

# Gamification In Arts Education: A Modern Teaching Strategy

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**Abstract**– In various other fields including education, gamification, the use of game elements in the non-game context, has become more and more popular. Gamification has proven to be a novel and engaging way of teaching and learning in the field of arts education. This paper offers an analysis into how gamification may be used as a contemporary teaching method in arts education. Based on literature about gamification in education and art teaching, method of incorporating gamified components into arts curricula is described, the results from first case study are reviewed, and limitations and consequences of spreading such an idea are discussed. The results indicate that gamification could improve student engagement, improve the quality skill acquisition and add to an interactive and immersive learning experience in arts education.

**Keywords**– Gamification, Arts Education, Teaching Strategy, Student Engagement, Creativity, Learning Outcomes, Educational Games, Curriculum Design, Motivation, Collaborative Learning.

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## I. INTRODUCTION

Over the years, gamification has been an increasingly popular strategy to integrate into education, and it has been applied in all types of mathematics, science, and language arts. Despite that, its applicability in the arts education area has not been well explored. In traditional arts education, the approach is much more skilled development, creativity, and personal expression through hands on practice, but alas to engage students in a dynamic and interactive way. While the educational landscape is changing, more and more are interested in adopting new teaching tools to meet the needs of the diverse learning of students. Gamification is one such strategy which is to apply game like qualities like points, rewards, challenges and competition in non-game contexts for motivating people, keeping them engaged and improving learning outcomes [2]. The introduction of game mechanics in the learning environment helps to make learning an engaging and interactive environment where students will want to actively participate, take risks and develop their artistic abilities in brand new and exciting ways. Arts education, brought out again on games, could introduce such game elements as progression, challenges, leaderboards, and rewards that would turn arts education from a passive to active experience, which would provoke the students to develop their creative boundaries. Therefore, gamification has multiple values in arts education. It can also enhance intrinsic motivation and can help build student's collaboration and communication skills in the arts, which are vital competences. Building such a sense of community in the classroom is possible using collaboration of various kinds – such as team challenges, group competitions – to help students learn from one another and put their interpersonal skills to the test. It also offers the personalization of learning experience through rewarding progress by unlocking rewards or reaching milestones according to individual achievements. Such a situation can enhance students' satisfaction as they attempt to set creative goals [10].

Gamification has been applied in general education but the impact of it on arts education has not been researched much. Consequently, this paper examines how gamification can be employed on an arts curriculum to its possible benefits and setbacks. Existing literature on gamification and arts education,

along with a methodology for application of gamifying in arts classroom and results of a case study investigating effects gamification has on student engagement, creativity and learning outcomes, will be discussed in the paper. Through this research, the paper aims to contribute to the growing body of knowledge on gamification in education and provide valuable insights for educators seeking to modernize their teaching practices in the arts [3].

#### *Novelty and Contribution*

According to this paper, gamification is a modern teaching strategy with ample potential in practicing arts education context, as it contributes to the field of arts education with an exhaustive examination of gamification applied. To date, gamification has been thoroughly explored in other fields of educational use, but the use of gamification within arts education is still quite novel [5].

The novelty in this study is specifically narrowed down to the art's educational component where creativity and self-expression are hallmarks of the learning process. Often, gamification has been studied for learning about knowledge retention and skill-based learning, such as a subject of mathematics or science. Finally, this paper also adds empirical data of the case study with secondary school students. This is one of the first pieces of research to gamify a visual arts course and evaluate the effectiveness through a qualitative as well as quantitative method. The study results are useful to determine how gamification changes the motivation, collaboration, and creativity of students and to explain why game elements contribute to the learning experience in the arts [13]. Additionally, the paper presents a practical guide to educators who would like to incorporate gamification in the classroom. This research suggests ways to gamify the specific game mechanics and strategies for easy adaptation to different arts subjects at various levels and disciplines, hence, offering a framework for the introduction of gamified elements into teachers' curricula. Besides providing theoretical contributions to the understanding of gamification, this study offers practitioners' ideas in methods to innovate their teaching and to build learning environments as more interactive and engaging to their students. Finally, this research expands the body of literature as students seek to gamify education and prepares for other studies to seek the long term impacts of gamification on student outcomes in the arts. The proposed gamification is a valuable tool that provides modernization of arts education and can improve the educational experience and educational development of students [4].

