

Article

The Game Café: Exploring Students' Perceptions of Learning Experiences

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Abstract

Game-based learning (GBL) has increasingly been recognized as a valuable approach for supporting student engagement, motivation, and skill development in educational settings. However, comparatively little research has examined analog gameplay within informal, co-curricular higher education environments. Grounded in Self-Determination Theory (SDT), this exploratory study examined students' perceptions of their experiences at a university's Academic Skills Centre's (ASC) Game Café (not course-based), with particular attention to motivation, social engagement, and perceived academic skill development. Using a descriptive, cross-sectional survey design, data were collected from 44 student participants through a researcher-developed survey consisting of Likert-scale and open-ended questions. Quantitative data were analyzed using descriptive statistics, while qualitative responses were thematically coded. Internal consistency analyses demonstrated acceptable to strong reliability across survey scales (Q6 $\alpha = 0.70$; Q7 $\alpha = 0.89$). Findings indicated that students perceived a consistent association between the Game Café and positive emotional experiences, collaboration, peer interaction, and the perceived development of transferable skills such as communication, critical thinking, and problem-solving. Participants also described the café as a low-pressure and socially supportive environment that fostered motivation and informal learning beyond the classroom. Overall, the findings suggest that analog, co-curricular game-based environments may support students' perceived engagement, belonging, and learning within higher education contexts.

Keywords: game-based learning; analog gameplay; higher education; student engagement; motivation; sense of belonging



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1. Introduction

For many years, postsecondary institutions have recognized the importance of co-curricular programming in fostering student engagement, well-being, and academic success (Martini et al., 2019). Among these initiatives, game-based learning (GBL) has gained traction as an approach that can promote motivation, deepen cognitive engagement, and support the development of transferable academic skills (Rajendran et al., 2024). While much of the literature has focused on digital game-based interventions in course-based contexts (e.g., Yeo et al., 2022), less attention has been given to analog games in both curricular and co-curricular environments, with explicit connection to academic skill development, such as campus game cafés. Motivation is a key predictor of academic persistence and performance;

however, many students struggle to sustain motivation in traditional academic environments that seemingly overlook engagement potential and structure (Cohen et al., 2022). Research suggests that GBL spaces can cultivate intrinsic motivation by offering autonomy, challenges, and opportunities for social connection (see de-Marcos et al., 2016; Li et al., 2024). Analog games (e.g., board games) provide structured yet flexible opportunities for peer interaction, critical thinking, and low-stakes exploration of problem-solving strategies—all of which are relevant mechanisms of academic development (Anderson et al., 2001). At our institution, an Academic Skills Centre (ASC) hosts a recurring “Game Café” designed to offer students a space to gather, play games, and connect with other students on campus. While the event is not formally instructional, it represents a potentially powerful site of learning, especially in how students engage with cognitive and interpersonal challenges embedded within analog gameplay. However, there is limited empirical research exploring students’ perceptions of such GBL experiences and their potential connections to learning motivation and skill development. This study aims to address that gap by investigating students’ perceptions of the Game Café in relation to their academic skill development and motivation to learn. Using data collected from a paper-based survey administered at the final Game Café of Winter 2025, we examine how students perceive their engagement with the event, the types of board games they played, and the kinds of learning experiences they associated with participation.

2. Literature Review

Game-based learning (GBL) has emerged as a pedagogical approach that fosters active engagement, critical thinking, and collaborative problem-solving in both formal and informal learning environments. While GBL is often discussed in relation to digital platforms, there is growing interest in the use of analog games, such as board games and card games, as tools for supporting academic skill development and enhancing student motivation (Rajendran et al., 2024). Research on GBL has traditionally focused on children and youth, often comparing the difference in efficacy of analog versus digital gaming on cognitive and social development (Estrada-Plana et al., 2024; von Steinkeller & Grosse, 2022). Studies in these contexts have shown that analog games can enhance prosocial behaviours and positive peer-to-peer interactions during gameplay (von Steinkeller & Grosse, 2022). Although much of this work has been conducted in primary education, the underlying mechanisms of engagement and skill development identified in these studies are equally relevant to higher education. Analog games offer postsecondary students opportunities to engage in meaningful play while practicing transferable academic and social skills (Sousa et al., 2023).

To further conceptualize how such environments may support student motivation and learning, this study is grounded in Self-Determination Theory (SDT), which posits that intrinsic motivation is fostered through the fulfillment of three basic psychological needs: autonomy, competence, and relatedness (Deci & Ryan, 2000). Within educational contexts, SDT has been widely used to explain how learning environments can support sustained engagement, internalization of learning, and meaningful participation (Ryan & Deci, 2020). In this way, SDT does not merely contextualize the Game Café environment, but it serves as an organizing framework for examining how students interpret their experiences in relation to motivation, social connection, and perceived learning.

Motivation is a key factor in academic persistence and performance, yet many students experience a decline in intrinsic motivation as they progress through higher education (Wild et al., 2024). Research suggests that informal learning environments that promote autonomy, relatedness, and competence can counteract this trend and reignite students’ interest in learning (Rogoff et al., 2016). Within the SDT framework, autonomy refers to

the extent to which individuals experience choice and volition in their activities. Game cafés, as low-stakes and voluntary spaces of engagement, may be particularly effective in supporting autonomy by allowing students to select activities based on their interests and participate at their own pace (Reeve & Cheon, 2021).

