Interpersonal relationships and career development competencies: a case study of the dynamic self-ball digital game

Ting-Sheng Weng

Department of Business Administration,
National Chiayi University,
No. 580, Sinmin Rd.,
Chiayi City 600, Taiwan
Email: politeweng@yahoo.com.tw

Abstract: In modern-day workplaces, an individual's information literacy, interpersonal skills, and adaptability significantly influence career development. To leverage talents effectively, adapt successfully, and prevent obsolescence, continuous learning and self-improvement across multiple dimensions are essential. This study utilises a specifically designed digital game-based learning (DGBL) environment – the 'dynamic self-ball' – as a reflective instrument to analyse the career development perceptions of working students. The game provides insights into workplace competencies and interpersonal dynamics. The study utilised online questionnaires and open-ended responses, analysing 34 completed surveys. Findings indicate: 1) information proficiency is critically essential in the workplace; 2) strong interpersonal relationships significantly benefit career advancement, with respondents valuing good relationships more than outstanding academic or professional credentials; 3) adaptability and flexibility are vital workplace traits, with continuous learning and effort driving one's career to greater heights. Possessing outstanding professional competence, engaging in multifaceted learning and self-improvement, and cultivating positive workplace relationships enable individuals to adapt swiftly and perform well in dynamic professional environments.

Keywords: dynamic self-changing ball; digital games; career development; adaptability.

Reference to this paper should be made as follows: Weng, T-S. (2026) 'Interpersonal relationships and career development competencies: a case study of the dynamic self-ball digital game', *Int. J. Innovation and Learning*, Vol. 39, No. 5, pp.1–16.

Biographical notes: Ting-Sheng Weng is an Associate Professor of the Department of Business Administration at National Chiayi University, Taiwan. He received his PhD in Division of Management and Information Science, Graduate School of Advanced Technology from Kinki University (Kinki Daigaku), Japan in 2000. He had served as a Visiting Professor at Meiji University in Japan from 2006 through 2007. His major research interests include science technology and management, e-learning, animation, information education, technology education, MIS, AI and image processing.

Copyright © The Author(s) 2026. Published by Inderscience Publishers Ltd. This is an Open Access Article distributed under the CC BY license. (http://creativecommons.org/licenses/by/4.0/)

1 Introduction

Throughout life's journey, individuals consistently encounter changing circumstances. While many individuals have developed habitual coping mechanisms for workplace challenges, sudden and drastic changes can overwhelm their ability to adapt, leading to physical and mental imbalance. Therefore, cultivating adaptability is essential to enhance professional competitiveness while establishing a stable career foundation. In today's fiercely competitive environment, regardless of industry or position, colleague support and interpersonal relationships remain crucial factors that significantly mediate work engagement and individual performance (Korsakienė et al., 2024). How can one improve personal competitiveness while maintaining positive relationships? Modern technology offers pathways to achieve this. The present study integrates entertainment and learning through a dynamic, self-changing ball game, aligning with contemporary educational trends.

Prensky (2001) argues that digital game-based learning (DGBL) can be integrated with computer games (Slattery et al., 2025) while maintaining educational value. Game-based learning can also be defined as any educational game played on a computer or online (Gibson and Jakl, 2015). Integrating online or computer-based digital games with education leverages the entertainment aspect of games to train reaction skills, achieving educational objectives through gameplay. For students with weaker learning abilities or introverted personalities, games can provide enjoyment and a sense of accomplishment; this process enhances their concentration and reaction speed while increasing their willingness to learn (Tian and Umar, 2025). Therefore, this study suggests that training through digital games can improve an individual's adaptability.

The primary goal of digital games is to evoke pleasurable experiences in players, thereby providing entertainment value. Seminal models of player enjoyment (Sweetser and Wyeth, 2005), alongside recent meta-analyses, confirm that utilising digital games for instructional purposes yields significant positive learning outcomes and enhances knowledge acquisition (Soriano-Sánchez et al., 2026). Furthermore, DGBL models inherently foster a student-centred environment that significantly enhances intrinsic motivation, making the educational experience both inspirational and highly effective (Arzfi et al., 2025). Games can enhance students' motivation to learn, fostering inspirational and effective learning experiences. The challenges embedded within digital games stimulate learners' creativity, transforming them into active 'experiencers'. By solving the multi-layered problems designed by game creators, learners develop versatile problem-solving skills, which significantly benefit their career development. This characteristic encourages learners to devise innovative problem-solving methods, turning them into active knowledge creators rather than passive recipients (Akhmetova et al., 2025). Recent reviews highlight that location-based games provide immersive, contextually rich environments that effectively foster deeper engagement and meaningful learning in real-world settings (Richardson and Matthews, 2025; Liu and Wang, 2017). By integrating mobile devices and interactive elements to access guided information, students engaged with exhibits through gameplay. This approach enhanced the enjoyment of the museum visit while facilitating deeper knowledge acquisition. Thus, digital games provide both entertainment value and intellectual enrichment.