## **II. RELATED WORKS**

In 2021 E. Latypova et.al., V. Kozmenko et.al., and S. Toktamysov et.al., [11] introduced the despite the wide range of explorations into the application of gamification in education, the integration of gamification itself in arts education seems to be a rather new and underexplored area. Gamification has proven itself as an effective method to enhance student engagement, motivation, and overall learning results in global studies. With this as the educational landscape has been evolving, educators have started to recognize gamification as an appropriate tool in addressing gaps that come up during more traditional arts instruction in terms of engagement and creativity.

Gamification has been studied in several ways for its effect on student motivation and engagement in a general education setting. The indication of point scoring, leaderboards, rewards and challenges were the game element in these studies leading to a rise in participation, sense of achievement and overall intrinsic motivation of the students. These game mechanics were positive in providing learning to be more interactive and enjoyable which ultimately led to greater levels of involvement and commitment for the subject matter. In addition to making students more active participants in the learning - not mere receptors - they expressed more enthusiasm and sustained interest in the content being learned [7]. Traditional games are structured, competitive games; but by nature, the arts emphasize creativity, expression, individual style; so, the arts and traditional games are antithetical to say the least. However, this potential tension between gamification and that which is aimed at developing the creative powers of students should not weaken the willingness to use gamification to inspire students to experiment, to engage and take risks, which are key to creative process. As an example, I can mention the implementation of the creative challenges that aim to make students unlock the rewards after they complete certain artistic

goals. The just stated challenges can be correlated to the learning objectives of the course at the same time granting students chances to portray their creativity in ways that will not be practicable within the traditional classroom setting. Furthermore, the gamification in arts education takes place beyond individual achievement. Gamified teaching models are also identified as those which include collaborative tasks and team challenges. It is found that group-based projects that get students to work together to solve creative problems and get rewarded as a teamwork better to build up teamwork, communication and problem-solving skills. In the arts education, particularly peer feedback and collaborations, are crucial elements because in the development of artistic abilities. Gamification can help develop community and shared learning in the environment of collaboration of students instead of their competing with each other. In 2023 M. C. Serrano et.al., [1] suggested the advantage of gamification is that it can respond to students immediately with feedback. Grading systems traditionally focus on delayed and general feedback that might be demotivating, especially in the creative arts, since it is easy to evaluate such subjects subjectively. Unlike other ways of learning, gamification gives the students instant feedback and thus they learn by evaluating the progress and identifying the areas for improving and adapting the approach set in real time. In arts education, particularly, the immediate reinforcement can be especially helpful if, for example, students are lacking self-confidence or fear of failure. Despite the promising results of gamification in other academic contexts, Reducers should consider gamification in arts education. Applying game mechanics like competition, scoring and leveling, can in fact be misused and outplay such concentration on extra virtues, distractive from creative source. In arts education where personal expression and originality are the focus line of thought, the possibility exists that students too may concentrate more on the point or reward system and focus less on the development of their skills and exploration of their creativity. Consequently, the design of gamified elements needs to be carefully considered and be mindful not to overtake but instead support core educational goal of the arts curriculum. Besides that, the students' learning style differs, and their artistic ability differs. In gamification in arts education, we must make adaptations according to the learning experience of the students; artistic background and learning preference options. Take for example, your gamified system could fit perfectly well for qualified art students at an advanced stage of learning but not meet beginners' needs who may need more foundational support and guidance. As such, the design of gamified curricula must be flexible enough to accommodate students at various skill levels, ensuring that all learners are able to benefit from the gamified approach. In 2021 L. Guerrero-Puerta et.al. and Miguel. A. Guerrero et.al. [6] proposed the aspect of gamification and the teacher implementation of the same is of utmost importance. Gamification works only when educators plan the assignments, challenges and rewards well, all these should be in line with the curriculum, but there should be a balance between game aspects and learning goals. Teachers also have to provide all the support needed to students to understand game mechanics and what they signify in terms of the learning process. For gamification to be effective in arts education, the instructor must in addition serve as a facilitator of creativity as well as a guide who helps students to determine how game dynamics mix with artistic development. Despite all these challenges, research suggests that gamification can be a very useful thing in arts education for students, to get new ways to work with the material, to develop their abilities and work together with their peers. However, more research is needed to really explain its effect, as initial studies show that gamified learning environments can possibly increase student satisfaction, due to increased creativity and increased motivation. Future studies in gamification in arts education will help to explore the best practices in gamification used in art education; refine gamified teaching strategies and integrate gamification efficiently into the arts curriculum. How the game elements can be adapted to specific requirements of the art students will be studied and their influence on the creation, collaboration and learning outcomes will be investigated in order to contribute to the improvement of teaching and learning of the arts by the researchers.

