, communication, personal, etc.).
3.	Obioha & van Zyl (2022)	Gameful design for skills development	Qualitative (Participatory)	Youth from Marginalized Urban Communities (South Africa)	Increased engagement and motivation in learning

		of youths in marginalised urban communities			employability skills through 23 system-based gameful design elements.
4.	Faisal et al. (2022)	Instructors' Perceptions of the Development of Work-readiness through Simulations	Qualitative (Grounded Theory)	ERPsim Laboratory Instructors (Australia)	Simulation games (ERPsim) support the enhancement of ability, knowledge, and attitude in information systems students.
5.	Yanes et al. (2023)	Serious gaming for graduates employability enhancement	Mixed Methods (Quant. & Qual.)	322 Business College Students	Serious Games (SGs) significantly influence the development of soft skills (critical thinking, teamwork), enhancing graduate employability.
6.	Brereton et al. (2025)	Play Your Way Into Production: Game-based Skills Development for the Screen Industries	Quantitative	Prospective Screen Industry Workers (UK)	Serious games help in understanding specific job roles, developing soft skills, and business awareness, addressing barriers to unpaid work experience.
7.	Ghanbaripour et al. (2024)	A Systematic Review of the Impact of Emerging Technologies on Student Learning, Engagement, and Employability in Built	Systematic Literature Review	61 Studies on Emerging Technologies in Built Environment Education	VR, AR, and gamification significantly increase engagement and equip students with relevant workplace skills. Challenges include high costs and training needs.

		Environment Education			
8.	Alnajjar & Hashish (2024)	Exploring the effectiveness of the Career Guidance and Counseling Program on the perceived readiness for the job market: a lived experience among nursing students	Qualitative (Phenomenology)	28 Nursing Students and Interns (Saudi Arabia)	Career Guidance and Counseling Program (CGCP) positively impacts job readiness, increasing confidence in career decision-making and facilitating adaptation.
9.	Saraswat et al. (2025)	Effect of New Technologies with Gamification Elements for Enhancing Employability Skills on Engineering Graduates' Perceived Performance	Quantitative	289 Engineering Graduate Participants (India)	Gamification-based training significantly improved communication, teamwork, creativity, and problem-solving skills.
10.	Viswanathan et al. (2025)	Metaverse-Based Career Counseling and Networking for College Students	Conceptual Research	Conceptual/Theoretical	The Metaverse has the potential to address access, engagement, and personalization challenges, facilitating immersive networking with industry professionals.
11.	dela Cruz et al. (2020)	Increasing Student Motivation in College Physics with Gamified Instruction	Quantitative	First-year Engineering Students	Gamification significantly enhanced five components of student motivation: intrinsic

					motivation, self-efficacy, value motivation, career motivation, and self-determination.
12.	Chin et al. (2025)	The Role of Career Service in Enhancing Students Employability in the 21st Century	Mixed Methods (Quant. & Qual.)	Undergraduate Business Students (n=372/n=35)	Students were most satisfied with the practical tools provided by career services; highlighted the influence of sociocultural and institutional factors on career outcomes.

Based on the characteristics and primary results of the studies detailed in Table 1, the key findings are synthesized and grouped into thematic categories in Table 2 (Synthesis of Key Findings). This synthesis directly addresses the research objectives regarding the effectiveness, types of skills enhanced, and implementation challenges of gamification in career guidance.

Table 2.
Synthesis of Key Findings

Key Theme	**Summary of Findings**	**Supporting Studies (Author & Year)**
Enhancement of Hard & Technical Skills	Gamification, especially through simulations (ERPsim), business games, and immersive technologies (VR, AR), effectively improves specific technical and financial competencies required by industry.	Grijalvo et al. (2022); Faisal et al. (2022); Ghanbaripour et al. (2024)
Development of Soft Skills (21st Century Skills)	Serious Games and gamified training are potent tools for developing critical soft skills highly valued by employers, such as critical thinking, teamwork, communication, creativity, and problem-solving.	Yanes et al. (2023); Brereton et al. (2025); Saraswat et al. (2025)
Boosting Motivation & Engagement	Game design elements (gameful design, XP, badges, leaderboards) significantly increase intrinsic motivation, self-efficacy, and career motivation in students, making guidance services more appealing and engaging.	Obioha & van Zyl (2022); dela Cruz et al. (2020)

Role of Immersive & Emerging Technologies	Advanced technologies like Metaverse, AR, and VR extend career guidance beyond traditional settings, offering realistic 3D simulations, networking opportunities, and personalization to bridge the skill-industry gap.	Ghanbaripour et al. (2024); Viswanathan et al. (2025)
Challenges and Implementation Barriers	Key challenges include high costs, limited resources, the need for extensive faculty training, and the importance of sociocultural context and individualized design to maximize effectiveness.	Ghanbaripour et al. (2024); Chin et al. (2025)

Of the 12 articles reviewed, there was a variation in methodology, reflecting the complexity of examining the application of gamification in career guidance. The distribution of study types revealed that three articles (25%) employed a mixed-methods approach, combining quantitative and qualitative research, indicating the researchers' attempt to gain a comprehensive understanding from multiple perspectives. Another three articles (25%) employed an entirely qualitative approach, including one phenomenological study, one grounded theory study, and one autoethnography study, allowing for in-depth investigation of individual experiences within the context of gamification for career guidance.