This study offers two primary contributions to the field of DGBL and career development. First, it extends the application of DGBL beyond traditional K-12 academic settings into the realm of adult workplace competency training. Second, by developing the 'dynamic self-changing ball game', this study provides a novel, interactive reflective tool that simulates real-world corporate pressures. This allows users to safely experience and internalise strategies for information integration, interpersonal networking, and career adaptability, bridging the gap between theoretical career frameworks and practical workplace survival skills. Furthermore, while recent systematic reviews primarily emphasise the cognitive and vocabulary acquisition benefits of DGBL for students, the present study expands this discourse by confirming that DGBL instruments can also effectively enhance complex psychosocial competencies among young adult professionals.

2 Motivation and purpose

Distinct from conventional entertainment-centric software, the 'dynamic self-ball' was developed as a pedagogical intervention tool. Its primary function is to facilitate metacognitive reflection on everyday professional experiences through structured gameplay, rather than serving purely as a medium for entertainment. This self-changing ball game fosters critical thinking in students. The small coloured ball seeks to unite with balls of the same colour to grow stronger while developing the ability to survive in narrow spaces without being consumed by balls of different colours or sizes. When encountering various environments, the ball must learn to 'change colour' to adapt to diverse workplace conditions, making flexible choices that are most suitable. The game combines elements of entertainment with philosophical concepts. This study employs the dynamic, self-changing ball game to guide students in exploring and reflecting on their career development.

This dynamic, self-changing ball game scenario mirrors workplace dynamics, where it is genuinely challenging to thrive in today's rapidly evolving society. This study extends the core principle of the dynamic self-changing ball game – where the player controlling the ball must survive – to explore three key aspects in the workplace: information expertise, interpersonal relationships, and adaptability for career development. It examines the significance of rapid learning, enhancing professional skills, building relationships, and developing adaptability in the workplace. Amid fast-paced, ever-changing work environment, teaching and fostering workplace adaptability prove highly beneficial for developing digital information technology.

This study offers two primary contributions to the field of DGBL and career development. First, it extends the application of DGBL beyond traditional K-12 academic settings into the realm of adult workplace competency training. Second, by developing the 'dynamic self-changing ball game', this study provides a novel, interactive reflective tool that simulates real-world corporate pressures. This allows users to safely experience and internalise strategies for information integration, interpersonal networking, and career adaptability, bridging the gap between theoretical career frameworks and practical workplace survival skills.

3 Literature references

In the contemporary global environment, which is rapidly changing due to successive industrial upgrades and economic volatility, employees and organisations face multiple new challenges that require constant adjustment (Chen et al., 2024). Changes in industrial structures generate diverse reciprocal effects. As the employment landscape continues to evolve, employees' internal and external adaptability, driven by digital leadership and transformation, must also evolve to enhance corporate performance and organisational commitment (Qiao et al., 2024). That as enterprises raise their standards for employees' foundational qualities and skill levels, an increasing number of workers lose their work vitality. This creates a chain reaction that ultimately drains organisational dynamism. Granziera et al. (2025) echo this perspective by demonstrating how excessive job demands deplete resources, whereas supportive environments foster work vitality and motivation. Facing increased talent attrition, organisations must actively address how to enhance work vitality, reduce turnover rates, and retain top talent to deliver high-quality services.

3.1 Professional competence in workplace information adaptability

In the context of globalisation and the knowledge economy, new forms of work have rapidly emerged; this shift necessitates a comprehensive re-examination of work competence, as modern employability demands a holistic set of adaptable and proactive skills to align with contemporary realities (Sulistiawan, 2025). Professional competence refers to an individual's ability to autonomously mobilise relevant knowledge, specialised skills, and appropriate attitudes when executing tasks and adapting to complex problems (Ismailova, 2025). Accordingly, information professional competence describes an individual who possesses advanced information expertise, skills, attitudes, experience, and core values, combined with a high level of professional ethics, while meeting the needs and expectations of the service organisation. In the workplace, however, possessing information professional competence alone – without establishing sound workplace relationships and engaging in sufficient interaction with others – makes it challenging to develop and leverage one's potential fully.

