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Enhancing Student Engagement through Social Media-Based Gamification in a UI/UX Design Course

Sonia Sahli[1], **Denis Gillet**[2]
[1]SIME Lab, ENSIT, University of Tunis, Tunis, Tunisia, [2]School of Engineering, Ecole polytechnique fédérale de Lausanne (EPFL), Switzerland.

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Abstract

Nowadays, incorporating innovative teaching methods that enhance student engagement has become increasingly crucial. In our study, we examine a new pedagogical practice which relies on gamified formative peer assessment and social media to improve student engagement and digital skills in higher education. The approach was implemented and validated with 300 IT students in a UI/UX Design course. Students were requested to design high-fidelity wireframes as part of a project, which were posted on Instagram, where followers voted for the best wireframe using Instagram's poll feature. The wireframe with the most votes was awarded, adding a competition aspect to gamification. These results show a significant impact on student engagement. High level of interest was confirmed on Instagram. Students expressed excitement about using social media as part of the course and valued the move away from a teacher-centred pedagogical approach.

Keywords: *Gamification; Social media; Student Engagement; UI/UX Design.*

1. Introduction

Gamification in higher education involves integrating game-based elements, such as rewards, challenges, and interactive activities, into the learning process, such as formative assessment, to enhance student engagement and motivation (Alsawaier et al. 2018). By leveraging principles of game design, this approach transforms traditional educational experiences into dynamic and immersive environments (Subhash et al., 2018). It can positively influence students' academic performance, engagement, and motivation. Therefore, it's important to further explore the needs and challenges that students encounter when learning through gamified approaches (Manzano-León et al., 2021). Rewards, as a key constituent of gamification, play a central role in maintaining student motivation by providing tangible recognition for their achievements. These incentives, whether in the form of badges, points, relevant gifts or other rewards, substitute a

sense of accomplishment and encourage continuous participation. By aligning rewards with learning objectives, educators can reinforce positive behaviors and sustain engagement throughout the learning process (Sahli & Spriet, 2023).

Despite extensive proliferation of social media in different domains, the use of social media in higher education is not well documented (Barrot et al., 2021). Chugh et al. (2021) highlight that higher education academics must become more aware of and accustomed to using social media as a professional tool rather than merely a personal platform. The study by Al-Rahmi et al. (2022) emphasizes that the integration of social media in education enhances students' motivation for learning and facilitates peer interaction. The research also highlights those factors such as performance expectancy, effort expectancy, and the individual's social and technological characteristics positively influence the use of social media, thereby improving academic performance and increasing task-technology fit. Interactive elements on social media platforms like Instagram play a significant role in enhancing user engagement and facilitating dynamic communication. Instagram is interesting thanks to its social features, such as posting stories, voting, polls, and quizzes offer users new ways to interact, collaborate, and share knowledge. For example, polls and quizzes can be used to reinforce content in a fun and engaging way, allowing user to participate actively in discussions and real-time interaction. Instagram offers accessible and dynamic platforms for sharing educational content. The visually engaging and interactive features make it effective tools for capturing students' attention and encouraging learning (Lee, 2023). But not all teachers are open to adopting Instagram into their educational tradition, often perceiving it as too informal. However, the study of (Richter et al., 2022), identified three profile types of teachers, teachers with a greater enthusiasm for teaching were more likely to use Instagram for information seeking, while those with higher levels of self-efficacy were more inclined to share content.

Instagram, with its diverse and visually engaging content, plays a significant role in enhancing creativity, particularly in design education. The platform’s emphasis on aesthetic presentation encourages students to produce high-quality work, knowing it will be shared publicly and viewed by a broad audience. As demonstrated in the study by Salehudin et al., students are capable of developing their own digital visual aids when sharing them on Instagram. This highlights the impact of creative online learning through Instagram on students' ability to create new products in the Technology and Learning Media course (Salehudin et al., 2021).

This paper addresses the following overarching research question: “Can the use of poll tools on Instagram, in an educational context enhance learning outcomes and student engagement?”. We contribute to answering this question by introducing the Instagram polling tool, an interactive digital element, to personalize peer assessment experience in computer science education, that allows students and peers to engage with a UI/UX design course in a less formal manner while continuing pedagogical activities.