### III. PROPOSED METHODOLOGY

Through a multi-step approach that involves the use of game-based elements in arts curriculum, the proposed methodology for the integration that can be used in the practice of gamification in arts education is made. It aims to enhance students' engagement, creativity and collaboration, while making sure to fulfil education objectives correctly. Designed while gamifying an arts curriculum, this section describes games mechanics development, assessment design, and gamification into classroom activities [8].

#### A. Curriculum Design and Gamification Strategy

First, the first step in the methodology is to create a gamification-based curriculum. First, it starts by defining the basic educational goal of the arts course: the development of skills, artistic expression and cooperation. Then, integrate the game mechanics that will lead to enhancing the goals set. Points, badges, leaderboards, challenges and rewards are considered the key game mechanics. These elements will be designed to provide immediate feedback, motivation, and competition and collaboration.

The curriculum will have a series of milestones and achievements that students can take part in one at a time as they go through the course. These milestones will have the task to coincide with certain learning outcomes, that is, that the students are not only working on the game mechanics but also achieving the goals of education. Along with this, the curriculum will involve creative challenges which will force students to go out of the box and into the limits of the artistic. The challenges along the way will be different, depending on how difficult and complex they are and thus will give students a chance to demonstrate their skills and creativity as they continue along the course. In this regard, students may be given a challenge to create a given art using a specific medium in exchange for points or rewards as compensation for doing it right.

#### B. Game Mechanics and Assessment Design

After the curriculum has been created, it is time to blend in the correct game mechanics within the teaching process. Student progression, achievement, and participation will be linked to the computerized game mechanics. For example, the student will be rewarded through the points system, for doing assignments, participating in class activities as well as reaching some milestones.

Based on students' achievement in the goal or performance in a specific area, they will be awarded badges. Suppose that a student is always active in class discussions and completes his assignments correctly, then this 'Creative Contributor' Badge will be obtained by him. The use of leaderboards will be used to show student rankings based on their points; therefore, there will be a sense of healthy competition and motivation. Nevertheless, it is important that the leader boards do not only encourage ranking students based on raw scores but also focus on emphasizing effort and improvement. They will have an important role to play in team development through peer learning and in promoting collaborative challenges. Group projects will be one of these challenges serving as students use art together to finish an art task earning reward from the group. Such as, students could be assigned to create a group mural, and the reward would be delivered based on quality of collaboration and quality of product. It will be the assessment formative and summative. Throughout the course, formative assessments will be taking place with feedback provided to the students of their progress and their engagement with the gamified aspects. Tasks to be completed, milestones to be achieved and creativity and collaboration will be the basis for these assessments. Final projects will account for some of the grades but only some of the total grade for the course; grades will also be taken on participation and effort and some related to the gamified elements.

#### C. Integration of Technology

It is important for technology to play a critical role in enhancing the gamification experience. Interactive features, for example, include discussion boards, reviews between peers, and submission portals for assignments, will also be parts of this platform. Moreover, on the platform, students will be able to personalize their learning by choosing challenges and tasks that they are interested in learning and are

confident about doing. Technology will be used too in real time feedback as students receive instant recognition for their work.

#### D. Evaluation and Feedback Mechanisms

To measure the students' satisfaction with the gamified approach, their perceived motivation, and their creativity and engagement will be conducted with surveys and interviews. In addition, classroom observations will be used to assess how students engage with the gamified elements and each other. The data from these will help to further refine the curriculum as well as the game mechanics and improve the methodology iteratively. Subsequently, mathematical modeling can be used to assess the performance of the students in terms of investment in gamification elements. For instance, using a simple equation, it can be calculated how much total points a student earns after participating in several activities. This model allows individual and group progress in time.