3.2 Interpersonal workplace relationships

Recent systematic reviews confirm that effective communication skills, interpersonal problem-solving abilities, and high social self-efficacy are critical predictors of successful socio-cultural adjustment and the mitigation of interpersonal issues (Nguyen and McGregor, 2025). Self-efficacy is fundamentally conceptualised as an individual's core belief in their capability to accomplish specific tasks and overcome challenges, serving as a critical psychological resource that mobilises behaviour in demanding professional contexts (Zheng et al., 2025). The resources and knowledge gained through interactions within social network relationships directly provide structural conditions for individuals to acquire social capital, which critically influences work performance, career trajectory, and personal competitiveness (Luwei and Huimin, 2024; Zhang, 2012).

Lin (1982) and Birley (1985) noted that the significance of interpersonal networks lies in their capacity to provide resources, access channels for obtaining resources, and emotional regulation. They found that interpersonal relationships constitute interactive bonds between individuals, encompassing cultural and institutional patterns and processes, and represent social relationships. Interpersonal relationships and communication competence develop through continuous human contact and interaction, serving as a foundational pillar for individual psychological well-being (Ismailova et al., 2025). Humans are fundamentally social creatures, and interpersonal relationships fulfil a basic social need. The diversity of social roles that people assume within these relationships shapes societal behaviour. Such relationships aid self-understanding and enable self-actualisation and affirmation within social contexts. Recent organisational research highlights that effective interpersonal networks and strategic team management depend heavily on leveraging social capital and collaborative social competence (Loignon et al., 2025). Career development interpersonal competencies are categorised into 'bonding' and 'bridging' social capital. The former involves establishing, maintaining, and deepening relationships with colleagues who share similar backgrounds and knowledge, while the latter consists of accessing heterogeneous social resources in the workplace. This includes effectively expanding weak ties, building connections without pre-existing relationships, and strengthening workplace power and interpersonal influence (Gheyassi and Alambeigi, 2024). study on the supervision of new social workers in Luxembourg and early professional development in Taiwan (Wang et al., 2017) assessed supervisors' evaluations of new employees' professional skills and workplace readiness. General skill assessment categories included interpersonal competencies and reflective competencies. Recent studies have confirmed that individuals possessing strong reflexive components – specifically, superior interpersonal communication and self-reflective abilities – demonstrate greater adaptability, problem-solving proficiency, and professional self-improvement across various domains (Tyron et al., 2024).

The literature above clearly demonstrates that strong communication and social skills, coupled with positive interpersonal relationships, significantly enhance work performance, career development, and personal competitiveness. Consequently, workplace adaptability is closely linked to interpersonal relationships.

3.3 Career development adaptability

Internal and external networking behaviours, along with their impact on workplace performance, exert a substantial influence on career development (Wanigasekara et al., 2024), particularly for youth navigating complex professional environments (Gaile et al., 2024). These social networks encompass personal, familial, educational, and corporate dimensions, serving as critical determinants of career success (Wanigasekara et al., 2024). Recent studies applying ecological systems theory confirm that external occupational factors – such as labour market trends, socioeconomic environments, and structural opportunities – directly and indirectly affect an individual's career development trajectory (Fernandes and Rawatlal, 2024).

Career development adaptability is considered a self-regulatory strength and capacity that can be leveraged to address unfamiliar, complex, and ill-defined challenges in career-related tasks. Furthermore, recent studies confirm that subjective career success

and adaptability are not solely dependent on individual psychological readiness, but are deeply intertwined with the social connections individuals build throughout their professional lives (Gaile et al., 2024). Social capital serves as a vital resource that directly enhances an individual's career adaptability (Gheyassi and Alambeigi, 2024). This aligns with the theoretical foundation of the dynamic self-changing ball game, illustrating that integrating DGBL (Tian and Umar, 2025) into career development helps individuals visualise and practice these complex interpersonal and adaptive strategies. Individuals with high adaptability demonstrate the ability to respond appropriately and transition effectively in the face of career instability (Savickas, 2015). In the workplace, maintaining a positive mindset while navigating challenges with ease requires prioritising psychological preparation for career adaptation and advancement. Cultivating the right employment mindset and strong work adaptability while continuously enhancing professional expertise and employability is essential for effective career adaptation (Zhang, 2013). This process involves accurately assessing oneself through continuous interpersonal interactions, where feedback and social capital directly shape one's professional identity and role effectiveness (Pallaguna, 2025). Continuously developing employability skills directly correlates with greater career adaptability, which further enhances an individual's ability to transition smoothly between roles (Bai et al., 2025).