In addition to supporting student engagement, GBL environments can contribute to the development of metacognitive and executive functioning skills (Kim et al., 2009). Games often require students to plan, monitor outcomes and decisions, adapt strategies, and engage in reflective thinking; cognitive processes that are foundational to academic success (Kim et al., 2009). Within SDT, these experiences align with competence, or the need to feel effective and capable in one's actions. Gameplay may provide low-stakes opportunities for students to develop and demonstrate competence through problem-solving, collaboration, and strategic thinking (Ryan & Deci, 2020). Informal co-curricular programming that integrates these elements has the potential to complement traditional forms of academic practice, particularly when built upon collaborative learning structures (Glaister et al., 2024).

A sense of belonging is increasingly recognized as a foundational component of student engagement, motivation, and academic persistence in higher education (Pedler et al., 2022). Belonging, a core psychological need, is closely aligned with the SDT construct of relatedness, which reflects the need to feel socially connected to others (Furrer & Skinner, 2003). When students experience belonging within educational contexts, there are positive links with student effort, achievement, motivation, and task enjoyment (Pedler et al., 2022). For students to feel as though they are part of an educational community, they must engage emotionally with learning activities (Ulmanen et al., 2016). The absence of belonging, conversely, has been associated with disengagement, decreased motivation, and higher rates of attrition. Co-curricular activities have been found to positively impact both intellectual and social development within student populations (Zhang & Veacock, 2023). Within this context, game-based initiatives can offer a particularly effective mechanism for community-building and social development. Participation in such environments allows students to engage authentically with others, bridging disciplinary, cultural, and social divides that often fragment the university experience. In this way, initiatives like the Game Café can be understood not only as recreational outlets but as inclusive pedagogical spaces that support relatedness while also fostering academic development.

Critically, while prior research has established the cognitive and social benefits of gameplay, little is known about how postsecondary students themselves interpret and attribute academic value to informal, co-curricular gaming experiences. This gap is particularly prevalent given the increasing institutional emphasis on student engagement, belonging, and holistic learning beyond the classroom. Existing research has largely focused on structured, course-based implementations or younger populations, leaving limited insight into how university students perceive and make meaning of informal game-based environments.

Taken together, the integration of autonomy, competence, and relatedness within informal game-based environments suggests that such spaces may function as meaningful sites of learning and engagement in higher education. This study addresses this gap by examining how students perceive their experiences at a campus Game Café. In doing so, it offers insight into how analog, co-curricular game-based initiatives may support student motivation, social connection, and perceived academic skill development outside the classroom.

3. Research Purpose

The purpose of this study is to examine students' perceptions of their experiences at a university's Game Café in relation to motivation, social engagement, and perceived academic skill development within an informal, co-curricular learning environment. Grounded in Self-Determination Theory (SDT), this study conceptualizes the Game Café as a space in which autonomy, competence, and relatedness may shape how students engage with and interpret their learning experiences.

Specifically, this study seeks to explore how students reflect on their participation in the Game Café, with particular attention to the ways in which they perceive its impact on their motivation to learn, their sense of social connection, and the development of transferable academic skills.

To address this purpose, the study is guided by the following research questions:

1. How do students perceive the Game Café's impact on their motivation to learn within an informal, co-curricular context?
2. What academic and transferable skills do students associate with participation in analog gameplay at the Game Café?
3. How do students describe the social and emotional value of the Game Café experience?

4. Context

The Game Café is a recurring co-curricular initiative organized by an ASC. It is designed as an open, informal space where students can engage in analog gameplay with peers, take a break from academic pressures, and foster social interaction. While the Game Café is not tied to any specific course or credit-bearing activity, it represents an important part of the ASC's broader mission to support students' academic development and sense of belonging through diverse learning opportunities. During the Winter 2025 academic term, the Game Café was held five times, each event running from 11:00 a.m. to 3:00 p.m. The event is managed by a dedicated ASC staff member for whom the Game Café forms part of their portfolio. This staff member is responsible for organizing each event, coordinating volunteers, and overseeing logistics. Typically, each Game Café is staffed by one employee and approximately five student volunteers who are stationed at the check-in table throughout the event.

The Game Café takes place in a high-traffic, open area of the university campus and includes about 10–12 tables where students can sit and play board games. A selection of games, including Connect Four, Chess, and Jenga, is pre-set at the tables and remains there for the duration of the event. Additional games are stored at the check-in table, where volunteers and staff interact with attendees, answer questions about the café, explain game rules, and provide personalized game recommendations. For example, students may request games suitable for two players or those with shorter gameplay durations. Others may approach the check-in table with a specific game request. The environment design is intentionally low-pressure, and students are encouraged to engage at their own pace, staying for as little or as long as they choose. Upon finishing their gameplay session, students return their games to the check-in table, where they often interact again with student volunteers or staff. To further encourage participation and community-building, free pizza is offered at each Game Café. Students are invited to take one slice per person per hour of gameplay; the pizza serves not only as an incentive but also as an informal attendance-tracking method. Based on the amount of pizza distributed, staff estimates that each Game Café is attended by approximately 100 to 150 students. This unique blend of open-ended gameplay, social engagement, and light academic framing provides a worthwhile site for examining how students perceive informal learning spaces and their potential connections to academic motivation and skill development.

5. Methods

This study employed a descriptive, cross-sectional survey design to examine students' perceptions of their experiences at the ASC's Game Café. A cross-sectional approach was selected to capture participants' perceptions at a single point in time within a naturally occurring co-curricular setting, aligning with the study's exploratory focus on informal, perception-based learning experiences.

