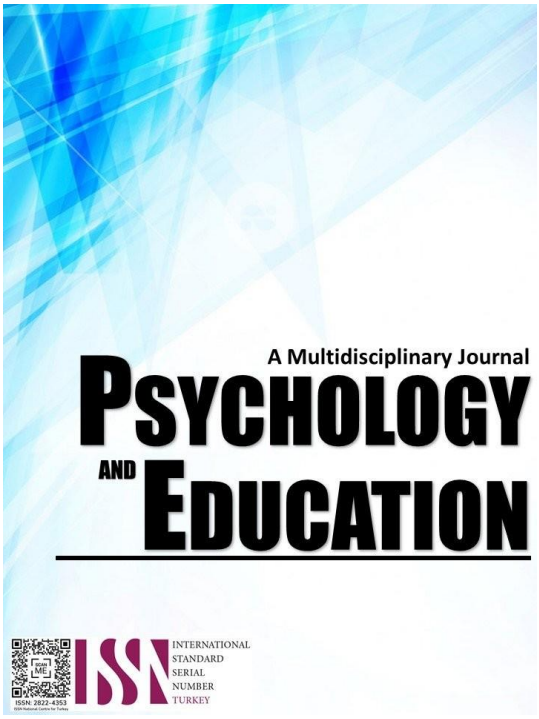
AMAZING R.A.C.E: UTILIZING REVISION, ACTION ITEMS, CHANGES, AND EVALUATION IN ADDRESSING PRODUCTIVITY IN WRITING RESEARCH



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Research Article

Amazing R.A.C.E: Utilizing Revision, Action Items, Changes, and Evaluation in Addressing Productivity in Writing Research

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Abstract

Productivity and motivation are prevalent factors influencing student success in finishing their tasks. Using the Amazing R.A.C.E. approach, the researchers sought to help the students maintain high motivation and productivity in writing their Research papers. This said technique was anchored to the Gamification approach, where the researchers incorporated various game elements. An explanatory-sequential research design was employed to identify the pre-test, post-test, and the underlying themes related to the experience of the Key informants of the study. The researchers used a purposive sampling technique to select 90 respondents for controlled and Amazing R.A.C.E. groups and 15 key informants divided into three focus group discussions. Using Z-Test, the result revealed a 0.000 Z-value (<0.05 P-value), which implied a significant difference between the post-tests of the groups. Therefore, the researchers reject the null hypothesis. The FGD revealed that "Game Elements" and "Competitiveness" lead to "Motivation", whereas the students emphasize that it leads to a better "Student Outcome". Based on the respondents' feedback, themes such as "Aesthetic" and "Reinforcement" of the approach should be emphasized in the future implementation of the Amazing R.A.C.E. technique.

Keywords: *revision, action items, changes, evaluation, productivity*

Introduction

Two key factors greatly influence student success in completing their tasks - motivation and productivity. Motivation is the drive that compels students to achieve their goals, such as completing their assigned tasks. At the same time, productivity is evident when the students accomplish their workload within a shorter timeframe without compromising quality. However, students need help maintaining high motivation and productivity levels, which can impede their academic progress. The increased prevalence of issues in the motivation and productivity of students has been observed in recent years as demands and expectations towards students continue to rise.

One of the factors regarding students' need for more motivation and productivity is the daunting nature of their academic workload. Juggling different tasks such as examinations, projects, learning tasks, and readings is a challenging feat a student might find oneself in, which can lead to stress and, eventually, burnout. On top of that, a scarce approach in rewards and pieces of feedback for the diligence these students have done can make it challenging for them to sustain their motivation and engagement in their tasks.

With the challenges students encounter, as mentioned above, researchers and educators have locked their eyes on a potential solution - gamification. Games have game design principles such as challenges, competitions, rewards, leaderboards, and other design principles. Gamification is a concept that incorporates these game elements into non-game contexts such as education. By applying these game design principles to educational activities, gamification aims to make learning more enjoyable, engaging, motivating, and productive for students.