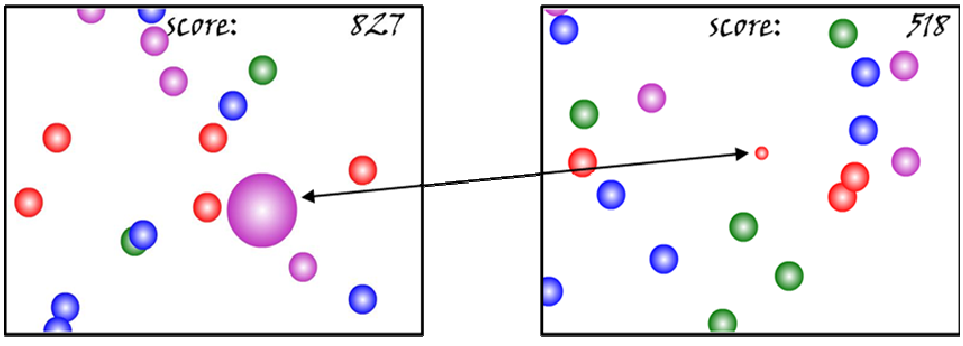
The present study in developed a dynamic, self-changing ball game. A coloured ball automatically shifts hues, symbolising the workplace's constant evolution across time and space. Players must skilfully adapt, quickly adjust to environmental changes, and recalibrate their pace of progress. Additionally, they must promptly evade obstacles and seek out space for survival, enabling them to respond flexibly and adapt to favourable trends throughout their career development journey.

4 Research approach

Friedman (2005) asserts that the 21st century is characterised by intense competition. Corporate employees must contend with an increasingly rapid work pace and pressure, making them vulnerable to physical, mental, and emotional challenges. These factors contribute to a range of issues, ultimately leading to a gradual decline in workplace vitality. The 'dynamic self-ball' was developed as a pedagogical intervention tool using Animate software to facilitate metacognitive reflection on everyday professional experiences through structured gameplay. During the intervention, participants engage with the digital game while undergoing reflective processes. The game features a player-controlled coloured ball that encounters coloured balls of various hues approaching from all directions. The core mechanic requires players to adapt to diverse workplace conditions by learning to 'change colour' and make flexible choices.

When the self-controlled ball accepts and absorbs balls of the same colour, it expands in size, reflecting how clustering generates force and amplifies organisational influence. Conversely, colliding with different coloured balls reduces the self-controlled ball's size, symbolising diminished workplace influence. Participants must actively manoeuvre their ball to evade moving obstacles and seek out space for survival, simulating the requirement to navigate complex organisational structures and maintain career adaptability under pressure.

Figure 1 Self-changing ball game dynamic, (a) absorbs same-colour balls to strengthen its own faction (b) collides with different-colour balls to shrink its faction (see online version for colours)



(a) (b)

This study employs a survey questionnaire method to address the research questions, using a five-point Likert scale to score responses. To clearly highlight the participants' positive consensus and inclinations regarding workplace competencies, the responses for 'strongly agree' and 'agree' were aggregated during the data analysis and interpretation phase. This aggregation approach is standard in DGBL evaluation to establish clear majority consensus trends and simplify the interpretation of positive behavioural inclinations. The questionnaire comprises three dimensions: 'information professional competence', 'interpersonal relationships', and 'career development adaptability'. By extending the dynamic self-changing ball game framework, the study analyses participants' perceptions of personal career development, leveraging workplace strengths, and maintaining adaptability to prevent obsolescence.

4.1 Research subjects

The study subjects comprised 75 students; however, only 34 valid questionnaires were collected.

4.2 Survey analysis

This study utilised an online questionnaire featuring open-ended response options, resulting in a total of 75 submissions. To maintain data integrity and rigor, 41 invalid questionnaires were excluded. The analysis was conducted on the remaining 34 valid responses, detailed below:

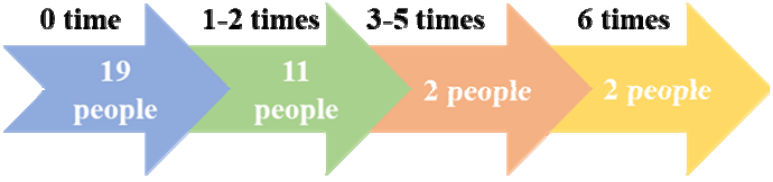
4.2.1 Sample background data analysis

a Age: Regarding age distribution, 32 of the 34 valid participants (94.1%) were aged 21 to 30. This indicates a highly concentrated, young sample group who are in the critical early stages of their careers, making them an ideal demographic for testing career adaptability interventions (note: the original Figure 1 detailing exact age breakdown has been removed to streamline the demographic presentation). Furthermore, to maintain strict respondent anonymity and reduce bias during the

early-stage evaluation of the game mechanism, demographic data concerning participant gender was not recorded. Consequently, a gender-based comparative analysis is beyond the scope of the current study but represents a vital avenue for future research.

b Number of previous career changes: Figure 2 shows that 19 participants have never changed jobs, 11 have changed jobs one to two times, and only four have changed jobs three times or more.