5.1. Survey Design

The survey instrument was developed by the research team to align with the study's research purpose and to reflect key constructs identified in the game-based learning (GBL) and SDT literature, particularly those related to motivation, social engagement, relatedness, and perceived academic skill development (Deci & Ryan, 2000; Ryan & Deci, 2020; Rajendran et al., 2024). Item construction was informed by existing theoretical and empirical research examining motivation, belonging, engagement, and skill development in educational and game-based learning contexts. Items were constructed to align with the research objectives, to solicit information about students' perceptions of the Game Café as related to motivation (e.g., Q6), academic skill development (e.g., Q7), and the potential for game-based learning initiatives (e.g., Part 2). To support content validity, the questionnaire was reviewed by multiple members of the research team to assess item clarity, relevance, and alignment with the intended constructs. One member of the research team has expertise in educational psychology and contributed to the review of motivation, engagement, and relatedness constructs, while another member has expertise in academic skill development and contributed to the review of items related to transferable learning outcomes and student skill development. Although all items were newly developed for this study and no formal pilot testing was conducted, these procedures were undertaken to support the suitability of the instrument for the exploratory aims of the research. The survey consisted of two parts and included both closed- and open-ended questions (see Appendix A).

Part 1 gathered participant background information (e.g., program of study, year level) and participation-related variables (e.g., prior attendance, duration of engagement, and games played). This section also included two sets of Likert-scale items using a 5-point response format ranging from 1 (strongly disagree) to 5 (strongly agree). The first set of items (Q6) assessed affective and social dimensions of the Game Café experience, including enjoyment, perceived opportunities for peer interaction, and motivation to learn. The second set of items (Q7) focused on perceived academic skill development, asking participants to evaluate the extent to which gameplay contributed to skills such as critical thinking, communication, collaboration, time management, and creativity. An additional item allowed participants to identify and rate any other skills they perceived developing through gameplay.

Part 2 assessed students' interest in participating in future workshops on the use of board games for learning. Participants were asked to indicate "yes" or "no" regarding workshop attendance and to provide a rationale for their response. A final open-ended question invited additional reflections on the Game Café experience, enabling participants to elaborate on perceived benefits, limitations, or suggestions.

5.2. Ethical Considerations

Ethical approval for the study was obtained from the University of Toronto's Research Ethics Board (REB) in March 2025. Participation was voluntary, and informed consent was obtained from all participants prior to survey completion. Participants were informed of

the study's purpose, the voluntary nature of their involvement, and their right to withdraw at any time without consequence. No identifying information was collected.

5.3. Participants and Recruitment

Recruitment occurred in person during the final Game Café of the Winter 2025 academic term, held on 28 March 2025. One member of the research team was present from 11:00 a.m. to 2:30 p.m. and engaged in active but non-disruptive recruitment by rotating between game tables, explaining the study to students, and distributing paper surveys and optional draw forms for a \$25 university hospitality gift card. Students attended the Game Café voluntarily and completed the survey voluntarily. Students could complete the survey at their leisure and return it to the researcher. All returned surveys were collected and stored securely for data entry.

5.4. Data Management and Analysis

All survey responses were manually entered into a shared Microsoft Excel dataset by the research team. Data were screened for completeness prior to analysis. For scale-based analyses, only complete cases were retained for each item set; responses with missing data on any item within a given scale were excluded from that specific analysis to ensure consistency in reliability estimation.

Quantitative data derived from the Likert-scale items were analyzed using descriptive statistics, including means, frequency distributions, and percentages, to identify patterns in students' reported experiences. Given the exploratory nature of the study and the focus on perception-based outcomes, descriptive analyses were prioritized to characterize trends across domains such as peer connection, motivation, and perceived skill development.

To assess the internal consistency of the survey instrument, Cronbach's alpha coefficients were calculated separately for the two Likert-scale item sets (Q6 and Q7). Cronbach's alpha is a widely used measure of internal reliability that evaluates the extent to which items within a scale measure a coherent underlying construct (Tavakol & Dennick, 2011). Consistent with conventions in educational research, alpha coefficients of 0.70 or higher were considered acceptable for exploratory studies (Taber, 2018). Prior to reliability analysis, listwise deletion was employed to remove responses containing one or more missing (N/A) values within each scale. This approach ensured that Cronbach's alpha calculations were based only on complete cases, thereby improving the accuracy and interpretability of reliability estimates. However, the use of listwise deletion resulted in a reduced sample size for each analysis.

The Q6 scale, which assessed affective and social dimensions of the Game Café experience, demonstrated acceptable internal consistency ($\alpha = 0.70$), suggesting that the items capture related aspects of student experience while reflecting some conceptual diversity within the construct. The Q7 scale, which assessed perceived academic skill development, demonstrated strong internal consistency ($\alpha = 0.89$), indicating a high degree of coherence among items measuring perceived skill-related outcomes. These results support the use of the instrument for exploratory analysis, while also indicating the need for further psychometric validation in future research.

Qualitative responses from open-ended survey items were analyzed using an inductive thematic approach. Responses were reviewed iteratively to identify recurring patterns and themes related to perceived learning outcomes, motivations for participation, and interest in future programming. These qualitative findings were used to complement and contextualize the quantitative results, providing a more nuanced understanding of students' experiences within the Game Café environment.

