THE PERCEPTION OF COMPUTER INFORMATION SYSTEM STUDENTS IN GEORGIA TECHNICAL COLLEGES ON GAMIFICATION

by

JASON P. BROWN

B.S., Georgia Southwestern State University, 1997

M.S., American Intercontinental University, 2006

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The perception of computer information system students in Georgia Technical Colleges on gamification

Jason P. Brown, *Middle Georgia State University, jason.brown1@mga.edu*

Abstract

This study investigates the perception of computer information system (CIS) students in Georgia Technical Colleges regarding gamified learning. The research examines the impact of gamification on student motivation and engagement through quantitative statistical analysis, utilizing a modified version of the Intrinsic Motivation Inventory. The findings revealed no significant difference in the perceptions of gamified learning between CIS and non-CIS students, although perceptions trended positively in both scenarios. However, among CIS students, the length of time in college showed a negative correlation, while hours spent playing video games each week positively correlated with perceptions of gamification. The study recommends that institutions within the Technical College System of Georgia (TCSG) proceed with implementing micro-credentials across all disciplines. Further research is encouraged to address the limitations experienced while exploring any longitudinal impacts of gamification and the influence of motivational styles on perceptions.

Keywords: gamification, computer information systems, motivation, engagement, technical colleges

Introduction

In 2021, TCSG received a Strengthening Community College (SCC) grant from the Department of Labor, which included the ability to award micro-credentials and digital badges (National Association of State Chief Information Officers, 2024). "Micro-credential pathways are short, focused course offerings that train and assess learners on specific skills and knowledge. They offer a flexible and efficient way for individuals to acquire or improve competencies in a shorter time than traditional degree programs. Micro-credentials can serve as milestones toward longer certificate, diploma, and degree programs" (National Association of State Chief Information Officers, 2024, p. 2). This offers learners the opportunity to display their accomplishments throughout their education experience before earning the final credential, and having a visible reference to share with family, friends, or potential employers helps with motivation and pride in achievements (Gish-Lieberman et al., 2021). Other tools such as leaderboards, points, and ranking can be used alongside badging in gamified courses to increase the desire to achieve, which leads to further engagement with the material and thus increased knowledge of the subject matter that educators ultimately strive for (Legaki et al., 2020).

This study will explore the impact of gamification on the motivation and engagement of Computer Information Systems (CIS) students within the learning environment of Georgia's Technical Colleges. Using a quantitative approach, the study will utilize an existing survey instrument to gather demographic information, academic details, and student perceptions of gamification methodologies. Once the data has been collected, it will be analyzed using both descriptive and inferential statistical tests. The study will also consider the diverse motivational styles of students and the potential psychological impacts of gamification. The findings will aim to provide insights into student perceptions of how effectively implemented gamified online learning environments will improve student motivation and engagement.

There has been a high attrition rate among students in Computer Information Systems (CIS) enrolled in Higher Education (HE) online learning programs over the eight years preceding the COVID-19 pandemic (Quille & Bergin, 2019). College-aged Americans comprise a significant portion of the gaming population, and 96% of all Americans agree that video gaming is beneficial to learning (Entertainment Software

Association, 2023). The addition of gamification and micro-credentialing has been shown to have a strong impact on student engagement and motivation (Chapman et al., 2023). There is an increasing demand for CIS professionals in cybersecurity, and this need is expected to continue growing over the next few years (Cybercrime Magazine, 2018). According to the U.S. Bureau of Labor Statistics (2022), the number of information security professional positions is expected to increase by 35% between 2021 and 2031.

The purpose of this study is to determine whether gamification in online learning at Georgia Technical Colleges affects the motivation and engagement of Computer Information Systems students. This research will answer the following questions:

RQ1: Do the perceptions of the effect of gamified learning on motivation in higher education (HE) differ between CIS and non-CIS students?

RQ2: What factors in CIS student demographics correlate with the perceptions of gamification?