Figure 2 Number of previous career changes (see online version for colours)



4.2.2 Professional competency in workplace information

Table 1 summarises participants' perceptions of their information literacy and ability to utilise technology.

Regarding the short-answer question asking about what information education platforms participants have used, 55.88% of respondents reported using their school's teaching platform, while 44.12% used information education platforms outside of school settings. Examples include CNN, English teaching platforms, tutoring centre platforms, and Wikipedia.

Analysis of the 'professional information competency in the workplace' questions reveals an average agreement rate of 75.05% for 'agree' and 'strongly agree' responses, indicating that professional information competency is highly valued in the workplace. Notably, 85.29% of respondents actively utilise information platforms for self-directed learning. The perspective regarding the importance of information literacy in the workplace is supported by 44.12% of respondents, who noted that with technology advancing rapidly, vast amounts of information and solutions are accessible online. Therefore, information literacy is essential for seizing business opportunities and bringing convenience to daily life. However, only 64.71% of respondents agreed that effectively using information tools can uncover and analyse various hidden issues within the company, suggesting that possessing IT proficiency alone is insufficient to resolve all corporate problems; additional skills are required. The remaining 55.88% of respondents either did not express an opinion or left the field blank regarding the open-ended feedback.

4.2.3 Workplace relationships

Table 2 highlights the perceived value and quality of interpersonal connections in the professional environment.

When asked to describe the tangible benefits received from workplace relationships, respondents cited salary increases, promotions, greater workplace support (such as

avoiding penalties for unintentional mistakes), and increased efficiency alongside avoiding overtime through teamwork and division of labour.

Table 1 Professional competency in workplace information

Number	*Question*	*Strongly agree*	*Agree*	*Acceptable*	*Disagree*	*Strongly disagree*	*Total*
1	I believe I can learn and apply various information from web searches.	8	18	6	2	0	34
2	I believe I possess the ability to integrate computer, network, and multimedia applications.	6	19	9	0	0	34
3	I believe I will make effective use of information technology to showcase my work achievements.	7	20	7	0	0	34
4	I believe that by effectively utilising information tools, one can uncover and analyse various hidden issues within a company.	6	12	12	4	0	34
5	I believe I can effectively utilise various media formats to market the company and its products.	6	18	9	1	0	34
6	I have self-taught and applied knowledge through an information education platform.	10	19	5	0	0	34
7	Short-answer questions: please list the information on the education platforms you have used.						

Table 2 Workplace relationships

Number	*Question*	*Strongly agree*	*Agree*	*Acceptable*	*Disagree*	*Strongly disagree*	*Total*
8	I believe I maintain smooth communication and harmonious relationships with my superiors, colleagues, and subordinates.	6	17	10	1	0	34
9	I believe I can build a personal brand and discover my self-worth.	7	14	13	0	0	34
10	I believe that by connecting through the five shared connections – classmates, relatives, colleagues, fellow townsfolk, and shared interests – one can diversify one's network.	9	19	6	0	0	34
11	I believe that by accumulating and leveraging your 'social capital savings account', you can achieve your 'achievement savings account'.	11	17	5	1	0	34
12	I believe that cultivating core relationships over the long term has been immensely beneficial for my interpersonal connections and career.	15	13	6	0	0	34
13	I believe that by cultivating core connections, one can achieve tangible benefits.	12	13	8	1	0	34
14	Short-answer questions: please describe the tangible benefits you have received (e.g., salary increase, promotion, etc.).						

Table 3 Career development adaptability

Number	*Question*	*Strongly agree*	*Agree*	*Acceptable*	*Disagree*	*Strongly disagree*	*Total*
15	I believe that only by promptly and efficiently completing tasks assigned by superiors can one maintain competitiveness.	12	15	7	0	0	34
16	I agree with the company's promotion model that starts from the bottom up.	12	14	8	0	0	34
17	I believe changing jobs within the workplace can be beneficial for future promotions.	11	12	10	1	0	34
18	I believe I can quickly adapt to each job change or career transition.	7	9	18	0	0	34
19	I believe that through continuous learning and hard work, one's career can reach new heights.	14	15	5	0	0	34
20	I believe that holding professional certifications can prevent one from being phased out in the workplace.	10	15	9	0	0	34
21	Short-answer questions: my perspective on 'career adaptability'.						

Analysis of the 'workplace relationships' questions reveals an average agreement rate of 76.67% across all items, highlighting the critical importance of interpersonal connections. Among the factors, establishing relationships through the 'five shared bonds', cultivating core networks, and leveraging a 'social capital bankbook' are considered most vital, with

an agreement rate as high as 82.35%. Respondents believe that strong interpersonal connections significantly benefit career advancement, sometimes even more so than academic credentials or individual professional skills. Strong connections foster smoother interactions and communication, yielding additional benefits and smoother navigation within the professional environment. However, individual satisfaction with interactions among superiors, peers, and subordinates was only 77.65%, indicating that over 23% of respondents maintain a certain distance from these groups. Overall, recognising the importance of 'workplace interpersonal relationships' is essential for professional success, as cultivating core networks yields tangible benefits for 73.53% of respondents.