This paper is divided into four parts. Section 2 provides a description of the research settings. The third section is devoted to analyzing and discussing the results. Finally, the last section summarizes the main conclusions of the work and perspectives.

2. Research settings

This study aims to evaluate student engagement and motivation through a social media-based gamification activity for peer assessment in a UI/UX Design course offered to IT students specializing in System Development at the higher institute of technological studies in Sousse. The course is held during the first semester of the third year of the Bachelor program and has a total course duration of 12 weeks, with 7 bi-monthly sessions of 3 hours. The session is reserved for evaluation. The UI/UX design course follows a project-based learning methodology and is structured around iterative design stages. enables students to design and present solutions to practical challenges.

As shown in Figure 1, the first five sessions focus on understanding and applying user research techniques, such as persona creation and empathy mapping, to define user needs and emotional responses, then carrying out UI/UX benchmarking to analyze competitors and identify design opportunities, followed by information architecture development through sitemap creation and finally designing high-fidelity functional wireframes and interactive prototypes using free wireframing tools, such as Figma. The 6th session focuses on a small design project to provide students with the required skills to create high fidelity functional prototypes while going through a full real-world design process. Each student has to design during the week a mobile or web application prototype and deliver a final high-fidelity prototype ready for client presentation. The applications to be designed are proposed by the instructor. It could be applications such as a real estate agency application, a fitness center application, a platform for electric vehicle charging stations, or a flight ticket price comparison application. The one-week small design project timeline emphasizes efficiency and adaptability, simulating the fast-paced nature of professional UI/UX design tasks. The 7th session is dedicated to the presentations by the students of the outcome of their individual project, in the form of high-fidelity wireframes. The presentations are public and structured as a defense. Each student presents their work using a video projector in front of the instructor and their peers. Each presentation is allocated 20 minutes, ensuring sufficient time for discussion and feedback. These presentations are part of the evaluation. For this study, the new gamified assessment process relying on Instagram is introduced after the presentation session.

Short one-minute videos of each small design project are submitted by volunteer students to the educator. Then, the instructor shared them on her Instagram story account (about 1000 followers), labeling each entry with a unique identifier number for easy reference. Next, she initiated a voting process, inviting all peers and followers to participate in selecting the best

projects, using Instagram's poll functionality. The challenge lasts 24 hours, adhering to Instagram's story duration. After the voting period, the instructor shared the results and announced the top three winners as visually appealing stories designed by the professor highlighting the students' ranking podium. The winning videos were reshared on the instructor's account to further celebrate the students' success. Additionally, a dedicated story was posted to congratulate the winners and to announce the significant rewards associated with their achievements.

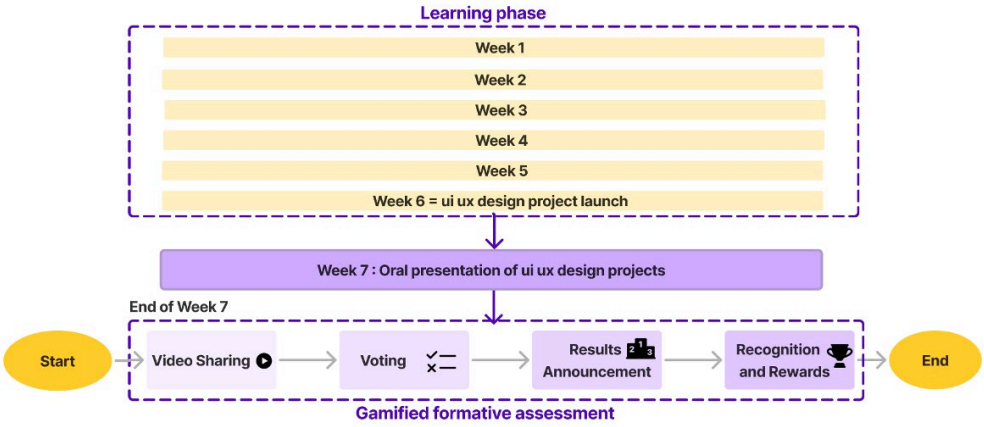

Figure 1. Timeline of the course.

The experiment was carried out over two academic years to assess the impact of integrating gamification and social media into the learning process. Overall, 300 IT students (124 male, 176 female) were involved in the studies. 120 students in 2023 and 180 in 2024. Each year, students were getting the course per group on a different week day.