Review of the literature

Gamification in education can take the path of full games that assist in learning or the use of techniques and elements from gaming methodology to make learning more enjoyable (An, 2023). Studies have been conducted across multiple levels of learning and in various subject areas to assess the effectiveness of these methods in increasing student motivation and enhancing their engagement (An, 2023; Chans & Castro, 2021; Chapman et al., 2023). With the sudden shift to online learning as a requirement during the COVID-19 pandemic, higher education institutions were forced to find ways to keep students engaged in courses that were not traditionally taught online to students who were accustomed to face-to-face classroom learning (Chans & Castro, 2021). This review of the literature aims to identify common themes in the existing research and synthesize the key ideas.

Benefits and challenges of gamification in higher education online learning

The use of gamification in online learning is beneficial for engagement and motivation, as it helps students achieve educational goals and provides learners with insights into their strengths and weaknesses within the online educational environment (Alzahrani & Alhalafawy, 2022). It provides learners with a more dynamic educational process and offers them immediate and relevant feedback on their work (Kaufmann, 2018). Gamification can enable learners to delve into areas or situations where they may not have felt comfortable or confident treading before (An, 2023). Their commitment to learning and completing the course increases when gamified activities are included (Chans & Castro, 2021; Lampropoulos & Sidiropoulos, 2024). With certain tools available to create a gamified environment, the interactive software will have the ability to customize the presented information for the end user and drill learners on materials they are struggling with for a more personalized experience (Alzahrani & Alhalafawy, 2022). For example, a student struggling with a specific concept may be returned to the material after a certain amount of time has passed to reinforce mastery. During the COVID-19 pandemic, students and instructors were forcefully thrown into online learning environments, leading to speedily and improperly created gamification situations, which initially yielded poor results (Chapman et al., 2023). The ability to retrospectively examine the problems caused by inexperience can be leveraged positively as a study of methods that do not work. Challenges are also found in other areas with the usage of gamification techniques, such as virtual classroom management, addressing varying student sensory patterns, issues related to potential boredom, activity levels of difficulty, lack of time to thoroughly complete tasks, negative emotions surrounding the online environment, and issues with home internet speeds that may arise (Alzahrani & Alhalafawy, 2022). Learners competing against peers may feel anxious in scenarios where progress is displayed, and this can also lead to fewer student-teacher interactions, which can cause frustration (Chapman et al., 2023). Clear and concise directions must be readily available to those participating in gamification, particularly within

asynchronous online environments. If this information is missing, the experience could result in frustration due to uncertainty about the next step or process (An, 2023).

Understanding motivational styles in educational gamification

Understanding how students are motivated in gamified educational settings is crucial for identifying effective methods and recognizing those that may lead to a further disconnection from the material being presented (Chapman et al., 2023). There are two dimensions that a course designer must consider: social motivators versus individual motivators and utility motivators versus accomplishment motivators. Four separate motivational profiles are defined: Citizen, Pragmatist, Gamer, and Achiever (Chapman et al., 2023). Citizen motivation is linked to group work and is considered to be a more social learner (Chapman et al., 2023). Pragmatists may be less likely to adopt new methods because they prefer working on more traditional assignments and quizzes (Chapman et al., 2023). Gamers are social, similar to the citizen profile, but with the added element of competition, as evidenced by classmates appreciating leaderboards on public display (Chapman et al., 2023). Achievers are self-motivated and look inwardly as autonomous learners, avoiding any external forces for engagement (Chans & Castro, 2021; Chapman et al., 2023). These profiles must be taken into consideration when designing educational gamification experiences, as they can be used to tailor these experiences to meet the needs of each different type of learner (Chapman et al., 2023). Providing attention and guidance to the population who may have never experienced a gamified course is crucial for fostering positive engagement (An, 2023). Students report that gamification used for certain assignments created a desire to complete them, in contrast to those not gamified (An, 2023). Creating gamified assignments that allow students to work in teams provides an opportunity for students to interact with their peers, fostering social connection while completing a task (Chans & Castro, 2021). Badging, whether expected or not, increased engagement in future assignments due to the feeling of accomplishment and positive feedback that resulted from receiving recognition (An, 2023). Creating these rewards for team activities, where members could share in receiving a collective badge, furthered the connectedness of the group (Chans & Castro, 2021). Learners tend to prioritize work in gamified courses over other courses because of the enjoyment and fun they experience (An, 2023). The ultimate goal is to engage students in activities that encourage them to be proactive in completing assignments rather than reactive due to the requirement (Kaufmann, 2018).