The equation for total points  $P_{\text{total}}$  can be expressed as:

$$P_{\text{total}} = P_{\text{assignments}} + P_{\text{challenges}} + P_{\text{collaboration}} + P_{\text{participation}}$$

Where:

- $P_{\text{assignments}}$  represents points earned from completing assignments.
- $P_{\text{challenges}}$  represents points earned from completing specific creative challenges.
- $P_{\text{collaboration}}$  represents points earned through group projects and teamwork.
- $P_{\text{participation}}$  represents points earned from active participation in class activities and discussions.

This model also allows for calculation of total points which helps to make students and educators understand progress. Likewise, the gamification impact on student creativity, engagement, and general progress may be modeled based on criteria like rate of participation, quality of so produced, and overall improvement over time.

This methodology's integration will endow a dynamic, interactive, and student-centered arts curriculum with gamification as a means, not as an external extrinsic motivator, but in fact as an embodied fundamental aspect of the learning.

Flowchart

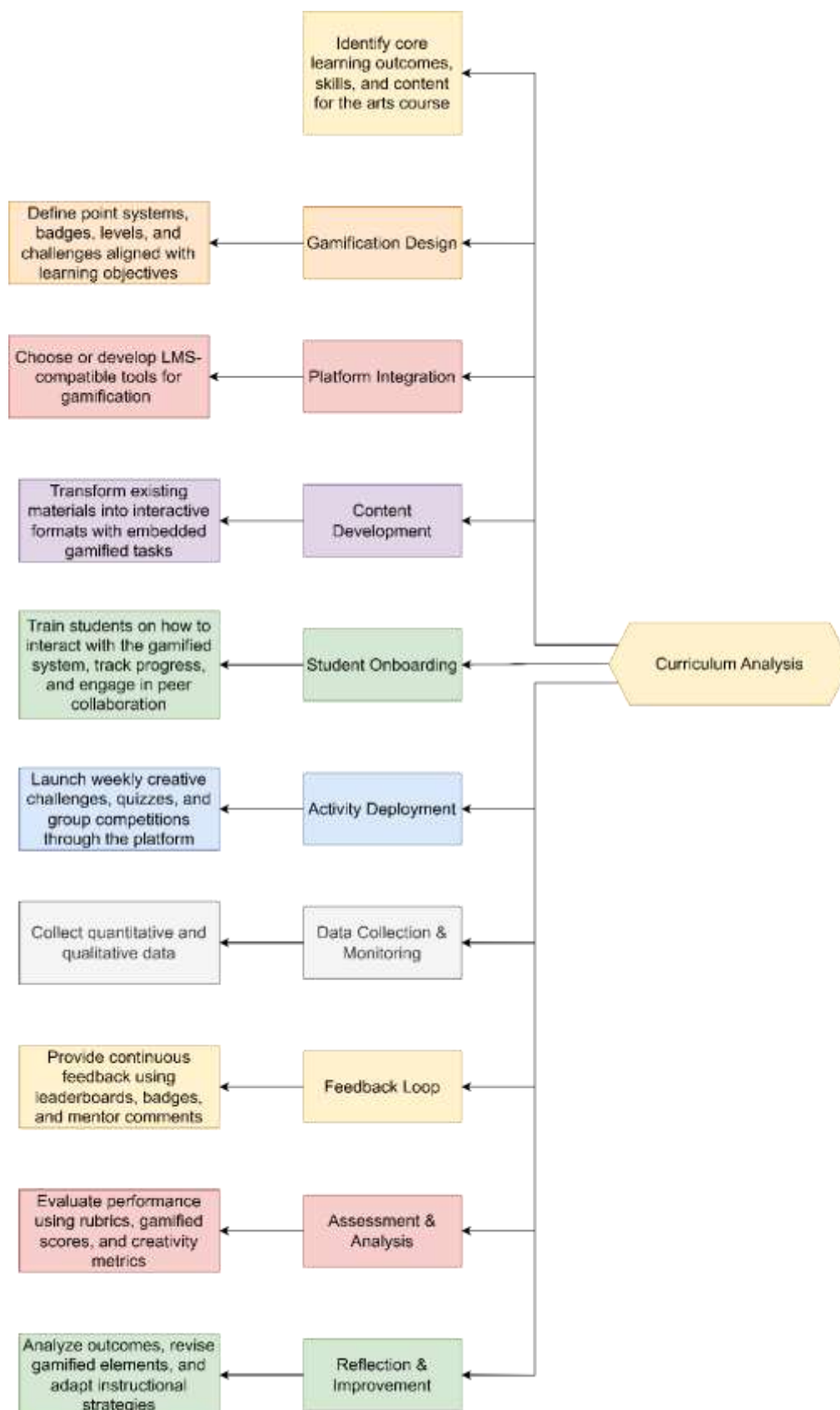


FIGURE 1: GAMIFICATION-BASED INSTRUCTIONAL FRAMEWORK FOR ARTS EDUCATION

In addition to the above total points equation, the following mathematical equations can be used to model various aspects of the gamification process:

Total Badge Points ( $P_{\text{badges}}$ ):

$$P_{\text{badges}} = \sum_{i=1}^n B_i$$

Where  $B_i$  represents individual badge points earned by the student for specific achievements.

Leaderboard Rank Calculation ( $R_{\text{student}}$ ):

$$R_{\text{student}} = \frac{P_{\text{student}}}{\max(P_{\text{class}})} \times 100$$

Where  $P_{\text{student}}$  is the total points of the student, and  $P_{\text{class}}$  represents the total points for the entire class.

Group Collaboration Points ( $P_{\text{group}}$ ):

$$P_{\text{group}} = \frac{\sum_{i=1}^m P_{\text{student}}^i}{m}$$

Where  $m$  is the number of students in the group, and  $P_{\text{student}}^i$  is the points of each student in the group.

Overall Student Performance:

Where  $w_1, w_2, w_3, w_4$  are the weights assigned to each component based on its importance in the overall assessment.

Progression Rate:

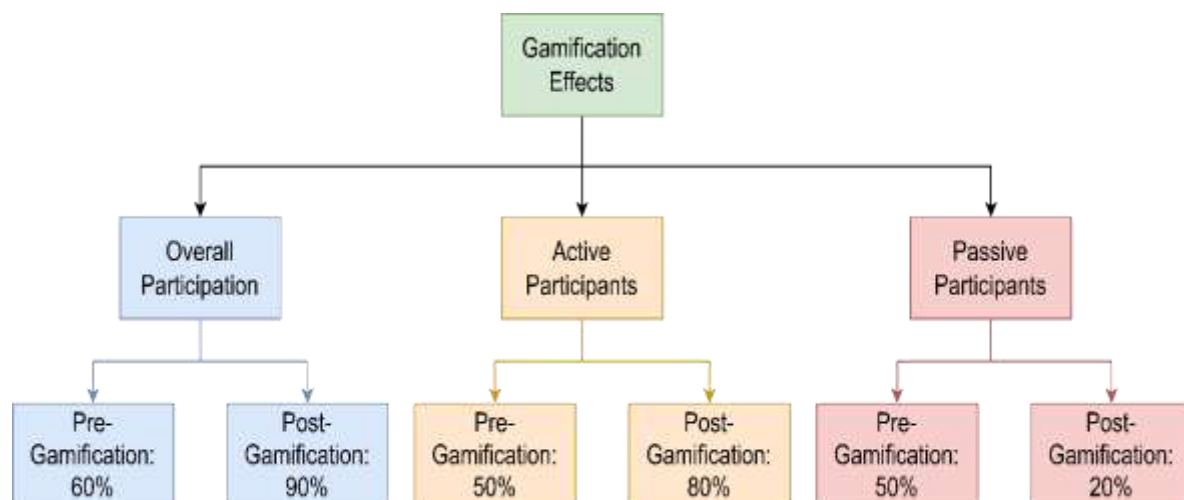
$$R_{\text{progression}} = \frac{P_{\text{current}} - P_{\text{initial}}}{P_{\text{final}} - P_{\text{initial}}} \times 100$$

Where  $P_{\text{current}}$  is the student's current point total, and  $P_{\text{final}}$  is the final target.

This approach ensures that gamification is systematically integrated into the arts curriculum, offering a balanced and measurable way to enhance student learning and engagement.