6. Findings

Approximately 140 students attended the Game Café on 28 March 2025, as estimated through attendance tracking based on food distribution. A total of 44 students completed the survey, representing a response rate of approximately 31.4%. While this sample reflects a subset of attendees, it provides insight into the perceptions of students who are actively engaged with the Game Café environment.

A total of 47 different games were available at the Game Café. In response to the survey question “What board games did you play today?,” one game (Gobblet) was mentioned five times; two games (Anomia, Sky Team) were mentioned four times; three games (Ion, Quoridor, Sushi Go) were mentioned three times; three games (Jenga, Katakana, Periodic) were mentioned twice; and four games (Apples to Apples, Catan, Concept, Ito) were mentioned once. A total of 34 games were not mentioned in the survey. A complete list of games available at the Game Café is in Appendix B.

6.1. Participant Overview

The 44 participants represented a range of academic disciplines across the university. The most frequently reported field of study was Biology and related Life Sciences ($n = 13$), followed by Psychology ($n = 4$) and Communication, Culture, Information and Technology ($n = 4$). Additional disciplines included Economics ($n = 3$), Criminology/Sociology ($n = 3$), and Management/Commerce ($n = 3$), with smaller representation from Philosophy, Sociology, English, Accounting, Forensic Anthropology, and Occupational Therapy.

The average year of study was 2.1, indicating that participants were primarily undergraduate students in their early to mid-program years. Most participants reported prior attendance at the Game Café ($n = 31$), suggesting a strong base of returning participants, while a smaller number indicated no prior attendance ($n = 7$), with six participants not responding. Reported duration of participation ranged from less than one hour to three hours, with most students indicating engagement of one to two hours.

6.2. Participation Patterns and Game Selection

Most participants had previously attended the Game Café; 31 students indicated prior attendance, seven reported no prior attendance, and six did not respond. This indicates a strong base for returning participants, suggesting that the café successfully retains interest over multiple events. Reported time spent at the café ranged from less than one hour to three hours, though most participants stayed for one to two hours.

6.3. Perceived Learning and Skill Development

6.3.1. Motivation and Engagement (Autonomy)

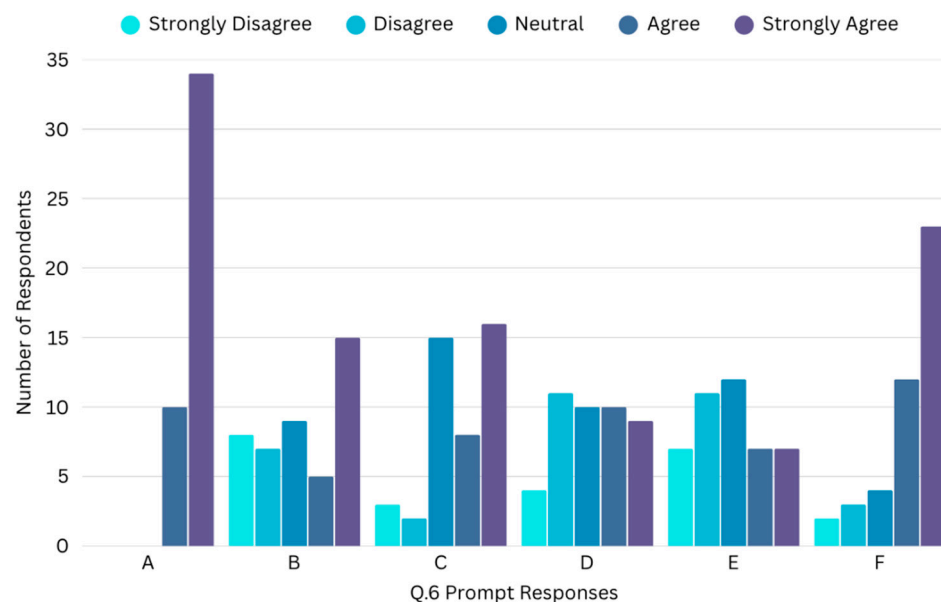
Students reported perceptions of positive, affective, and motivational experiences associated with participation in the Game Café. As shown in Table 1 and Figure 1, all participants ($n = 44$) agreed or strongly agreed with the statement “I am happy when I play board games at the Game Café,” indicating a uniformly positive emotional response.

Motivation-related responses were similarly strong, with 35 participants (79.5%) agreeing or strongly agreeing that gameplay motivated them to learn new things. Additionally, 24 participants (54.5%) agreed or strongly agreed that the Game Café provided opportunities to meet people, suggesting that engagement was supported by both individual and social dimensions. At the same time, variability was observed in response to the item “I met a friend or a new peer,” with 20 participants (45.5%) indicating agreement or strong agreement. This contrast suggests that while the Game Café is perceived as an environment conducive to interaction, the formation of new social connections may depend on individual participation patterns or pre-existing relationships.

Table 1. Responses to Survey Q6 about Students' Experiences at the Game Café.

Prompt	Strongly Disagree # (%)	Disagree # (%)	Neutral # (%)	Agree # (%)	Strongly Agree # (%)
a. I am happy when I play board games at the Game Café.	0 (0)	0 (0)	0 (0)	10 (23)	34 (77)
b. I met a friend or a new peer at the Game Café.	8 (18)	7 (16)	9 (20)	5 (11)	15 (34)
c. The Game Café provides me with an opportunity to meet people.	3 (7)	2 (5)	15 (34)	8 (18)	16 (36)
d. The Game Café provides me with an opportunity to develop my academic skills.	4 (9)	11 (25)	10 (23)	10 (23)	9 (20)
e. My experience at the Game Café has helped me with my coursework.	7 (16)	11 (25)	12 (27)	7 (16)	7 (16)
f. I am motivated to learn new things when I play board games.	2 (5)	3 (7)	4 (9)	12 (27)	23 (52)

Note: A total of 44 respondents responded to each prompt in Q6.