3. Research data and outcome

The impact of the proposed pedagogical approach and the additional gamified formative assessment is based on the data collected at the end of the course on Instagram related to the videos posted and the associated votes across the different stages of the gamified peer assessment, including the post of an introductory story, the launch of the activity presented as a challenge on a specific subject, the posting of students' videos stories and the voting phase. The following parameters were taken into account: accounts reached and views, navigation and interaction behavior, and votes.

3.1. Account Reached and Views

Considering that accounts reached indicate the number of unique users who have consulted the story, while views reflect the total number of times the story has been consulted, including repeated consultations by the same users. Figure 2 provide a comparison of accounts reached and views during the different phases of the Instagram stories on the teacher account. Compared to the regular story phase, there is a noticeable increase. The highest engagement rate was observed during the presentation phase of the videos submitted by the students, with 1,038 unique accounts reached and 1,590 total views. This could indicate strong interest from followers, suggesting the personalized and interactive nature of the content. The launch of the challenge also saw a notable level of engagement, confirming the initial interest generated among students and followers. In contrast, normal day stories without content directly related to the challenge had the lowest range and impressions, suggesting that content focused on the challenge has a significantly higher impact on audience engagement. The voting phase showed balanced engagement, indicating continued interest.

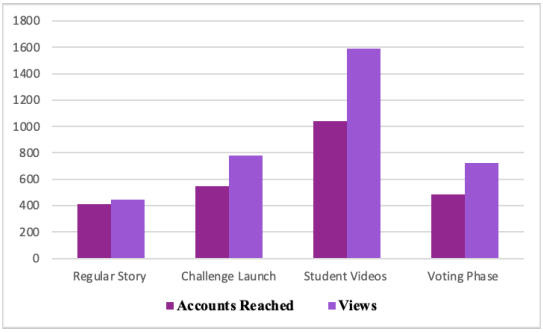

Figure 2. Comparison of accounts reach and impression.

3.2. Navigation and Interaction Behavior

To begin with user navigation behavior (exits, next story taps and back taps). Exits is the number of users who left the story during each phase, next story taps is the number of users who proceeded to the next story and back taps the number of users who returned to the previous screen or story. User navigation behavior provides insight into content retention and interest.

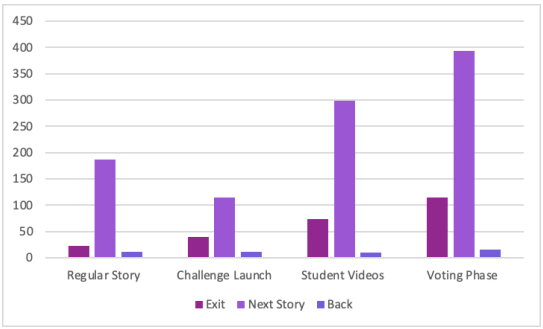

Figure 3. Comparison of user navigation behavior.

As seen in Figure 3, the regular story phase has a high engagement rate with many users proceeding to the next story, indicating that the content is compelling. The high engagement rate during the regular story phase indicates that the content is succeeding in capturing users' interest, encouraging them to continue. However, the increased exit rate during the challenge phase implies that some users may find the challenges less engaging or potentially difficult to complete. This could highlight the need to optimize challenge design to maintain user interest. The voting phase has the highest exit rate, but also the highest engagement in terms of progression, suggesting a polarized response.

3.3. Analyzing of voting

With the goal of selecting the best video using Instagram polling feature. For the same subject and the same group, each volunteer student submitted their video, and the submissions were curated into four options per story, adhering to Instagram's limit for poll choices. A poll between four posted videos on a specific subject corresponding to what we refer to as a challenge. Instagram poll was then created with a predefined audience, including peers, educators, and external participants. Ten UI/UX design subjects were proposed by the educator for which the corresponding data are shown in Figure 4.