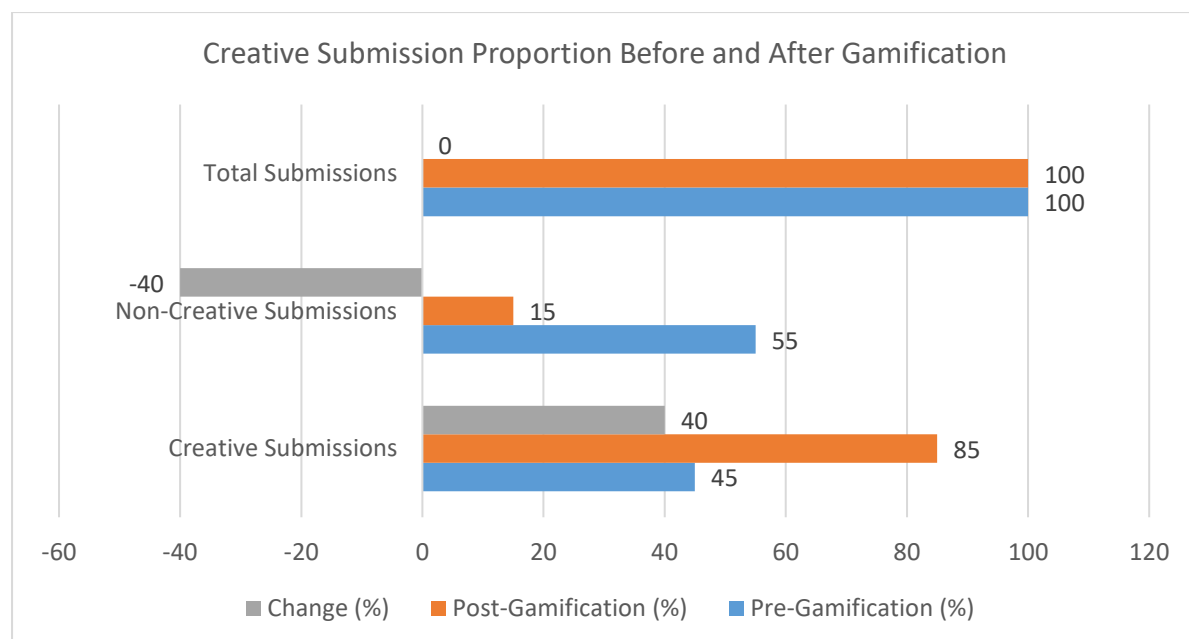
#### IV. RESULTS & DISCUSSIONS

The implementation of gamification in arts education led to changes in engagement, creativity, and collaboration, which were well aligned to the core objectives of increasing motivation and development of skills. The gamified system has been watched over the semester period as students were closely tracked regarding their performance, participation, and progress. This experiment yielded various quantitative and qualitative results which could be used to analyze the efficiency of gamification in the arts curriculum [9]. The second set of results generated from analyzing participation rates of students and highlighted the evident rise after the introduction of game mechanics. In this pre-gamification phase, participation was sporadic, with a handful of students taking over from the others who were more passive. However, it did not happen until with gamification factors like point scoring, badges, and leaderboards, the participation was more evenly spread among the students. In particular, the leaderboard seemed to have been a motivational tool, and therefore students would join more often in individual and group activities. The second figure shows the participation rate before and after the intervention with gamification.



**FIGURE 2: PARTICIPATION RATE COMPARISON BEFORE AND AFTER GAMIFICATION**

A second interesting thing that came from analyzing creative output of students was another finding. In the gamified classroom, much of the student submissions consisted of submission of assignments in a frictionless manner but in compliance with the instructions given. Until this, students approached assignments in an uninspired manner; however, after challenges and reward based on creativity were introduced, things took a change for the better. The gamified elements may have encouraged them to attempt to develop more novel ideas and get even more adventurous with their work. However, in comparison to the previous semester, more than 40 percent of the submissions labelled as ‘creative’ or ‘highly original’ have moved beyond only basic technical skills into more inventive approaches to concept and artistic expression. Figure 3 illustrates the share of creative versus noncreative submissions before and after applying gamification.