**Figure 1.** Responses to Survey Q6 about Students' Experiences at the Game Café.

Perceptions of academic relevance were more mixed. Nineteen participants (43.2%) agreed or strongly agreed that the Game Café contributed to perceived academic skill development, while responses to the statement “My experience at the Game Café has helped me with my coursework” were more evenly distributed across response categories. This pattern suggests that participants may differentiate between general engagement in learning-related activities and the direct applicability of those experiences to formal coursework.

6.3.2. Perceived Academic Skill Development (Competence)

Responses to Q7 indicated strong endorsement of perceived academic skill development across multiple domains. As shown in Table 2 and Figure 2, critical thinking was widely reported, with 31 participants (72.1%) agreeing or strongly agreeing that they developed this skill through gameplay. Verbal communication ($n = 35$; 81.4%) and collaboration ($n = 34$; 79.1%) were among the most strongly endorsed skills.

Table 2. Responses to Survey Q7 about Students' Perceived Learning Experiences at the Game Café.

Prompt (# of Respondents)		Strongly Disagree # (%)	Disagree # (%)	Neutral # (%)	Agree # (%)	Strongly Agree # (%)
a.	I learn critical thinking skills. (43)	1 (2)	0 (0)	11 (26)	8 (19)	23 (53)
b.	I learn verbal communication skills. (43)	0 (0)	2 (5)	6 (14)	9 (21)	26 (60)
c.	I learn writing skills. (43)	7 (16)	11 (26)	13 (30)	5 (12)	7 (16)
d.	I learn organization skills. (43)	6 (14)	4 (9)	8 (19)	9 (21)	16 (37)
e.	I learn time management skills. (43)	6 (14)	1 (2)	12 (28)	10 (23)	14 (33)
f.	I learn how to collaborate with peers/teamwork. (43)	1 (2)	4 (9)	4 (9)	7 (16)	27 (63)
g.	I learn problem-solving skills. (43)	1 (2)	1 (2)	4 (9)	15 (35)	22 (51)
h.	I learn how to be creative. (43)	0 (0)	2 (5)	9 (21)	12 (28)	20 (47)
i.	I think board games are a valuable tool for learning. (43)	0 (0)	0 (0)	6 (14)	8 (19)	29 (67)
j.	I learn other skills. (34) Please specify.	8 (24)	0 (0)	13 (38)	3 (9)	10 (29)

Note. Not all participants responded to every survey question. Percentages are calculated based on the number of respondents per prompt. Q7j: 3 people did not respond on the Likert scale but included a response to "please specify."

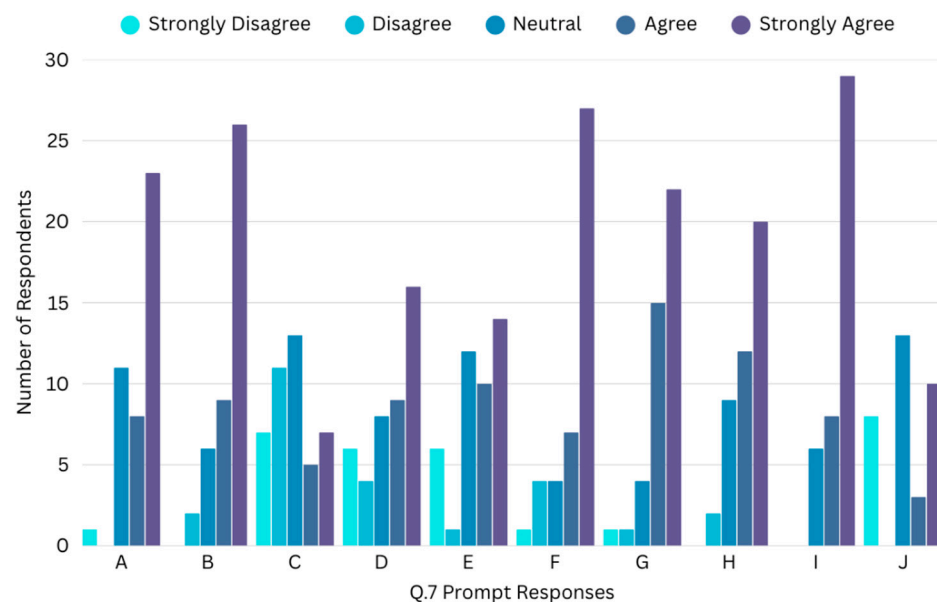


Figure 2. Responses to Survey Q7 about Students' Perceived Learning Experiences at the Game Café. Note: Not all participants responded to every survey question. Blank responses were marked as 'N/A' and have been excluded from figure data. Percentages are out of number of respondents per question.

Time management was also highly reported ($n = 36$; 83.7%), representing the highest level of agreement across Q7 items. In contrast, writing skills received more varied responses, with only 12 participants (27.9%) agreeing or strongly agreeing that gameplay supported development in this area.

This pattern suggests that participants more readily associate gameplay with interactive, problem-based, and socially embedded skills than with individual or discipline-specific academic tasks.