Psychological impacts on engagement in higher education online learning

Gamification in higher education online learning has been found to enhance engagement, increase motivation, and improve task completion (Kaufmann, 2018; Lampropoulos & Sidiropoulos, 2024). It provides a healthy escape from mundane tasks, reduces stress and discomfort, and greatly improves academic satisfaction (Kaufmann, 2018). In doctoral studies, gamification can positively impact the dissertation process by increasing focus and passion for academic research and writing (Kaufmann, 2018). Through gamification, students can enter a state of seamless concentration and enjoyment known as "flow," improving their engagement and concentration (Kaufmann, 2018). Providing learners with opportunities to work in a team setting while completing a gamified task enables them to engage in necessary social interaction, thereby mitigating feelings of isolation (Chans & Castro, 2021). The reward system provided by gamification can enhance feedback loops between students and instructors (Kaufmann, 2018). It is necessary to consider the mindset of learners who may have no prior course participation with a gamification theme to reduce anxiety and negativity toward the experience (An, 2023). However, learners may still experience isolation, which can lead to negative motivation and engagement, making gamification an equally disappointing experience as a non-gamified class (Chans & Castro, 2021). Time limits imposed for certain tasks may have a negative impact on learners who struggle with technological issues or who need multiple attempts to master the concept (Alzahrani & Alhalafawy, 2022). The COVID-19 pandemic has brought online learning to the forefront, and those who had negative experiences during that time may be mentally exhausted after dealing with the problems that came with this method of delivery (Irawan et

al., 2020). Although many learners and instructors have embraced online learning, the impact of fewer opportunities to interact in person has taken a toll on these specific parties to the point where even gamification may not be able to reverse this negative attitude (Irawan et al., 2020).

Methodology

Instrument

The instrument is a modified version of the Intrinsic Motivation Inventory (IMI) along with demographic information related to the study developed by the researcher (Center for Self-Determination Theory, n.d.). There are five constructs utilized for the study from the instrument. These constructs are 1) Interest/Enjoyment – 3 items, 2) Perceived Competence – 4 items, 3) Effort/Importance – 4 items, 4) Pressure/Tension – 3 items, and 5) Value/Usefulness – 4 items. Ostrow and Heffernan (2018) optimized the validity and reliability of the instrument's subscales using factor analysis and item reduction techniques. The instrument employs a 5-point Likert-type scale and utilizes the following scoring strategy: 5 = strongly agree, 4 = somewhat agree, 3 = neither agree nor disagree, 2 = somewhat disagree, and 1 = strongly disagree. See Appendix A for a copy of the instrument.

Subjects and procedure

The researcher created the survey using Microsoft Forms. The subjects were at least 18 years of age and currently enrolled in one of Georgia's 22 Technical Colleges pursuing a certificate, diploma, or degree. Approval for human subject research was obtained from the Institutional Review Board (IRB) at Middle Georgia State University, the Technical College System of Georgia (TCSG) IRB, and 9 of the 22 institutions. Based on the requirements received from the TCSG IRB, each school selected the method of dissemination. The selected options were to distribute the survey internally, through email requests to instructors for distribution via email or announcement, or directly emailing the students individually. The non-probability sample methods included both convenience sampling, which was influenced by the distribution methods selected and student availability, and voluntary response sampling, which was determined by the option to participate or not (Elfil & Negida, 2017). This resulted in a random set of respondents beyond the focused nature of the study itself. The researcher acknowledges the potential biases that can arise from sampling methods that do not fully represent the broader student population or from some demographic designators being underrepresented (Elfil & Negida, 2017). The usage of ANOVA in studies involving education and gamification is an indicator of the appropriateness of this test for the research being conducted (Orak, 2025).