Meanwhile, there are two articles (16.7%) that employ pure quantitative research, which uses survusingasi-experiments to statistically assess the effectiveness of gamification. Research is in development, both in the form of*framework*and applications, found in two articles (16.7%), reflecting innovative initiatives in creating technology for career guidance. In addition, there is one systematic literature review article (8.3%), one participatory research article (8.3%), and one conceptual research article (8.3%), which add theoretical and practical perspectives to the gamification literature for career guidance.

Geographically, the research covers a diverse range of international contexts, from developed countries such as Spain, Australia, the United Kingdom, and Saudi Arabia, to developing countries such as South Africa and India. This diversity of geographic contexts demonstrates that gamification has global relevance in career guidance, although implementation challenges may vary based on local resources and infrastructure. In terms of population, most studies examined students from diverse disciplines, including business, engineering, nursing, information systems, and the creative industries, demonstrating that gamification can be broadly implemented across higher education sectors.

The publication period of the reviewed articles (2020-2025) reflects recent developments in gamification research for career guidance. Most articles were published within the last three years (2022-2025), indicating that this topic is attracting significant attention among higher education researchers. This variation in methodology, geographic context, academic discipline, and publication time strengthens the validity of this review's findings, providing a comprehensive overview of the application of gamification in career guidance services to improve students' job readiness in the digital age.

Based on the literature search results above, the following research findings were obtained. The integration of gamification into career guidance services has proven effective in improving students' job readiness by enhancing skills, increasing

engagement, and developing skills relevant to workplace needs. A literature analysis of the 12 selected articles shows that this approach creates a learning environment that is not only engaging but also immersive.

Diversity of Research Contexts in Gamification

Findings from the analyzed literature indicate that gamification is flexible enough to be applied across social, cultural, and institutional contexts, reinforcing its relevance in global career guidance. In developed countries, as demonstrated by Grijalvo et al. (2022) at the Polytechnic University of Madrid, Spain, computer-based simulations in business games improve students' financial competencies, which align with the needs of high-tech industries. Similarly, Brereton et al. (2025) in the UK highlighted that serious games in the screen industries (film and television) help students understand job responsibilities in the creative sector, which often require hands-on preparation.

Conversely, in developing-country contexts, such as the study by Obioha and van Zyl (2022) in South Africa, gamification is used to address limited access to career information among marginalized communities. This approach increases youth motivation and skills to compete in the digital economy. A study by Haryati et al. (2025) in Indonesia also emphasizes the importance of locally relevant career guidance to address the challenge of graduate unemployment. This variety of contexts demonstrates that gamification can be tailored to specific needs, both in advanced technology ecosystems and in resource-constrained environments, broadening its potential application across higher education institutions.

Improving Work Skills and Competencies

The integration of gamification in higher education has proven effective in improving workplace-relevant skills. Grijalvo et al. (2022) demonstrated that a computer business game-based learning framework at the Polytechnic University of Madrid successfully improved students' financial competencies. These competencies align with industry needs, as identified by the report. Association for the Progress of Management. Game simulators allow students to practice in environments that resemble the real world, strengthening practical understanding. Yanes et al. (2023) also found that Serious Games(SGs) support the development of soft skills such as critical thinking and teamwork. These skills are highly valued by businesses, increasing graduates' competitiveness in the job market. Overall, gamification facilitates mastery of essential employability skills.

Abbas et al. (2022) developed a digital application (GES-App) designed to increase students' awareness of communication skills and employability. This application classifies skills into five categories, including hard skills, organizational skills, and communication skills. This approach helps students understand industry-specific needs in a structured manner. Saraswat et al. (2025) also reported that gamification-based training improved communication, creativity, and problem-solving skills in engineering graduates. However, the training was less effective in improving interpersonal skills and adaptability. These findings suggest that gamification needs to be carefully designed to cover all aspects of required skills. Thus, gamification becomes a flexible tool to support the development of job competencies.

Gamification approaches also allow for realistic simulations of work environments. Faisal et al. (2022) highlighted that simulation games like ERPsim improved the skills, knowledge, and attitudes of Australian information systems students.