6.3.3. Social and Relational Experience (Relatedness)

Qualitative responses provided additional insight into the social and relational dimensions of the Game Café experience. Participants frequently referenced the development of social and communication skills (e.g., "responsibility," "social skills," "sociability"), as well as relational qualities such as "kindness," "patience," and "the value of friendship."

Open-ended responses further illustrated the range of skills and insights that students perceived developing through participation in the Game Café. Participants described perceived learning outcomes that included social and communication skills (e.g., “responsibility,” “social skills,” “sociability,” “making choices”), as well as cognitive abilities such as critical thinking, deductive reasoning, and risk calculation. In addition, several responses reflected motivational and affective dimensions of engagement, including “how to stay motivated” and “taking time to have fun.” Participants also identified personal and relational insights linked to gameplay, such as “the value of friendship,” “how to take a break,” and “kindness and patience.” These responses suggest that students associate the Game Café with a range of cognitive, social, and personal experiences.

These responses indicate that participants experienced the Game Café as a socially supportive environment in which interpersonal interaction and connection were central to the experience. At the same time, variability in survey responses related to forming new friendships suggests that the depth of relational engagement may differ across participants.

In addition to social outcomes, several responses reflected metacognitive and affective dimensions of perceived learning, including “how to stay motivated,” “taking time to have fun,” and “learning how to take a break.” These responses suggest that participants associate the Game Café not only with social connection, but also with broader forms of personal engagement and self-regulation.

6.3.4. Interest in Learning Workshops

In Part 2 of the survey, students were asked whether they would attend a workshop on how to use board games for learning; 31 students (70.45%) said yes, 11 (25%) said no, and the rest of the students did not reply. This majority interest demonstrates a strong openness to exploring the educational potential of games beyond informal play. When invited to elaborate, students who responded “yes” emphasized the social, creative, and skill-building aspects of such workshops. Their comments included: “It would be fun to learn a new game.” “I think it’s a great opportunity to build new skills outside of academic reasons.” and “If [the ASC] had interactive workshops in small groups to learn multiple games and have the chance to play.”

These comments reflect an interest in collaborative and experiential learning, where games function as both pedagogical tools and social connectors. In contrast, students who responded “no” most frequently cited time limitations, heavy course loads, or commuting constraints as reasons for not being able to attend, rather than disinterest in the concept itself. Some responses noted, for example, that “I have a very heavy course load” or “I’m kind of busy... but I do enjoy having time to play and work on mental health.” These remarks suggest that while the perceived value of the café and game-based learning is high, logistical barriers, rather than lack of motivation, pose the primary limitation to workshop attendance.

Overall, responses to Q6 reflected consistently positive perceptions of the Game Café experience, particularly in relation to enjoyment and motivation. Students most strongly endorsed items related to perceptions of positive affect and learning motivation, while responses concerning direct academic relevance and coursework support were comparatively more variable. Social engagement items also demonstrated mixed but generally positive trends, suggesting that students perceived the Game Café as a socially supportive environment, although the formation of new peer relationships was less uniformly experienced.

Overall, responses to Q7 indicated strong endorsement of students’ perceived academic and transferable skill development through gameplay. Participants most strongly have perceptions associating the Game Café with verbal communication, collaboration, problem-solving, and critical thinking skills; participants’ perceptions of writing skill

development received comparatively lower endorsement. These patterns suggest that participants perceived analog gameplay as particularly supportive of interactive, strategic, and socially embedded forms of learning. The consistently high endorsement of collaborative and communication-based skills further suggests that students perceived learning at the Game Café as both cognitive and relational in nature.

Taken together, the distributions across Q6 and Q7 reinforce the qualitative findings: students perceived the Game Café as an environment that simultaneously supported their enjoyment, motivation, social connection, and academic development.

7. Discussion

The findings from this study suggest that participation in the ASC's Game Café supported multiple dimensions of student engagement, motivation, and perceived learning within an informal, co-curricular environment. Quantitative findings revealed consistently positive perceptions across measures related to enjoyment, motivation, collaboration, and perceived skill development, while qualitative responses provided additional insight into how students interpreted gameplay as both socially meaningful and cognitively engaging. Collectively, these findings align with existing literature positioning game-based learning (GBL) as a potentially effective approach for supporting engagement, participation, and learning in higher education contexts (Crocco et al., 2016). As an exploratory study, these findings are intended to provide insight into students' perceptions of informal gameplay experiences rather than establish causal relationships between gameplay and academic outcomes.

Grounded in Self-Determination Theory (SDT), the findings suggest that the Game Café may have supported the psychological needs of autonomy, competence, and relatedness in ways that contributed to students' positive experiences. Within SDT, autonomy refers to the experience of choice and self-direction (Deci & Ryan, 2000). The voluntary and flexible structure of the Game Café appeared to support this dimension by allowing students to independently select games, engage at their own pace, and participate without the pressures typically associated with formal assessment. This interpretation is reflected in participants' consistently positive responses regarding enjoyment and motivation, as well as qualitative reflections emphasizing curiosity, relaxation, and self-directed engagement. These findings align with prior research suggesting that autonomy-supportive learning environments can strengthen intrinsic motivation and sustained participation (Reeve & Cheon, 2021).

The findings also suggest that students perceived gameplay as supporting competence through opportunities for strategic thinking, communication, and collaborative problem-solving. Participants most strongly endorsed skills such as verbal communication, collaboration, critical thinking, and problem-solving, while writing skills received substantially lower endorsement. This distinction is notable, as it suggests that students more readily associate analog gameplay with interactive and socially embedded forms of learning than with individual or discipline-specific academic tasks. Similarly, participants were more likely to endorse broad academic skill development than direct support for coursework, indicating that students may differentiate between transferable competencies and immediate curricular application. These findings reinforce the idea that informal GBL environments may support perceived cognitive and interpersonal development, even when those experiences are not directly tied to formal academic assessment.