One of the primary favorable outcomes of gamification is how it can tap into student's intrinsic motivation. To briefly define, intrinsic motivation is the internal desire to fulfill a learning activity for the inherent satisfaction the process of fulfilling the activity provides, rather than leaning on rewards or other defined drivers. Different studies have been conducted to look into this factor. In 2019, Hallifax et al. conducted a thorough literature review of adaptive gamification in education and discovered that tailored game elements can effectively increase learner motivation, performance, and engagement (Hallifax et al., 2019). Bicen & Kocakoyun, 2018, surveyed students on their views towards gamification and uncovered that it increased student interest, ambition for success, and motivation (Bicen & Kocakoyun, 2018). In addition, a study conducted by Göktaş et al. in 2016 discovered that gamification increased participation and motivation in a course (Göktaş et al., 2016). Gamification makes learning more interactive and enjoyable and can help students develop an authentic interest in their undertaking, increasing productivity and motivation.

The effectiveness of gamification in an academic setting was tested in specific subject areas. A study conducted by Ibanez et al. in 2014 discovered that gamification effectively engaged and improved the learning outcomes of computer science students, while Khaleel et al. in 2015 aimed to use gamification in making the programming language course more exciting and increasing learning efficiency (Ibanez et al., 2014; Khaleel et al., 2015). In 2021, Zhang explored using gamification in audio description training and found that gamification is a practical pedagogical approach (Zhang, 2021). To support these mentioned studies, a study by Silva in 2018 highlighted the motivator effect of gamification on students' academic achievements (Silva, 2018).

Gamification not only makes a learning environment engaged and improved but also provides students with rewards and immediate feedback, which can help them sustain their motivation and track their progress. Using game design principles such as badges,

leaderboards, and virtual rewards, students can see their achievements and compare them with their peer group (Nah et al., 2014; Pei & Harun, 2023). The element of competition delivered by applying gamification can highly motivate students, as it provides recognition and a sense of accomplishment for their efforts.

In the Philippines, the Enhanced Basic Education Curriculum of the Department of Education requires Senior High School students to take Practical Research subjects and produce a full-blown research paper. However, teachers of Senior High School students in the Philippines have noted that students often lack motivation and interest in research writing, which can impact their engagement and productivity in Practical Research activities (Oducado, 2021).

Furthermore, the researchers sought to address productivity of learners through developed adventure type games embedded in the Research Class which were coined as Amazing R.A.C.E. The approach employs a card with several locks that corresponds to every challenge that student-researchers need to accomplish in a given time frame. Amazing R.A.C.E covers the objective and technical changes made by the researchers in accordance with the comments of the Research Adviser which referred to as "Revisions"; "Action Items" - also referred to as "Task", is the list of requirements and tasks intended for accomplishment of the student-researchers; the action plan made by the researchers to improve their strategy in writing their research papers tagged as "Changes"; and "Evaluation" which pertains to assessment tools provided by the Research Teacher to evaluate the works of the student-researcher. On the other hand, Evaluation also counts the student Self and Peer Evaluation.

This research aimed to test the efficacy of the developed teaching methodology entitled Amazing R.A.C.E. in addressing productivity in writing research among Grade 12 Senior High School students.

Research Questions

This study sought to understand the efficacy of Revision, Action Items, Changes, and Evaluation in improving student productivity in writing their research papers. Specifically, this study aimed to answer the following questions:

1. What is the pre-survey score of the Controlled and Amazing R.A.C.E Group?
2. What is the post-survey score of the Controlled and Amazing R.A.C.E Group?
3. Is there a significant difference between the post-test scores of the Controlled and Amazing R.A.C.E groups?
4. What are the themes that contribute to the efficacy of the Amazing R.A.C.E methodology in improving students' productivity?

Methodology

This section elaborates on the materials and procedures used to carry out the results of the study.

Research Design

This study was conducted utilizing an Explanatory-Sequential mixed-methods approach to acquire a thorough grasp of the subject. This approach is characterized by applying both Quantitative and Qualitative approaches in 2 consecutive phases. The Quantitative approach in this research utilized Quasi-Experimental Design while the Qualitative phase used the Phenomenological approach.

Respondents

The selected respondents of this study are Grade 12 Humanities and Social Sciences Students enrolled for the Research Project Course in the 2nd Semester of the Academic Year 2022-2023. The respondents are classified as Controlled and Amazing R.A.C.E group. The control group is the respondents who experienced traditional-structured research activities. On the other hand, the Experimental group is labeled as the Amazing R.A.C.E group where the intervention is applied. A purposive sampling technique was employed in this study whereas the respondents were selected based on the reported productivity. In addition, this technique utilizes judgment in selecting cases based on a specific purpose. The technique allows the researchers to collect appropriate and useful data in order to address the problems of a study. A total of 90 students (45 from each group) served as the study's respondents in the Quantitative Phase. Meanwhile, three groups consisting of 5 members each coming from the Amazing R.A.C.E group were interviewed in the Qualitative phase of this research.