These simulations provided hands-on experiences that mimicked professional tasks, accelerating the learning process. Brereton et al. (2025) also found that serious games in the screen industry helped students understand specific job responsibilities. These games also supported the development of business awareness, which is often lacking in recent graduates. With this practical experience, students were better prepared to face the challenges of the working world. Gamification, thus, bridges the gap between theory and practice.

Skill development through gamification also has a long-term impact on employability. Research shows that students engaged in game-based learning tend to be more confident in their abilities. For example, Yanes et al. (2023) reported that students who used game-based learning (SGs) felt better prepared to collaborate in professional teams. This experience increases self-efficacy, a key factor in career success. Furthermore, this approach allows students to receive immediate feedback, accelerating the learning process. Thus, gamification not only develops skills but also builds the confidence to apply them.

However, the effectiveness of gamification depends on its design and implementation. Saraswat et al. (2025) showed that some skills, such as adaptability, did not improve significantly through gamification training. This may be due to the lack of design elements that support these skills. To maximize benefits, gamification needs to be tailored to the specific needs of students and the industry. Collaboration between educators and industry practitioners can help design more relevant games. With the right approach, gamification can be a highly effective tool for skills development. Overall, these findings confirm the potential of gamification in preparing students for the workforce.

Gamification also enables a student-centered learning approach. Through elements such as points, badges, and missions, students are encouraged to take an active role in their learning process. Abbas et al. (2022) demonstrated that the GES-App allows students to independently evaluate and improve their skills. This approach increases their sense of responsibility for their career development. Furthermore, gamification creates a fun learning environment, reducing anxiety related to learning job skills. Thus, gamification is not only effective but also engaging for students.

Finally, integrating gamification into career guidance supports personalized learning. Every student has different career needs and goals, and gamification allows for a flexible approach. Yanes et al. (2023) demonstrated that SGs can be tailored to target specific skills, such as teamwork or critical thinking. This approach ensures that students receive training relevant to their aspirations. With this personalization, gamification becomes a highly effective tool for preparing students for the competitive job market. Overall, gamification offers an innovative solution for developing employability skills.

Increased Engagement and Motivation

Gamification has been shown to increase student engagement in the learning process. Obioha and Van Zyl (2022) found that game-based design increased the motivation of youth in marginalized communities to learn skills relevant to the digital economy. Participatory workshops with game-like elements encouraged active engagement and self-reflection. This approach created a dynamic learning environment in which participants felt motivated to continue learning. With elements such as challenges and rewards, gamification made learning more engaging. This high level of

engagement is crucial for preparing students for the world of work. Overall, gamification increased enthusiasm for skills development.

Dela Cruz et al. (2020) showed that gamification in Physics courses increased five motivational components among first-year engineering students. Elements such as experience points (XP), badges, and leaderboards created a strong sense of accomplishment. Students felt motivated to complete learning missions, which increased their self-determination. This approach also increased intrinsic motivation, as students enjoyed the learning process itself. Highly motivated students were more likely to continue developing their employability skills. Gamification, therefore, became an effective tool for maintaining long-term engagement.

Ghanbaripour et al. (2024) reported that technologies such as gamification, VR, and AR increase student engagement in Built Environment education. Immersive and interactive learning experiences increase students' interest in the material. These technologies allow students to explore complex concepts in a safe and controlled environment. This high level of engagement leads to a deeper understanding of skills needed in the workplace. Furthermore, gamification creates a competitive yet supportive learning environment, encouraging collaboration among students. Thus, gamification significantly strengthens motivation and engagement.

The motivation generated by gamification also impacts students' self-efficacy. Dela Cruz et al. (2020) showed that students engaged in gamification-based learning felt more confident in their abilities. Immediate feedback from game elements, such as points and badges, reinforced positive perceptions of their progress. This high self-efficacy is crucial for preparing students for career challenges. With a strong sense of self-confidence, students are more prepared to take risks and explore new opportunities. Gamification, therefore, not only increases motivation but also builds a psychological foundation for success.

Furthermore, gamification creates an inclusive learning environment. Obioha and van Zyl (2022) highlight that game-based approaches can engage learners from diverse backgrounds, including marginalized communities. The fun elements of games reduce psychological barriers to learning, such as anxiety or lack of interest. This approach allows students to focus on skill development without feeling overwhelmed. With an inclusive environment, gamification ensures that more students can benefit from career guidance. Overall, gamification supports equitable engagement among students.