Qualitative responses further demonstrated that students perceived the Game Café as more than a recreational space. Participants frequently referenced perceptions of experiences related to self-regulation, balance, motivation, and emotional well-being, including learning "how to stay motivated," "how to take a break," and "kindness and patience."

These perceptions may suggest that students associated participation not only with cognitive engagement but also with broader forms of personal and emotional development. Such findings align with literature emphasizing the role of informal learning environments in supporting holistic student success (Glaister et al., 2024).

The social dimension of the Game Café was also particularly significant. Participants consistently described the environment as socially supportive and collaborative, reflecting the SDT construct of relatedness, or the need to feel connected to others (Furrer & Skinner, 2003). Students frequently referenced friendship, communication, teamwork, and peer interaction as meaningful aspects of their experience. At the same time, variability in responses related to meeting new friends suggests that while the café fostered opportunities for interaction, the depth of social connection may have varied depending on individual participation patterns or pre-existing relationships. This nuance is important, as it demonstrates that social engagement within informal learning environments is not experienced uniformly across participants.

Importantly, the findings also revealed substantial interest in extending this form of learning through future programming. More than seventy percent of participants indicated interest in attending workshops focused on using board games to support learning and skill development. Participants emphasized the value of interactive, collaborative, and low-pressure learning opportunities, while those declining participation primarily cited logistical barriers such as time constraints and workload. This distinction suggests that limitations to participation may be structural rather than motivational in nature, highlighting the importance of accessibility and scheduling considerations when implementing co-curricular programming.

Taken together, these findings contribute to the growing body of literature examining analog GBL within higher education by providing insight into how students themselves perceive informal gameplay experiences. Existing research has largely focused on structured classroom implementations or younger populations, leaving comparatively limited understanding of how co-curricular gaming environments may support engagement, belonging, and perceived learning among university students. The present findings suggest that low-stakes, community-oriented GBL initiatives may provide meaningful opportunities for students to engage cognitively, socially, and emotionally outside the formal classroom environment. These findings further support emerging perspectives that co-curricular environments can function as meaningful extensions of student learning and development beyond formal instructional spaces.

8. Limitations

Several limitations should be considered when interpreting the findings of this study. First, the study employed a modest sample size drawn from a single Game Café event at one institution, which limits the generalizability of the findings beyond this specific context. Although the study provides valuable exploratory insight into students' perceptions of analog game-based learning within a co-curricular environment, the response rate and disciplinary distribution of participants may not fully reflect the broader student population. In particular, the sample included a higher proportion of students from Biology and related Life Sciences disciplines, which may have shaped the patterns of engagement and perceptions reflected in the findings.

Second, participation in both the Game Café and the survey was voluntary, introducing the potential for self-selection bias. Participants were already attending the event and may therefore have held more favorable attitudes toward gameplay, social interaction, or co-curricular engagement than students who chose not to attend. Additionally, the availability of pizza and optional entry into a gift card draw may have influenced participation. While

these incentives were intended to encourage engagement and increase accessibility, they may have contributed to differences between participants and non-participants.

Third, the study relied exclusively on self-reported perceptions rather than objective measures of academic performance or skill acquisition. Consequently, the findings reflect students' perceived experiences and perceived skill development rather than demonstrable gains in academic outcomes. Although participants frequently associated gameplay with competencies such as collaboration, critical thinking, and communication, no pre- and post-assessment measures, GPA correlations, or observational methods were used to determine whether these perceptions translated into measurable academic improvement. As such, the findings should be interpreted as exploratory and perception-based rather than causal or predictive.

Fourth, the use of listwise deletion during reliability analysis further reduced the effective sample size for Cronbach's alpha calculations. Although this approach was employed to improve the accuracy and interpretability of internal consistency estimates by restricting analyses to complete cases, the reduced number of responses may have influenced the stability of reliability estimates, particularly given the modest overall sample size. As such, the reported reliability coefficients should be interpreted as preliminary evidence of internal consistency within an exploratory research context.

Finally, the survey instrument used in this study was newly developed by the research team and has not undergone broader psychometric validation. Although the survey items were informed by existing literature related to game-based learning, motivation, and academic skill development, and internal consistency analyses demonstrated acceptable to strong reliability across scales, the absence of formal validation procedures limits the ability to fully establish construct validity. In addition, data collection was conducted by a single researcher during one Game Café event, which may have limited opportunities for participant recruitment and engagement. Institutional culture, campus resources, and event structure may also have shaped how participants interpreted and experienced the Game Café environment.

9. Future Directions

The findings of this exploratory study point toward several important directions for future research within the growing field of analog game-based learning in higher education. Given that the present study examined students' perceptions within a single institutional and co-curricular context, future investigations would benefit from expanding across multiple universities, student populations, and program types to examine how experiences with analog gameplay may differ across disciplinary, cultural, and institutional environments. Broader sampling strategies and larger participant pools may provide greater insight into the extent to which students from diverse academic backgrounds perceive game-based environments as supportive of engagement, belonging, and transferable skill development.