4.2.4 Adaptability to career development

Table 3 covers the respondents' attitudes toward task efficiency, promotion models, and adaptability to change.

Respondents who recognise the importance of adaptability emphasised that the ability to quickly adjust to different environments enhances future workplace performance, safeguards positions during organisational changes, and earns recognition from superiors, colleagues, and clients. Adaptability enables individuals to enter the work rhythm more easily; without it, even the best work skills become meaningless. In total, 32.35% of respondents explicitly affirmed the importance of career adaptability in open-ended feedback, while 67.65% left the question unanswered.

Analysis of the 'career development adaptability' questions reveals an average agreement rate of 71.57% across all items, demonstrating the critical importance of workplace adaptability. Notably, 85.29% of respondents agreed that continuous learning and effort can lead to career advancement. However, respondents reported relatively low levels of satisfaction (47.06%) with their ability to quickly adapt to job transitions or career changes. Similarly, only 67.65% felt that workplace transitions positively impacted their future career advancement. This could potentially be influenced by the high proportion of respondents aged 21–30 (94.18%); being younger and having less workforce experience, they may struggle to adapt quickly to new roles and recognise how job-switching facilitates future promotions.

5 Conclusions and recommendations

5.1 Conclusions

Based on the data analysis, this study demonstrates that an individual's information expertise, interpersonal skills, and career development adaptability significantly influence personal career development. The conclusions are directly derived from the survey findings:

1 The necessity of continuous information learning: As shown in Table 1, 85.29% of respondents actively utilise information platforms for self-directed learning. This data confirms that in today's rapidly changing society, individuals must continuously enhance self-learning skills to mitigate workplace transition stress and avoid professional obsolescence.

2 The critical role of interpersonal synergy: Data from Table 2 strongly supports that mere task completion is insufficient for career advancement; 82.35% of respondents agreed that diversifying networks through 'shared bonds' yields tangible workplace benefits. This proves that navigating the modern workplace requires a broad support network to leverage an organisation's synergistic effects.

3 The gap in practical adaptability: Regarding career adaptability (Table 3), while 85.29% agreed that continuous learning drives a career to new heights, only 47.06% felt confident in quickly adapting to actual job transitions. This specific data point highlights a crucial gap: while individuals understand the theoretical need for adaptability, they lack practical transition skills. This validates the fundamental purpose of the dynamic self-changing ball game developed in this study, serving as a necessary reflective tool to help young professionals practice adapting to changes.

In summary, surviving in the fiercely competitive workplace requires continuous, multi-dimensional self-improvement. By learning to manoeuvre and adapt like the dynamic self-changing ball, individuals can find their correct position. While hard work in the workplace makes one a reliable employee, the ability to make timely decisions, leverage interpersonal networks, and adapt to favourable changes will transform an individual into a highly adaptable professional, making any job transition feel as effortless as swimming in water.

Furthermore, while recent systematic reviews (e.g., Slattery et al., 2025; Tian and Umar, 2025) primarily emphasise the cognitive and vocabulary acquisition benefits of DGBL for students, the present study expands this discourse by confirming that DGBL instruments can also effectively enhance complex psychosocial competencies – such as interpersonal networking and career adaptability – among young adult professionals.

5.2 Recommendations

1 Enhancing personal 'information proficiency': Respondents who participated in this survey highly value the ability to self-learn and apply information effectively. Through continual self-improvement, they expand their knowledge and expertise in information technology, accumulate experience, and leverage IT to demonstrate their work achievements. This capability is essential for thriving in a fiercely competitive workplace, where adaptability is crucial. However, as information technology evolves rapidly, maintaining a mindset and motivation for continuous learning and acquiring new technological knowledge is imperative. By doing so, one can retain workplace competitiveness and avoid professional obsolescence.

2 Strengthening the network of interpersonal relationships: All respondents in this survey agree that while competence in one's job is essential, cultivating interpersonal relationships is even more crucial. This is because advancing to the next level requires not only individual effort but also a broad network of support to navigate organisational challenges and leverage the synergistic power of the team.

3 Developing career adaptability: Enhance adaptability by completing workplace tasks with a high level of professional competence, while simultaneously cultivating extensive interpersonal networks and maintaining strong professional relationships.