Gamification also allows students to take control of their learning process. Through elements such as repeatable missions, students can adjust the pace and focus of their learning. Dela Cruz et al. (2020) showed that this approach increases career motivation because students feel autonomous in their development. This autonomy strengthens their sense of responsibility towards their career goals. Thus, gamification not only increases engagement but also prepares students to become lifelong learners. This approach is particularly relevant in the context of a constantly changing job market.

However, the success of gamification in increasing engagement depends on appropriate design. Ghanbaripour et al. (2024) highlight that gamification technology must be designed with students' needs and preferences in mind. Irrelevant or overly complex game elements can reduce motivation rather than increase it. Therefore, collaboration with students in the design process can ensure that gamification is effective. With responsive design, gamification can maximize engagement and motivation. Overall, these findings confirm the role of gamification in creating engaging learning experiences.

Finally, gamification supports ongoing learning. By creating a fun and motivating environment, gamification encourages students to continue developing their skills even after the program concludes. Obioha and van Zyl (2022) showed that young people involved in game-based workshops remained motivated to pursue career opportunities. This approach helps students develop positive study habits, which are essential for long-term success. Thus, gamification not only increases temporary engagement but also prepares students for dynamic careers.

Job Readiness Support Through Immersion

The immersive experiences offered by gamification significantly support students' employability. Faisal et al. (2022) found that simulation games like ERPsim improved the skills, knowledge, and attitudes of Australian information systems students. These simulations allow students to encounter real-world work scenarios in a controlled environment. This experience helps them understand the dynamics of professional work without the real risk of failure. Thus, gamification prepares students for a smoother transition into the workforce. Overall, immersive experiences bridge the gap between education and practice.

Brereton et al. (2025) showed that serious games in the screen industry helped students understand specific job duties and responsibilities. These games provided insight into industry expectations, often not taught in traditional curricula. Students also developed soft skills, such as communication and collaboration, which are crucial in the workplace. These immersive experiences boosted students' confidence in facing professional challenges. Thus, gamification offers a practical solution to addressing graduate skills gaps. This approach is particularly relevant for industries requiring hands-on readiness.

Viswanathan and Banerji (2025) proposed that metaverse-based career counseling provides an immersive experience that enhances career readiness. Through virtual interactions in a 3D environment, students can network with professionals and recruiters. This experience overcomes geographical boundaries, enabling access to broader career opportunities. Furthermore, metaverses enable personalized career guidance, enhancing self-efficacy and decision-making. With realistic experiences, students are better prepared to enter the job market. Metaverse-based gamification, therefore, offers an innovative approach to career guidance.

Immersive experiences also allow students to experiment with different job roles. Brereton et al. (2025) highlight that serious games allow students to explore specific tasks within the screen industry. These experiments help them identify their interests and strengths, guiding career decisions. Furthermore, these experiences reduce anxiety related to the uncertainty of new jobs. With a safe learning environment, students can develop skills without pressure. Overall, gamification supports purposeful career exploration.

Furthermore, immersive experiences enhance students' business awareness. Faisal et al. (2022) showed that simulations like ERPsim help students understand business processes and decision-making. This awareness is often lacking among recent graduates, hindering their job readiness. With gamification, students learn to connect their skills to organizational needs. This approach strengthens the relevance of their education to the workplace. Thus, gamification prepares students to be effective contributors in the workplace.

Gamification also enables rapid and constructive feedback. Viswanathan et al. (2025) highlight that metaverse environments provide data-driven insights into students'

progress. This feedback helps them identify areas for improvement, accelerating skill development. Furthermore, feedback in immersive environments is often more engaging and relevant than traditional methods. This, in turn, motivates students to continue learning and improving. Gamification, therefore, supports adaptive and responsive learning.

However, implementing immersive experiences faces certain challenges. Ghanbaripour et al. (2024) point out that technologies like VR and the metaverse require significant investments in infrastructure and training. These resource limitations can hinder students' access to immersive experiences. Therefore, institutions need to develop strategies to ensure equitable access. With an inclusive approach, gamification can maximize the benefits of immersive experiences. Overall, these findings confirm the potential of gamification to support job readiness.

Finally, immersive experiences through gamification support experiential learning. Students involved in simulations or virtual environments learn through action and reflection. This approach, as explained by Faisal et al. (2022), deepens their understanding of the concept of work. This experience also prepares them to face unexpected situations in the workplace. Thus, gamification not only improves skills but also builds career resilience. This approach is very relevant to preparing students for the dynamic era of work.

Effectiveness of Career Guidance Program

Career guidance programs that integrate gamification have proven effective in improving job readiness. Alnajjar and Abou Hashish (2024) found that the Career Guidance and Counseling Program (CGCP) increased nursing students' self-confidence in Saudi Arabia. The program helped them make more informed career decisions and adapt to the job market. Participants reported that the CGCP provided a space to share ideas and concerns, strengthening their psychological readiness. Thus, gamification-based career guidance supports a smoother transition into the workforce. Overall, the program plays a key role in employability.