Future research may also benefit from incorporating longitudinal and multi-method approaches capable of examining relationships between perceived learning experiences and measurable academic outcomes over time. While the present study focused intentionally on students' self-reported perceptions, subsequent work could integrate observational methods, pre- and post-assessment designs, reflective learning measures, or correlations with academic performance indicators to further explore how students' experiences within analog gameplay environments intersect with broader dimensions of academic engagement and success. Such approaches may provide a more comprehensive understanding of how informal, co-curricular learning environments contribute to students' cognitive, social, and motivational development within higher education contexts.

In addition, further refinement and psychometric evaluation of the survey instrument would strengthen future inquiry in this area. Although the present study demonstrated acceptable to strong internal consistency across survey scales, additional procedures such as pilot testing, factor analysis, and cross-institutional validation may help establish stronger evidence of construct validity and reliability across diverse populations and learning contexts. Continued instrument development would also support more nuanced investigation into the distinct dimensions of motivation, relatedness, engagement, and perceived skill development associated with analog gameplay.

Finally, future studies could more directly examine how specific game mechanics, gameplay structures, or genres are perceived to support different forms of cognitive and interpersonal engagement. Participants in the present study engaged with a wide range of analog games that likely varied considerably in their strategic, collaborative, communicative, and problem-solving demands. Exploring these distinctions in greater depth may help clarify how different forms of gameplay are associated with specific dimensions of student experience and perceived learning within informal higher education environments.

10. Conclusions

The findings from this exploratory study suggest that the ASC's Game Café functioned as a meaningful co-curricular environment in which students perceived opportunities for motivation, social connection, and informal learning within the broader university context. Through both quantitative and qualitative responses, participants perceived an association between analog gameplay and positive emotional experiences, collaborative interaction, and the development of transferable skills such as communication, critical thinking, problem-solving, and teamwork. Importantly, students also described the Game Café as a low-pressure and socially supportive space that fostered enjoyment, balance, and engagement outside the formal classroom environment.

Grounded in Self-Determination Theory (SDT), the findings further suggest that the Game Café may support students' experiences of autonomy, competence, and relatedness through voluntary participation, collaborative gameplay, and opportunities for self-directed engagement. While the findings reflect students' perceptions rather than objective measures of learning outcomes, they nonetheless contribute to the growing body of literature examining analog game-based learning within higher education and extend existing scholarship into informal, co-curricular contexts.

The strong interest expressed in future game-based workshops further highlights students' desire for interactive, socially oriented, and accessible forms of learning beyond traditional instructional settings. Taken together, these findings suggest that co-curricular analog gameplay initiatives may represent a valuable avenue for supporting student engagement, belonging, and perceived academic development within higher education. As universities continue to explore holistic approaches to student success and well-being, informal game-based environments such as the Game Café may offer meaningful opportunities for cognitive, social, and emotional engagement beyond the classroom.

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Appendix A

Exploring Students' Perceptions of Learning Experiences at the ASC's Game Café
Paper-Based Survey

PART 1

Please answer the following questions:

1. What field/program are you in? _____
2. What is your year of study? _____
3. Have you visited the ASC Game Café prior to today? Please circle: Yes No
4. How long did you stay at today's Game Cafe? Please circle: PART 2:
More than 3 h
5. What board games did you play today? _____
6. Using the following scale, please circle the number that best explains your experience at the Game Café:

1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), 5 (strongly agree)

a.	I am happy when I play board games at the Game Cafe.	1	2	3	4	5
b.	I met a friend or a new peer at the Game Café.	1	2	3	4	5
c.	The Game Café provides me with an opportunity to meet people.	1	2	3	4	5
d.	The Game Café provides me with an opportunity to develop my academic skills.	1	2	3	4	5
e.	My experience at the Game Café has helped me with my coursework.	1	2	3	4	5
f.	I am motivated to learn new things when I play board games.	1	2	3	4	5

7. Thinking about your learning while playing board games at the Game Café, please circle the number that best explains your experiences:

1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree), 5 (strongly agree)

a.	I learn critical thinking skills.	1	2	3	4	5
b.	I learn verbal communication skills.	1	2	3	4	5
c.	I learn writing skills.	1	2	3	4	5
d.	I learn organization skills.	1	2	3	4	5
e.	I learn time management skills.	1	2	3	4	5
f.	I learn how to collaborate with peers/teamwork.	1	2	3	4	5
g.	I learn problem-solving skills.	1	2	3	4	5
h.	I learn how to be creative.	1	2	3	4	5
i.	I think board games are a valuable tool for learning.	1	2	3	4	5
j.	I learn other skills. Please specify:	1	2	3	4	5

Part 2

Please answer the following questions:

1. If the ASC offered workshops on how to use board games for learning, would you attend?
Please circle: yes no
Please explain using the provided space:
2. Do you have additional comments about the ASC's Game Café? Please explain using the provided space:

Appendix B

Students could select from the following games:

Anomia	Connect 4	Ion	Saboteur
Apples to Apples	Coup	Ito	Sea Battle
Azul	Covalence	Jenga	Sky Team
Bananagrams	Cytosis	Kanoodle	Spot It
Bohnanza	Deep Sea Adventure	Katakana	Splendor
Calico	Dominos x6	Love Letter	Sushi Go
Cards x2	Exploding Kittens	On the Dot	Taboo
Cascadia	For Sale	Onitama	The Crew
Catan	Gobblet	Peptide	The Mind
Chess	Guess Who	Periodic	Tsuro
Codenames	Honey Buzz	Quoridor	Wingspan
Concept	Horizons of Spirit Island	Railroad Ink	

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