5.3 Research limitations and future directions

This study acknowledges several limitations, primarily stemming from its nature as an exploratory pedagogical intervention. First, the effective sample size (N = 34) remains relatively small, and the sample was highly concentrated within the 21–30 age bracket. Additionally, demographic data concerning participant gender was not recorded to maintain anonymity, which limited the feasibility of gender-based comparative analysis.

Most importantly, the current study relies on self-reported questionnaire responses without a pre-post comparison or a control group. Future research must build upon this foundational exploratory work by adopting a rigorous experimental or longitudinal design. Implementing control conditions and gathering concrete behavioural evidence before and after the game intervention will be highly beneficial to establish robust causal inferences between the 'dynamic self-ball' intervention and long-term career adaptability improvements.

Declarations

The author declares no conflicts of interest.

References

Akhmetova, A.I., Seitenova, S.S., Khodjaev, B.K., Jamoldinova, O.R., Yerkebaeva, S.Z. and Kazybayeva, K.U. (2025) 'Evolution of game-based learning research: a cross-database bibliometric analysis and visualization study (2015–2024)', *Contemporary Educational Technology*, Vol. 17, No. 3, Article ep585, https://doi.org/10.30935/cedtech/16451.

Arzfi, B.P., Montessori, M. and Rusdinal, R. (2025) 'Development of digital game based learning model teaching materials to improve learning outcomes in primary schools', *Educational Process: International Journal*, Vol. 15, No. 1, Article e2025114, https://doi.org/10.22521/edupij.2025.15.114.

Bai, Z., Omar, M.K. and Mohd Puad, M.H. (2025) 'Employability skills and career adaptability among TVET students: what matters?', *Asian Journal of Vocational Education and Humanities*, Vol. 6, No. 1, pp.1–13.

Birley, S. (1985) 'The role of networks in the entrepreneurial process', *Journal of Business Venturing*, Vol. 1, pp.107–117, https://doi.org/10.1016/0883-9026(85)90010-2.

Chen, Q., Li, J., Shen, R., Wang, R., Xu, J. and Zhou, J. (2024) 'Career adaptability and work engagement: the roles of person-organization fit and job insecurity', *BMC Psychology*, Vol. 12, No. 1, Article 562, https://doi.org/10.1186/s40359-024-01907-2.

Fernandes, M.R. and Rawatlal, K.V. (2024) 'Exploring factors that influence students' career decision making at a South African University', *African Journal of Career Development*, Vol. 6, No. 1, Article a99, https://doi.org/10.4102/ajcd.v6i1.99.

Friedman, T.L. (2005) in Yang, Z.F. and Pan, X. (Trans.): *The World is Flat: The Future, the United States, and Globalization*, Yayan Culture Publishing Co., Taipei.

Gaile, A., Baumane-Vitolina, I., Stibe, A. and Kivipõld, K. (2024) 'Expanding career adaptability: connections as a critical component of career success', *European Journal of Management and Business Economics*, Vol. 33, No. 4, pp.411–428.

Gheyassi, A. and Alambeigi, A. (2024) 'Social capital and career adaptability: the mediating role of psychological capital', *Higher Education, Skills and Work-Based Learning*, Vol. 14, No. 5, pp.1070–1085.

Gibson, D. and Jakl, P. (2015) 'Theoretical considerations for game-based e-learning analytics', in *Gamification in Education and Business*, pp.403–416, Springer, Cham.

Granziera, H., Collie, R.J. and Slemp, G.R. (2025) 'Teachers' work motivation: an examination of predictors and outcomes through the lens of job demands-resources theory', *Teaching and Teacher Education*, Vol. 170, Article 105290.

Ismailova, A., Naubayeva, K., Zheldibayeva, R. and Kontrimienė, S. (2025) 'Self-esteem, social comparison, and interpersonal communication competence as predictors of students' psychological well-being', *Frontiers in Education*, Vol. 10, Article 1679209, https://doi.org/10.3389/feduc.2025.1679209.

Ismailova, G. (2025) 'Developing professional competence through independent study in students', *Web of Teachers: Inderscience Research*, Vol. 3, No. 6, pp.306–308.

Korsakienė, R., Stankevičienė, A. and Nawal, A. (2024) 'Work engagement and individual performance of teachers: the role of job demands and job resources', *Problems and Perspectives in Management*, Vol. 22, No. 3, pp.528–541, https://doi.org/10.21511/ppm.22(3).2024.40.

Lin, N. (1982) 'Social resources and instrumental action', in Marsden, P.V. and Lin, N. (Eds.): *Social Structure and Network Analysis*, pp.131–146, Sage, Beverly Hills, CA.

Liu, S-W. and Wang, J-H. (2017) 'Exploring learning outcomes of place-based historical retrospective games using inquiry-based learning', *Annual Report of the Chinese Printing Technology Association*, pp.619–641.