Chin et al. (2025) showed that business students were most satisfied with the practical tools provided by career service centers (CSCs). These tools, such as interview simulations and skills assessments, helped students prepare for the recruitment process. However, students were less satisfied with the integration of their personal backgrounds and interests during counseling sessions. These findings suggest that personalization in career guidance needs improvement. With a more individualized approach, guidance programs can maximize their impact. Gamification can facilitate this personalization through flexible design.

Career guidance programs also support the development of essential career skills. Alnajjar and Abou Hashish (2024) reported that CGCP helps nursing students develop skills such as communication and decision-making. These skills are essential for navigating a competitive job market. Furthermore, the program provides insight into industry expectations, helping students align their goals. With structured guidance, students are better prepared to face professional challenges. Gamification within the program increases engagement and learning effectiveness.

Furthermore, gamification-based career guidance creates an environment that supports collaboration. Chin et al. (2025) highlighted that students benefit from interactions with counselors and peers during guidance sessions. This interaction strengthens their social capital, which is essential for building professional networks.

Gamification, such as group simulations or team challenges, can enhance this collaboration. With an interactive environment, students learn to work collaboratively in a professional context. Overall, career guidance supports the development of essential social skills.

Career guidance programs also help students overcome psychological barriers. Alnajjar and Abou Hashish (2024) found that CGCP reduced students' anxiety related to career transitions. Through interactive and supportive sessions, students felt more confident in navigating the job market. Gamification can amplify this effect by creating a fun learning experience. Elements such as rewards and positive feedback increase student motivation. Thus, gamification-based career guidance supports students' psychological well-being.

However, the effectiveness of career guidance programs is hindered by several challenges. Chin et al. (2025) showed that sociocultural factors influence how students utilize guidance resources. Different backgrounds can create differences in access and engagement. Therefore, guidance programs need to be designed with student diversity in mind. Gamification can help address this challenge by creating an inclusive experience. With a responsive approach, guidance programs can reach more students.

Finally, gamification-based career guidance supports lifelong learning. Alnajjar and Abou Hashish (2024) highlight that CGCP encourages students to continue developing their skills after graduation. With gamification elements, such as ongoing missions or challenges, students remain motivated to learn. This approach prepares them for the ever-changing job market. Thus, career guidance supports not only current job readiness but also long-term success. Overall, gamification strengthens the impact of career guidance programs.

Career guidance programs also need to be integrated more systematically into the curriculum. Alnajjar and Abou Hashish (2024) recommend incorporating CGCP into nursing education to ensure sustainability. This integration allows students to access guidance early, strengthening their preparedness. Gamification can facilitate this integration by creating engaging learning modules. With a structured approach, career guidance can reach more students and have a greater impact.

Implementation Challenges

The implementation of gamification in career guidance faces significant challenges. Ghanbaripour et al. (2024) highlighted that the high cost of technologies such as VR, AR, and gamification is a major barrier. Educational institutions often have limited budgets, which limit access to the necessary infrastructure. Furthermore, developing quality gamification content requires an investment of time and expertise. These challenges can hinder the adoption of gamification in many institutions. Overall, financial aspects are a major obstacle to implementation.

Limited human resources also impact the success of gamification. Ghanbaripour et al. (2024) showed that faculty require extensive training to integrate gamification into career guidance. Many educators are unfamiliar with this technology, which can hinder the program's effectiveness. Adequate training requires additional time and costs, adding to the complexity of implementation. Therefore, institutions need to develop strategies to support faculty professional development. With proper training, gamification can be implemented more successfully.

Viswanathan et al. (2025) highlighted that digital literacy is a significant challenge in implementing technology-based gamification. Not all students have the necessary

skills or access to technology. This inequality can create disparities in the benefits students receive. Furthermore, gamification design must consider user diversity to ensure inclusivity. With a responsive approach, gamification can reach a wider range of students. Overall, digital literacy is a key factor in successful implementation.

Furthermore, ethical considerations also need to be considered in gamification. Viswanathan et al. (2025) point out that using the metaverse for career guidance raises privacy and data security concerns. Institutions must ensure that student data is properly protected within gamification systems. Furthermore, gamification must be designed to avoid discrimination or unintentional bias. With clear ethical guidelines, gamification can be implemented safely and fairly. These challenges emphasize the importance of careful planning.

Another challenge is resistance to change. Ghanbaripour et al. (2024) reported that some institutions and educators are skeptical about the effectiveness of gamification compared to traditional methods. This resistance can slow the adoption of new technologies in career guidance. To overcome this, institutions need to demonstrate empirical evidence of the benefits of gamification. Transparent case studies and evaluations can help build trust. With effective communication, resistance can be minimized.