Results

Using IBM SPSS version 29.0.2.0, the data retrieved from the survey responses were imported, converted to proper formatting, and analyzed (Knapp, 2018). Table 1 breaks down the participants' demographic information grouped by CIS students and non-CIS students. In response to the first research question regarding the perceptions of the effect of gamified learning on motivation in higher education between CIS and non-CIS students, the researcher selected a one-way ANOVA. By running a reliability statistical test, the average of all Likert scale questions was shown to be an appropriate calculation for determining overall perceptions, with a Cronbach's alpha of 0.973 (n = 18) and no recommendations for item deletion. The pre-test assumptions for N-quota and normality were not violated, but the homogeneity of variances was found to be in violation. This resulted in using Welch's ANOVA as an alternative because it does not assume equal variances (Laerd Statistics, n.d.). Results showed no significant difference between the groups, $F(1, 452.713) = 0.14$, $p = 0.907$. The mean motivation score for CIS students ($M = 3.80$, $SD = 0.97$) was similar to that of non-CIS students ($M = 3.79$, $SD = 0.87$), suggesting that perceptions of gamified learning on motivation had a similar effect across both groups.

Table 1: Demographic Breakdown

	CIS Students		Non-CIS Students	
	n	%	n	%
Sex				
Male	63	69.2	28	30.8
Female	190	51.6	178	48.4
Age				
Under 25	111	56.9	84	43.1
25 - 30	43	53.8	37	46.3
31 - 35	31	56.4	24	43.6
36 - 40	16	35.6	29	64.4
41 - 45	16	57.1	12	42.9
45 - 50	13	68.4	6	31.6
51 - 60	19	70.4	8	29.6
Over 60	4	40.0	6	60.0
College Background				
Dual Enrollment	6	42.9	8	57.1
First Year College	99	58.2	71	41.8
Second Year College	57	51.8	53	48.2
Three or more Years of College	33	55.0	27	45.0
Graduated and Returning	58	55.2	47	44.8
Video Game Play				
Never	118	52.0	109	48.0
1-2 Hours a week	56	54.9	46	45.1
3-5 Hours a week	39	54.2	33	45.8
7-10 Hours a week	21	65.6	11	34.4
More than 10 Hours a week	19	73.1	7	26.9
Participant in a gamified course				
Yes	75	60.0	50	40.0
No	178	53.3	156	46.7

To answer the second research question about what factors in CIS student demographics correlate with the perceptions of gamification, a multiple linear regression analysis was conducted using SPSS. Each of the demographic groupings was used while filtering for only CIS students. All pretest criteria were met for CIS students (N = 253) with *n* quota (n = 170), linearity displaying no violations or unusual arrangement, the outcome variable was within two standard deviations of the residuals satisfying homoscedasticity, predictor variables resulted in a VIF range of 1.056 to 1.536 indicating no problem with multicollinearity, and the average perception residuals showed normal distribution thus meeting the normality criterion (Knapp, 2018). Statistically significant results were observed, $F(5, 247) = 4.617$, $p < 0.001$, accounting for 8.5% of the variance in perceptions ($R^2 = 0.085$). Due to the number of independent variables (n = 5) used, Adjusted R^2 was substituted for variance reliability and the incorporation of multiple predictors (Adjusted $R^2 = 0.067$) accounting for 6.7% of the variance. College background ($\beta = -0.150$, $p = 0.025$) and the number of weekly hours spent gaming ($\beta = 0.277$, $p < 0.001$) were significant predictors of demographics influencing perceptions. Age ($\beta = 0.069$, $p = 0.317$), sex ($\beta = 0.077$, $p = 0.252$), and previous participation in a gamified course ($\beta = 0.010$, $p = 0.868$) did not significantly predict perceptions ($p > 0.05$). Student perception influence decreased based on the length of time in school, whereas the number of hours spent playing video games each week showed an increase in influencing perception.