Loignon, A.C., Fonti, F., Bagherzadeh, M., Gurca, A. and Shrestha, S. (2025) 'When more is less: the role of social capital in managing talent in teams', *Academy of Management Discoveries*, Vol. 11, No. 2, pp.255–284.

Luwei, W. and Huimin, M. (2024) 'From jobs to careers: drivers and barriers to career development in emerging labor markets', *Frontiers in Sociology*, Vol. 9, Article 1486871, https://doi.org/10.3389/fsoc.2024.148687.

Nguyen, T.D. and McGregor, M. (2025) 'The state of knowledge in social self-efficacy among international students: a systematic literature review', *Journal of International Students*, Vol. 15, No. 7, pp.176–198.

Pallaguna, A. (2025) 'The role of interpersonal capital in shaping the professionalism of Indonesian Air Force personnel', *MANAGER: Journal of Management and Administration Science*, Vol. 4, No. 2, https://doi.org/10.58738/manager.v4i2.1316.

Prensky, M. (2001) *Digital Game-Based Learning*, McGraw-Hill, New York.

Qiao, G., Li, Y. and Hong, A. (2024) 'The strategic role of digital transformation: leveraging digital leadership to enhance employee performance and organizational commitment in the digital era', *Systems*, Vol. 12, No. 11, Article 457, https://doi.org/10.3390/systems12110457.

Richardson, D. and Matthews, B. (2025) 'Location-based games for language learning: a scoping review', *Research Synthesis in Applied Linguistics*, https://doi.org/10.1080/29984475.2025.2527650.

Savickas, M.L. (2015) *Life-Design Counseling Manual*, Rootstown, OH.

Slattery, E.J., Lehane, P., Butler, D., O'Leary, M. and Marshall, K. (2025) 'Assessing the benefits of digital game-based learning with Minecraft in children, adolescents and young adults: a broad systematic review', *Review of Education*, Vol. 13, No. 1, Article e30744, https://doi.org/10.1002/rev3.70035Digital.

Soriano-Sánchez, J.G., Quijano López, R. and Airado Rodríguez, D. (2026) 'The impact of game-based learning on motivation, self-efficacy, and academic achievement in the natural sciences: a meta-analysis', *Education Sciences*, Vol. 16, No. 1, Article 122, https://doi.org/10.3390/educsci16010122.

Sulistiawan, J. (2025) 'Mapping employability: a decade of trends and insights from higher education through bibliometric analysis (2014–2024)', *Global Knowledge, Memory and Communication*, https://doi.org/10.1108/GKMC-06-2024-0394.

Sweetser, P. and Wyeth, P. (2005) 'GameFlow: a model for evaluating player enjoyment in games', *ACM Computers in Entertainment (CIE)*, Vol. 3, No. 3, Article 3, https://doi.org/10.1145/1077246.1077253.

Tian, F. and Umar, I.N. (2025) 'Research trends of digital game-based learning for technical vocabulary acquisition: a systematic decennial literature review (2014–2024)', *Arab World English Journal*, Vol. 16, No. 3, pp.60–88.

Tyron, O., Kaminska, S. and Korotka, N. (2024) 'Assessment of reflection abilities of maritime students: maritime education and training', *Journal of Maritime Research*, Vol. 21, No. 3, pp.127–135.

Wang, K.Y-T., Liu, Y-L., Chiu, H-T. and Wu, T-W. (2017) 'Experiences of early professional development stages among social workers in Taiwan', *Taiwan Journal of Social Work*, Vol. 19, No. 19, pp.77–106.

Wanigasekara, S., Ali, M. and French, E. (2024) 'Determinants of internal and external networking behaviours: insights into gender, education, political skills and mentoring', *Human Resource Development International*, https://doi.org/10.1080/13678868.2024.2375952.

Zhang, H. (2012) *Exploring the Path of Social Capital*, Report No. NSC98-2410-H018-017-MY3.

Zhang, X-H. (2013) *I Don't Want to be Eliminated, I Want to Stay: 13 Essential Skills to Succeed in the Workplace*, Jing Pin Cultural Co., Taipei.

Zheng, X., Mohd Puad, M.H. and Ab Jalil, H. (2025) 'A scoping review of job search self-efficacy over the past 5 years: antecedents, mechanisms, consequences, and future directions based on SCT/SCCT', *Frontiers in Psychology*, Vol. 16, Article 1596847, https://doi.org/10.3389/fpsyg.2025.1596847.

Notes

This article has been updated post-publication to correct an entry in the References. Richardson, D. and Matthews, B. (2025) 'Location-based games for language learning: a scoping review', *Research Synthesis in Applied Linguistics*, https://doi.org/10.1080/29984475.2025.2527650.