Gamification integration also requires cross-sector collaboration. Ghanbaripour et al. (2024) recommend collaboration between educational institutions, industry, and technology providers. This collaboration ensures that gamification is relevant to workplace needs. However, coordinating multiple stakeholders can be complex. With a clear structure, collaboration can produce more effective solutions. Overall, cross-sector collaboration is key to successful implementation.

Finally, the sustainability of gamification programs is a long-term challenge. Ghanbaripour et al. (2024) highlight that many gamification initiatives fail due to a lack of ongoing support. Institutions need to develop funding and evaluation models to ensure programs remain relevant. Furthermore, gamification must be regularly updated to keep pace with technological developments and industry needs. With a sustainable strategy, gamification can deliver a consistent impact. Overall, these challenges emphasize the importance of strategic planning.

To address these challenges, institutions need to adopt a holistic approach. For example, innovative financing models, such as industry partnerships, can reduce the financial burden. Furthermore, affordable faculty training and inclusive gamification design can improve access and effectiveness. With the right strategy, implementation challenges can be overcome, enabling gamification to reach its full potential in career guidance.

Discussion

The integration of gamification into career guidance services offers a transformative approach to preparing students for the competitive job market. A literature review shows that gamification elements, such as points, badges, simulations, and virtual environments, create interactive and engaging learning experiences. Grijalvo et al. (2022) and Yanes et al. (2023) assert that gamification bridges the gap between education and the workplace by providing relevant, practical experiences, such as financial competencies and industry-valued skills. This approach allows students to practice in a real-world environment, enhancing their practical understanding and confidence.

Therefore, understanding the context in which gamification is applied is key to maximizing its benefits in career guidance.

The diversity of research contexts analyzed underscores the flexibility of gamification as an adaptive career guidance tool. In developed countries, such as Spain (Grijalvo et al., 2022) and the UK (Brereton et al., 2025), gamification leverages advanced technologies, including computer simulations and serious games, to support industry-specific skills, such as finance and creativity. Conversely, in developing countries like South Africa (Obioha & van Zyl, 2022) and Indonesia (Haryati et al., 2025), gamification helps overcome barriers such as limited access to career information and educational resources. This approach is socially and culturally relevant, allowing higher education institutions to adapt gamification to local needs, such as graduate unemployment in Indonesia or community marginalization in South Africa. This flexibility reinforces gamification's potential as a global solution adaptable to diverse institutional challenges, from advanced technology ecosystems to environments with limited infrastructure. In addition to its contextual adaptability, gamification also excels in increasing student engagement, a crucial factor in developing employability skills.

Increasing student motivation and engagement is one of the key benefits of gamification. Obioha and van Zyl (2022) and Dela Cruz et al. (2020) show that game elements such as challenges, rewards, and leaderboards increase intrinsic motivation and self-efficacy. Students feel more engaged in the learning process, resulting in a deeper understanding of job skills. A fun learning environment also reduces anxiety, allowing students to focus on their career development. Ghanbaripour et al. (2024) add that immersive technologies such as VR and AR enhance engagement through interactive experiences. Thus, gamification creates a dynamic learning environment that supports job readiness. This approach is particularly relevant for a generation of students accustomed to digital technology.

Gamification also enables personalized learning, which is crucial for meeting the diverse needs of students. Abbas et al. (2022) and Viswanathan et al. (2025) highlight that gamification, including digital applications and the metaverse, enables students to customize their learning experiences. This approach ensures that the training received is relevant to individual career goals. Personalization also increases a sense of autonomy, which strengthens career motivation and self-determination. However, Saraswat et al. (2025) caution that gamification is not always effective for all skills, such as adaptability, highlighting the need for more inclusive design. With a tailored approach, gamification can maximize its impact on job readiness. Overall, the flexibility of gamification makes it a powerful tool in career guidance.

The immersive experiences offered by gamification help students understand the realities of the working world. Faisal et al. (2022) and Brereton et al. (2025) show that simulations and serious games allow students to encounter professional scenarios in a safe environment. These experiences enhance business awareness and soft skills, which are often lacking in recent graduates. Viswanathan et al. (2025) add that the metaverse enables realistic professional networking, transcending geographical boundaries and expanding career opportunities. Immediate feedback in immersive environments also accelerates skill development. Thus, gamification not only teaches skills but also builds the confidence to apply them. This approach is particularly effective for industries that require hands-on readiness.