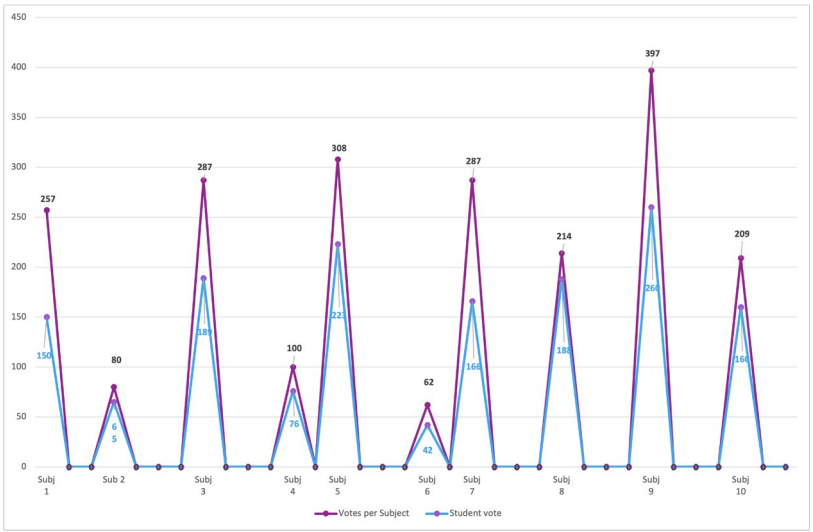

Figure 4. Comparison of votes by students and others (each data correspond to a specific subject).

The data provided represents the number of votes per subject (Subj) and the corresponding student votes. It indicates the level of user engagement during the voting phase focusing on both student and follower participation.

Key observations reveal that videos from subject 9 achieved the highest engagement with 397 votes (260 student votes), closely followed by subject 5 with 308 votes (223 student votes). Data from subjects 2, 4 and 8 were moderately engaged, while datasets 3, 7, 1 and 10 showed progressively lower engagement, with dataset 6 being the least engaged with 62 total votes (42 student votes). This indicates a clear disparity in engagement levels between datasets, with the best performing subjects attracting significantly more interest from students and followers. Subject 9 entitled SonyCupCake, a mobile application for personalized cakes. The high number of votes can be attributed to the nature of the female-focused subject, combined with a group composition of 83% female participants.

The experimental results show strong student engagement, as shown in the graph with an average of 220 votes per subject, highly above the average size of the group assigned to a challenge (average 20 students). This indicates active student participation, particularly in the highest performing subjects (9 and 5). However, the relatively low number of follower votes compared to the size of the potential audience suggests that there is room to improve engagement with external audiences. Given that the Instagram account is relatively new, this is to be expected and future experiments are likely to see an increase in follower engagement as the account grows. Notably, a significant proportion of non-follower votes came from former students (from the last two years), indicating that the projects have generated substantial interest even beyond the current cohort of students. In addition, targeted strategies to convert non-

followers (particularly alumni) into followers could be implemented, leveraging their interest to create a stronger community around the account.

4. Conclusions

In the context of non-traditional teaching, the use of social media platforms has emerged as a new method of increasing student engagement. We evaluated the impact of our pedagogical approach of gamified formative peer assessment through the Instagram social network.

The educator has been recognized for being the teacher who shares their students' work on Instagram. Initially, this practice was implemented to showcase students' academic achievements and creative productions, in line with contemporary pedagogical strategies that emphasize the recognition and validation of students' efforts. It is interesting to note that this initiative has exceeded its initial objective. Students now proactively request that their projects and presentations be recorded and shared on this platform. This reflects their appreciation of the value of public recognition in developing a sense of achievement and improving their personal effectiveness. It also gives them the opportunity to disseminate their work beyond the classroom, bridging the gap between academic learning and real-world applications.

The high rate of engagement from followers also highlights that the experiment was able to reach and engage an external audience, which is an essential measure for assessing the wider impact of such initiatives. However, certain limitations must be acknowledged. The Instagram algorithm may influence the visibility of stories, potentially affecting the reach and fairness of the voting process. Additionally, students may vote without thoroughly analyzing the videos, and some votes could be influenced by the popularity of participants, particularly those with a large number of followers, rather than the quality of their work. Despite these limitations, the results highlight the potential of integrating social media platforms into educational assessments to foster engagement.

In conclusion, integrating social media, especially Instagram, into the educational process can serve as a powerful tool for student engagement. This method challenges traditional pedagogical paradigms and redefines the teacher's role from a transmitter of knowledge to a facilitator of collaborative and active learning experiences. It not only enhances the learning experience but also promotes key new skills such as digital literacy.

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