Procedure

In gathering integral data relevant to this research, the researchers adapted the Productivity Survey from Productivity Assessment (n.d). This covers three (3) sub-scales: Planning, Efficiency, and Response. Both Controlled and Amazing R.A.C.E groups underwent the Pre-Survey Process using the adapted questionnaire. The results of the survey were tallied and computed using relevant statistical treatment. A day after the pre-survey, the researchers employed the distribution of the Amazing R.A.C.E cards on the Experimental Groups while there was no intervention applied in the controlled group. The researchers test the significant difference in the Pre-test scores of both groups. The Z-test score revealed 0.887 that is interpreted as there is no significant difference among the groups. The absence of a significant difference in the pre-test part is important because it serves as evidence that both of the groups are similar in terms of their skills or knowledge related to the study. The intervention is applied for three (3) weeks. After the intervention period, both of the groups answered the post-survey. The data were tallied and interpreted using relevant statistical treatments. Three focus-

group discussions were implemented among 15 Key informants of the experiment where their experience of the approach was discussed.

Data Analysis

A descriptive association to the five (5) point likert scale will be utilized to measure the respondents' agreement on the Productivity Assessment: 1.00 - 1.49 - Never; 1.50 - 2.49 - Sometimes; 2.50 - 3.49 - Regularly; 3.50 - 4.49 - Frequently; 4.50 - 5.00 - Always

Mean was used to calculate and interpret the adapted Productivity Assessment. Moreover, Z-Test was used to determine if there is a significant difference between the post-survey test of conventional and experimental groups. To gather the qualitative data, A phenomenological approach was utilized using focused group discussion in the experimental group which thematic analysis was used to get the common themes found in the discussion.

Ethical Consideration

The researchers applied informed consent, confidentiality, and anonymity when conducting the study. First, they asked permission by creating a formal letter to experiment. Before gathering data, the researchers introduced themselves and informed the students about the experiment's purpose. The information gathered from the respondents remained confidential and was stored in secure internet storage. In addition, the respondents' personal information was not collected—all procedures before, during, and after the experimentation were by the Data Privacy Act of 2012.

Results and Discussion

The Planning sub-scale of the Controlled group, "I know before I start my day what I need to achieve" indicates a highest mean score of 3.533. On the other hand, the lowest mean states that "I forward plans to deadlines and know if they need to be moved" with a mean score of 2.933. "I complete my tasks within the identified time period" prevails as the highest indication at the Efficiency sub-scale with 3.400 mean score, while the lowest states that "I can block out distractions to complete my daily task" (2.933). Subsequently, among the indicators in the Response sub-scale, "I am able to self-motivate" reveals to be the highest (3.566) and "I am able to work faster without increasing errors if I need to" post the least (2.899). The top three highest scores indicate that the students are aware of what they need to achieve, what are the things they need to accomplish, and the things to do to stay motivated where most of the scores are interpreted as "Frequently". Siegle, Rubenstein, and Mitchell (2013) and Husain (2014) argues that Self-direction and motivation plays an integral role in the academic progress of the students. Motivation refers to the goal, orientation, drive and persistence of students in striving for their goals in their academic journey. Meanwhile, Self-direction pertains to the strategies employed by the students to take charge with their learning, monitoring progress, and making necessary adjustments. Furthermore, academic motivation and self-efficacy warrant students to pursue despite challenges encountered. They remain committed to their academic goals that enhance self-efficacy and academic motivation that relates to building self-efficacy, creation of content relevant to students, and honing students' environment.

Table 1. *The pre-test score of the controlled group and the Amazing R.A.C.E. group*