Career guidance programs that integrate gamification also play a crucial role in supporting students' transition into the job market. Alnajjar and Abou Hashish (2024)

demonstrated that CGCP improved nursing students' confidence and career decision-making skills. Chin et al. (2025) added that practical tools, such as interview simulations, enhance recruitment readiness. However, the personalization of guidance still needs strengthening to better accommodate students' diverse backgrounds. Gamification can help by creating an inclusive and interactive experience. With a structured approach, career guidance programs can reach more students and have a greater impact. Overall, the integration of gamification strengthens the effectiveness of guidance in supporting employability.

The challenges of gamification implementation cannot be ignored in efforts to improve job readiness. Ghanbaripour et al. (2024) and Viswanathan et al. (2025) highlight high costs, limited resources, and digital literacy as key barriers. Furthermore, resistance to change from educators and the need for faculty training add to the complexity. To address this, institutions need to develop strategies such as industry partnerships and affordable training. Gamification design must also be inclusive to ensure equitable access for all students. With a holistic approach, these challenges can be overcome, allowing gamification to reach its full potential. Overall, strategic planning is key to successful implementation.

The sustainability of gamification programs is also a critical aspect that requires attention. Ghanbaripour et al. (2024) showed that many gamification initiatives fail due to a lack of long-term support. Institutions must develop funding and evaluation models that ensure programs remain relevant to technological and industry developments. Cross-sector collaboration with technology providers and industry practitioners can strengthen sustainability. Furthermore, gamification must be regularly updated to maintain its appeal and effectiveness. With a sustainable strategy, gamification can have a consistent impact on job readiness. This approach ensures that students continue to benefit from innovations in career guidance.

Overall, integrating gamification into career guidance services offers a transformative solution for preparing students for the competitive job market. By enhancing skills, motivation, and practical experience, gamification bridges the gap between education and industry. However, its success depends on inclusive design, strategic implementation, and ongoing support. By addressing challenges such as cost, digital literacy, and resistance, institutions can maximize gamification's potential. This approach not only supports current job readiness but also prepares students for dynamic careers in the future.

CONCLUSION

The integration of gamification into career guidance services has proven effective in improving students' work readiness by developing hard and soft skills that meet industry needs. This approach creates an interactive and immersive learning environment that increases students' intrinsic motivation, self-efficacy, and engagement, while technologies such as simulations, serious games, and the metaverse bridge the gap between education and the world of work. Career guidance programmes that adopt gamification, such as CGCP and career service centre tools, support career decision-making and a smoother transition to the job market. Gamification is not only a pedagogical strategy but also an institutional one that requires campus policy support, industry collaboration, and programme sustainability to ensure long-term success. With immersive and personalised elements, gamification not only prepares students to enter their first job market but also equips them with the ability to adapt to future career

changes, making it a relevant strategic tool in the era of digital disruption. However, challenges such as high costs, resource constraints, digital literacy, and faculty training needs must be addressed to ensure inclusive and sustainable implementation. With careful design and cross-sector collaboration, gamification can be a transformative solution to prepare students for a dynamic job market. Therefore, educational institutions are advised to systematically integrate gamification into career guidance curricula, taking into account student diversity and industry needs. This approach not only enhances employability but also equips students with lifelong learning skills, supporting career resilience amid global change.

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REFERENCES

Abbas, A., Iqbal, M., Boyle, L., Baxter, G., Williams, A., Petersen, S. A., Topolewska-Siedzik, E., Jimoyiannis, A., Tsiotakis, P., & Scott, G. (2022). Graduate employability learning through Self-Determined Learning Model of Instruction (SDLMI) driven digital app. INTED2022 Proceedings, 3934–3943. doi: 10.21125/inted.2022.1076

Alnajjar, H. A., & Abou Hashish, E. A. (2024). Exploring the effectiveness of the Career Guidance and Counseling Program on the perceived readiness for the job market: a lived experience among nursing students. Frontiers in Public Health, 12, 1403730. https://doi.org/10.3389/fpubh.2024.1403730

Brereton, J., Jones, B., Reeve, C., Zborowski, J., & Bramwell-Dicks, A. (2025). Play Your Way Into Production: Game-Based Skills Development For The Film and TV Industry. Popular Communication, 1–22. https://doi.org/10.1080/15405702.2025.2486773

Chin, M. Y., Blackburn Cohen, C. A., & Hora, M. T. (2018). The role of career services programs and sociocultural factors in student career development. 29. https://eric.ed.gov/?id=ED587795

Christopoulos, A., & Mystakidis, S. (2023). Gamification in Education. Encyclopedia 2023, 3, 1223–1243. https://doi.org/10.3390/encyclopedia3040089