Table 2: Multiple Regression Analysis

Predictor	Model				
	B	SE	β	t	p
Constant	3.303	0.434		7.62	<0.001
Age	0.033	0.032	0.069	1.002	0.317
Sex	0.174	0.151	0.077	1.149	0.252
College Background	-0.118	0.052	-0.15	-2.262	0.025
Video Games	0.211	0.054	0.277	3.952	<0.001
Previous Participation	0.022	0.131	0.01	0.167	0.868

N=253, $R = 0.292$, $R^2 = 0.085$, Adjusted $R^2 = 0.067$, ANOVA $F(5, 247) = 4.617$, $p < 0.001$.

Discussion

Implications

The research contributes to the body of knowledge by focusing specifically on technical college student populations, which may include a higher proportion of non-traditional learners. Considering the benefits, challenges, motivational styles, and psychological impacts of gamified learning was an essential foundation for developing the study. The awarded grant for micro-credentialing, combined with the lack of usage among institutions, also spurred the need for research. Despite the limitations identified during the process, the overall positive trend in perceptions of gamified learning among the studied sample suggests that students are receptive to this approach compared to traditional classroom learning methods. The results should encourage those in a position to make decisions about implementing the associated tools and design to move forward in planning and discussion with faculty. Exploring the pros and cons when dealing with the vast array of student demographics will be necessary, seeing how an increase in time in school can negatively impact perceptions, which may result in decreased motivation and engagement (Chapman et al., 2023; Kaufmann, 2018). Nonetheless, any TCSG institutions previously on the fence about implementing the solution offered by this grant can utilize the results of this study for justification in moving forward with modifications.

Limitations

Three significant limitations were experienced during this study. First, delays in the approval process across the differing institutions restricted the time for survey distribution and completion. The political factors embedded in the policies and legal framework for obtaining permission to conduct research are in place to ensure the safety of the subjects participating in the research. Adding these issues to the already condensed timeframe did not allow for a more focused effort to obtain an appropriate sample of respondents, which could potentially skew the results. Second, approximately 80% of the respondents were female, and most reported never having played video games. Females have been statistically shown to participate in surveys more frequently than males (Becker, 2022). Research indicates that this is true in the general population, but even more so among college and university students, which may account for the high rate of female participation in this study (Porter & Whitcomb, 2005). Despite this limitation, as the number of hours spent playing video games per week increased, the average perception also increased. The third limitation relates to the point-in-time and cross-sectional nature of the participating institutions, including how the survey instrument was distributed. Only 9 of the 22 schools allowed research, each with a different method of dissemination, resulting in an entirely voluntary approach that limited which students would potentially receive the link and decide to respond without considering historical opinions. The potential bias introduced by this sampling method is acknowledged and considered in relation to its potential impact on the outcomes.

Recommendations

Since the study found no significant difference in perceptions between students in CIS programs and those in other programs, it is recommended that TCSG move forward with implementing the micro-credentialing solution awarded through the grant at all institutions and across all areas of academia. Further research is recommended to address the limiting factors encountered during the study. Gathering opinions before and after experiencing gamified learning would reveal any changes in perceptions resulting from participation rather than hypothetical situations (Frame et al., 2015). A longitudinal study using the same participants as they gain experience could verify whether the decreasing perceptions observed in this research's data analysis are valid (Lampropoulos & Sidiropoulos, 2024). Including an instrument to determine motivational styles and incorporating the findings into the analysis could aid in future research by providing an additional factor to address skewness or outlier influence (Chapman et al., 2023). Requiring every student at all TCSG schools to participate in the survey would provide a more robust sample, eliminate the voluntary nature of participation, and mitigate any skewness in the number of participants among certain demographics. Repeating the process annually to assess whether perceptions change across all demographics over time, thereby strengthening the results, is also recommended.