**FIGURE 3: CREATIVE SUBMISSION PROPORTION BEFORE AND AFTER GAMIFICATION**



Students also reflected that this increase in creative output was accompanied by more content-driven, less structure, just because there were immediate rewards – points and badges – that would be given for whatever they were doing. Students also enjoyed the element of gamification, particularly the peer-to-peer feedback as a core part of it. With the collaborative challenges, the students were able to use their skills, ideas, and create a community within the type of environment that is more open and friendly than what the usual environment provides. These results indicate that gamification not only increased individual engagement, but it also had a positive effect on classroom atmosphere, as is the case for creative fields such as the arts. Another important observation was the general increase in student confidence. Before gamification, many students failed to be self-assured about their artistic aptitude, especially when it included originality or new media. But there was a big increase in confidence among students who went through a couple of challenges with instant feedback and you could be awarded points for your progress. This was apparent throughout class in their verbal feedback as well as to their willingness to try at more complicated artistic tasks. The rewards system encouraged students of the classroom to see setbacks as part of the learning process, not part of the failure. It also had positive effects on academic performance. Comparison between the scores of students from assignments and final projects before and after gamification intervention showed a positive trend. During the pre-gamification phase, students were not doing as well with grades and a large portion of the class simply cannot meet the respective requirements. However, once post gamification, there was a great improvement in overall performance. The implementation of gamification caused the average grades to increase in the assignments by 15% as Table 1 shows. As the scores from the final project improved even further, with an average raise of 20%, it's clear here that students gained more with a second submission. These results indicate gamification had a positive effect on students' assignment approach, motivating students to put additional effort and creativity into it.

**TABLE 1: AVERAGE SCORES COMPARISON BEFORE AND AFTER GAMIFICATION**

Assignment Type	Pre-Gamification Average Score	Post-Gamification Average Score
Weekly Assignments	75%	85%
Midterm Project	78%	88%
Final Project	80%	96%

Also, the collaborative challenges were shown to be highly beneficial in terms of adding peer evaluations. The performance of students on group tasks of an artistic nature which required them to work together increased markedly. By allowing students to share creative ideas, provide constructive feedback, and work on solving problems under teamwork when collaborating toward a common goal, not only did the work increase in quality, but students learned important soft skills such communication, teamwork and problem solving. The group-based activities also allowed a group of students to sense accountability, because they could see how their contributions would make a direct difference to the success of a group. As seen in Table 2, the collaborative task completion rate and teamwork satisfaction were shown to be higher before the gamification system was implemented, and therefore, this is evidenced.

**TABLE 2: GROUP TASK COMPLETION AND STUDENT SATISFACTION WITH TEAMWORK**

Measure	Pre-Gamification	Post-Gamification
Group Task Completion Rate (%)	65%	90%
Student Satisfaction with Teamwork (%)	70%	92%

The collected data also revealed the views that the students have used with gamification. Initially, a minority of my students were initially skeptical about the idea of incorporating game elements into an arts classroom, but most of the students eventually enjoyed the new manner of learning. Initially skepticism about competitiveness raised by the leaderboard was found not to harm students by creating undue pressure. Pairing benefits of the points and rewards system with growth of creativity of peers and opportunities for collaboration with extrinsic motivation allows intrinsic and extrinsic motivation to balance. That was essential to ensure that students did not waste a lot of time on accumulating points instead of focusing on the learning process. There were also some students who were already struggling in other areas of the arts who seemed less concerned with honing their craft and more involved in the work for badges and points. For this, the future iteration of the gamified system will include more sophisticated reward structures rewarding effort and progress over the result. By doing this, the artist ensures students are going to be keeping interested in the artistic process rather than simply conducting the tasks to accumulate rewards [14-15]. The novelty and increasing acceptance of gamification in arts education have indicated quite some potential to advance student engagement, creativity and collaboration. Overall, this has positive results in terms of student participation, creativity, confidence, and academic performance, and that gamification may be a very useful technique for modernizing arts education. Nevertheless, when it comes to the role of any innovation in education, game mechanics, designed for the purpose, must embody the parameters of the course education goals and not overshadow the quality of creativity.

## V. CONCLUSION

We argue that gamification when done wisely, can promote more dynamic and immersive learning environment for the students, and to become intrinsically motivated and bonded to the subject. Nevertheless, for gamified curricula, careful design of the gamified curricula is needed in which the creative challenges should be balanced with the development of technical skills to achieve the learning objectives [12].

Second, it should be investigated in future research whether gamification in arts education leads to long term effects in student outcomes, and whether the gamified strategies may be scaled to other educational levels and art disciplines. Gamification should also take into account the diverse needs of students on the part of educators, in order to be inclusive and supportive enough to develop learning environment.

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