Dela Cruz, M. K. B., Tolentino, A. N., & Roleda, L. S. (2020). Increasing Student Motivation in College Physics with Gamified Instruction. Proceedings of the 2020 11th International Conference on E-Education, E-Business, E-Management, and E-Learning, 268–274. https://doi.org/10.1145/3377571.3377623

Faisal, N., Chadhar, M., Goriss-Hunter, A., & Stranieri, A. (2022). Instructors' Perceptions of the Development of Work-readiness through Simulations.https://aisel.aisnet.org/acis2022/92

Ghanbaripour, A. N., Talebian, N., Miller, D., Tumpa, R. J., Zhang, W., Golmoradi, M., & Skitmore, M. (2024). A Systematic Review Of The Impact Of Emerging Technologies On Student Learning, Engagement, And Employability In Built Environment Education. Buildings, 14(9), 2769.

https://doi.org/10.3390/buildings14092769

Grijalvo, M., Segura, A., & Núñez, Y. (2022). Computer-Based Business Games In Higher Education: A Proposal Of A Gamified Learning Framework. Technological Forecasting and Social Change, 178, 121597. https://doi.org/10.1016/j.techfore.2022.121597

Haryati, A., Kastina, H., Yulandari, R., & Sari, D. (2025). Bimbingan Karir Dalam Meningkatkan Kesiapan Kerja Di UIN Fatmawati Sukarno Bengkulu. Jurnal Kajian Ilmu Pendidikan (JKIP), 6(1), 163–169. https://doi.org/10.55583/jkip.v6i1.1312

Hassock, L., & Hill, C. (2022). Employability and employment: The role of higher education in a rapidly changing world. In Higher education and job employability (pp. 155–178). Springer.https://doi.org/10.1007/978-3-031-05716-8_8

Ledoh, C. C., Judijanto, L., Jumiono, A., Apriyanto, A., & Hakpantria, H. (2024). Revolusi Industri 5.0: Kesiapan Generasi-Z dalam Menghadapi Persaingan Global. PT. Sonpedia Publishing Indonesia.

Mahmud, M. M., & Wong, S. F. (2022). Digital age: The importance of 21st century skills among the undergraduates. Frontiers in Education, 7, 950553. https://doi.org/10.3389/feduc.2022.950553

Obioha, C. L., & Van Zyl, I. (2022). Gameful Design For Skills Development Of Youths In Marginalised Urban Communities. Interaction Design and Architecture (s) Journal.https://doi.org/10.55612/s-5002-053-002

Omar, M., Farzeeha, D., & Saari, A. (2022). Gamification in vocational teaching and learning: Perception and readiness among lecturers. International Journal of Education, 14(1), 140–152. https://doi.org/10.5296/ije.v14i1.19507

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., & Brennan, S. E. (2021). The PRISMA 2020 Statement: An Updated Guideline For Reporting Systematic Reviews. Bmj, 372. https://doi.org/10.1136/bmj.n71

Petrovych, O., Zavalniuk, I., Bohatko, V., Poliarush, N., & Petrovych, S. (2023). Motivational readiness of future teachers-philologists to use the gamification with elements of augmented reality in education. International Journal of Emerging Technologies in Learning (Online), 18(3), 4. https://doi.org/10.3991/ijet.v18i03.36017

Saraswat, N., Alvi, I., & Kaur, C. D. J. (2025). Effect of New Technologies with Gamification Elements for Enhancing Employability Skills on Engineering Graduates' Perceived Performance. Journal of Engineering Education Transformations, 10–27. https://doi.org/10.16920/jeet/2024/v38i4/25092

Soares, J., Carvalho, C., & Silva, A. D. (2022). A Systematic Review On Career Interventions For University Students: Framework, Effectiveness, And Outcomes. Australian Journal of Career Development, 31(2), 81–92. https://doi.org/10.1177/10384162221100460

Tsurkan, L. (2023). Gamification in developing readiness for self-fulfillment in students of higher educational institutions. 10.47750/jett.2023.14.01.024

Viswanathan, N. S., & Banerji, J. (2025). Metaverse-Based Career Counseling and Networking for College Students. Metallurgical and Materials Engineering, 31(4), 484–489.https://doi.org/10.63278/1475

Yanes, N., Bououd, I., Jamel, L., & Alturki, N. (2023). Serious gaming for graduates employability enhancement. Frontiers in Psychology, 14, 1324397.

https://doi.org/10.3389/fpsyg.2023.1324397

Yulianti, Y., Putri, A. S., Putri, R. A., Safitri, A. R., Litasya, Z., & Khairunnisya, H. (2024). Pentingnya Bimbingan Konseling Karier dalam Membentuk Perencanaan Karier Mahasiswa. Guiding World (Bimbingan Dan Konseling), 7(1), 1–7. https://doi.org/10.33627/gw.v7i1.1889