Conclusion

The pandemic abruptly forced both instructors and students into a mostly unfamiliar learning environment, opening the door for experimentation with gamified courses (Alzahrani & Alhalafawy, 2022). The lack of student engagement discovered during this crisis caused educators to seek new or alternative methods to help motivate their students in the new reality (Chapman et al., 2023). The grant awarded to TCSG in 2021 served as a catalyst for bridging the idea behind micro-credentialing and exploring how the utilization of gamification in courses could impact student engagement. Having solid data available to decision-makers in Georgia's Technical Colleges may influence them to proceed with an implementation that incorporates findings based on perceptions.

This study aimed to discover if there were any differences between CIS students and non-CIS students regarding their perceptions of gamified learning. While the research showed no significant statistical difference between the types of students, the results did trend positively for the sample used in the average perceptions of gamified learning. These results reinforce the ideas found in the literature surrounding the theories presented on gamification being a stimulant for engagement and increased motivation among students from diverse backgrounds and program concentrations (Alzahrani & Alhalafawy, 2022; An, 2023; Chans & Castro, 2021).

The research also attempted to reveal any correlations between demographics and average perception among CIS students as predictors for perceptions. The sample of only CIS students showed how perceptions decrease with the number of years in college and increase with the number of hours spent gaming each week. The results were insignificant when using the other values in the analysis, which aligns with a study used in the literature review, providing evidence of a consistent influence among the studied demographics (Chapman et al., 2023). However, none of the studies focused specifically on CIS students, nor were there any large samples queried about their gaming habits. This study provides an analysis aimed at reducing a gap within the existing body of knowledge. Further research into this area, as specified in the recommendations, could help validate the results and lead to studies beyond the restrictive scope used to obtain respondents.

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Appendix A – Survey Instrument

Certification for participation

1. Are you 18 years of age or older? (All participants must be 18 years old or older to participate in this study.)
   - Yes
   - No (You will not be able to participate in this study)

2. Are you enrolled in one of the 22 Georgia Technical Colleges in a Certificate (TCC), Diploma, or Degree Program? (Each participant must be a current TCSG student to participate in this study.)
   - Yes
   - No (You will not be able to participate in this study)

Consent Form
To move forward in this study, you must read and agree to the terms below.

Purpose and Background
This research study aims to determine whether student perceptions of gamification in online learning will affect the motivation and engagement of Computer Information Systems students at Georgia Technical Colleges. It will also provide data as to whether certain demographic information can be predictors for these perceptions. The researcher, Jason Brown, is a graduate student at Middle Georgia State University conducting research for the Doctor of Science in Information Technology program. You are being asked to participate in this study because you are currently enrolled as a student in a certificate, diploma, or degree program in one of the twenty-two Georgia Technical Colleges. Any current student enrolled in a TCSG college should participate, not just CIS majors.

Procedures
After agreeing to the terms below, you will be presented with a few demographic questions followed by questions on a scale of 1 - Strongly Disagree to 5 - Strongly Agree. The entire survey should only take you about ten minutes to complete. After submission, you will be presented with a link to a separate form to submit your email address to be notified once the research has been published.

Risks
There is minimal to no risk in participating in this study. No names or identities will be gathered and only aggregate data will be used in any published reports of the research. Only the researcher will have access to the research data.

Confidentiality
The research data will be encrypted and stored where only the researcher will have access to the data. Three years following the conclusion of the study, all gathered data will be permanently deleted.

Benefits and Costs
There will be no cost to you to participate in this research. There will be no direct benefits to the participant. There will be no compensation for participating in this research.

Questions
If you have any further questions about the study, you may contact the researcher by email at jason.brown1@mga.edu or phone at (678) 561-4775. Questions about your rights as a study participant, or comments or complaints about the study, may also be addressed to the Office of Research and Sponsored Programs at (478) 471-2743 or irb@mga.edu.

Consent

PARTICIPATION IN THIS RESEARCH IS VOLUNTARY. You are free to decline to participate in this research study, or to withdraw your participation at any point, without penalty. Your decision whether or not to participate in this research study will have no influence on your present or future status at Middle Georgia State University. You must be 18 years of age to participate in this study.

3. By selecting "Yes," you are confirming that you have read and understand the statements above, you are giving your informed consent and agree to participate in this study.

- Yes
- No

Demographic Information

4. Are you currently seeking a certificate, diploma, or degree in a Computer Information Systems program (select one - required)?

- Yes
- No

5. What is your age (select one)?

- Under 25
- 25-30
- 31-35
- 36-40
- 41-45
- 46-50
- 51-60
- Over 60

6. What is your sex (select one)?

- Male
- Female
- Other

7. What is your college background (select one)?

- Dual Enrollment (Have not graduated High School)
- First Year College Student (Never attended college before)
- Second Year College Student (Never attended college before)
- Three or more years in College (Never attended college before)
- Graduated from college and returning (Obtained a certificate, diploma, or degree)

8. How often do you play video games (select one)?

- Never
- 1-2 hours a week
- 3-5 hours a week
- 7-10 hours a week
- More than 10 hours a week

Gamified Learning

Gamified learning applies game-like elements to educational settings to make learning more engaging and motivating. By incorporating aspects of games into learning experiences, students often feel more involved and encouraged to achieve their goals. Here are some common elements used in gamified learning:

- Micro-Credentials: Small certifications earned by completing specific tasks or mastering a skill. They can be thought of as mini qualifications that show progress.
- Badges: Visual tokens or icons that represent achievements similar to completing a level in a game. These can be collected throughout a course.
- Leaderboards: A system of ranking where students can see their position compared to others. It fosters healthy competition and encourages improvement.
- Points Systems: Students earn points for completing activities or demonstrating skills. These points track progress and can often lead to rewards or recognition.

Other options like time-based incentives, progress bars, quests, and unlockable content can be used in a gamified course. Students receive immediate, personalized feedback after completing tasks or skills which enhances engagement and helps students feel supported in their learning journey.

9. Have you ever participated in a course that is gamified (example: uses leaderboards, quests, badges, or micro-credentialing) (select one)?

- Yes
- No

Selections for the following questions:

- Strongly Disagree
- Somewhat Disagree
- Neither Agree nor Disagree
- Somewhat Agree
- Strongly Agree

10. I feel that using games in class would make learning more enjoyable.
11. I believe learning through games would hold my attention better than traditional methods.
12. I imagine that I would find learning through games to be very interesting.
13. I feel confident that I could learn effectively through games.
14. I think I would perform well in a gamified learning environment compared to other students.
15. I believe that I would feel competent in my abilities if I were to learn through games.
16. I believe that earning credentials like badges helps me to demonstrate subject mastery.
17. I think I would put more effort into learning if games were used in class.
18. I believe using games in class would make me want to try harder to learn.
19. I think learning through games would make it more important for me to do well in class.
20. I believe leaderboards are an effective way to motivate student learning.
21. I think I would feel less nervous about participating in class if games were used.
22. I believe learning through games would make me feel more relaxed in the classroom.
23. I believe competition in a gamified learning activity motivates me to do my best.
24. I believe that learning through games would be a valuable experience.
25. I think using games in class would be useful in computer information systems courses.
26. I believe that using games in class is an important way to make learning more engaging.
27. I think that learning through games would help me develop important skills.