Indicator	*Controlled*	*Interpretation*	*Amazing R.A.C.E Group*	*Interpretation*
Planning				
I forward plan to deadlines and know if they need to be moved.	3.022	Regularly	3.244	Regularly
I complete my daily objectives.	3.422	Regularly	3.711	Frequently
I have long term goals and plan my day to achieving them	3.533	Frequently	3.533	Frequently
I know before I start my day what I need to achieve.	2.933	Frequently	3.511	Frequently
Efficiency				
I complete my tasks within the identified time period.	3.400	Regularly	3.622	Frequently
I utilize my tools to benefit my objectives for the day.	3.378	Regularly	3.311	Regularly
I find a solution instead of sitting in procrastination if there is a block to the goal.	3.378	Regularly	3.489	Regularly
I can block out distractions to complete my daily tasks.	2.933	Regularly	2.978	Regularly
Response				
I am able to self-motivate.	3.556	Frequently	3.178	Regularly
I am empowered to make decisions without feeling like I need to ask someone.	3.133	Regularly	3.111	Regularly
I can move into new tasks without losing focus.	3.089	Regularly	2.600	Regularly
I am able to work faster without increasing errors if I need to.	2.889	Regularly	2.822	Regularly

The top three lowest scores in the controlled group indicate that the student needs to make palms in meeting the deadline, block out distractions to complete daily tasks, and to be able to work regularly. Mismanagement of deadlines is a common phenomenon among learners that often leads to negative consequences. Studies revealed that procrastination tends to increase as deadline approaches. According to Di Nocera, De Piano, Rullo, et al. (2023), despite procrastination creating a sense of pride and accomplishment in

completing tasks under pressure, it often results in low grades (Zhu, 2023 & Tani, 2017).

Meanwhile, the results of the Amazing R.A.C.E group reveals "I complete my daily objectives" is the highest in the Planning subscale with a mean score of 3.711 while " I forward plans to deadlines and know if they need to be moved" presents to be the lowest with 3.244 mean score. Moreover, in the Efficiency subscale, "I complete my tasks within the identified time period with the mean score of 3.622 prevails to be the highest indicator while "I can block out distractions to complete my daily tasks" is the lowest indicator (2.978 mean score). In the Response subscale, the highest score suggests that "I can move into new tasks without losing focus" with the score of 2.600. Overall, the top three highest scores of the Amazing R.A.C.E group indicate accomplishment of daily objectives, complete tasks within the identified period, and being able to self-motivate. The results are aligned to the arguments of Siegle, et al (2013) and Husain (2014). On the other hand, the three lowest scores suggest that students plan for deadlines and block out distractions, this result is congruent to the statements of Di Nocera, et al. (2023) and Zhu (2023). Students' perception in creating tasks will full focus happens regularly. Low focus of students in completing tasks can have a negative impact on student academic productivity. Multitasking, procrastination, low academic self-concept, and academic boredom are factors that lead to poor academic performance (Jehopio, Wesonga & Candia, 2017; Khalifa, 2021; Ijeoma & Oladipo, 2019). Low focus hinders students' ability to organize and prioritize academic task that makes it more difficult to accomplish these tasks successfully (Mirzakhanyan, Gevorgyan &Khachatryan, 2016). High levels of focus and task orientation is associated with better academic performance (Saklofske, Austin, Mastoras, et al., 2012). Lastly, Emotional regulation, avoidance, and tasks focus is highlighted to be an important factor in the capacity of students to cope with stress that enables achievement of academic success.

Table 2. *The Post Test result of Controlled and Amazing R.A.C.E Group*

Indicator	*Controlled*	*Interpretation*	*Amazing R.A.C.E Group*	*Interpretation*
Planning				
I forward plan to deadlines and know if they need to be moved.	3.089	Regularly	3.689	Frequently
I complete my daily objectives.	3.378	Regularly	4.111	Frequently
I have long term goals and plan my day to achieving them	3.578	Frequently	4.311	Frequently
I know before I start my day what I need to achieve.	3.533	Frequently	4.222	Frequently
Efficiency				
I complete my tasks within the identified time period.	3.267	Regularly	4.444	Frequently
I utilize my tools to benefit my objectives for the day.	3.600	Frequently	4.156	Frequently
I find a solution instead of sitting in procrastination if there is a block to the goal.	3.267	Regularly	3.867	Frequently
I can block out distractions to complete my daily tasks.	3.111	Regularly	3.622	Frequently
Response				
I am able to self-motivate.	3.533	Frequently	4.386	Frequently
I am empowered to make decisions without feeling like I need to ask someone.	3.156	Regularly	3.644	Frequently
I can move into new tasks without losing focus.	3.111	Regularly	3.622	Frequently
I am able to work faster without increasing errors if I need to.	2.800	Regularly	3.756	Frequently

The table exhibits the post survey results of the Controlled and Amazing R.A.C.E groups. The scores of the controlled group, highest score in the Planning sub-scale indicates that "I know before I start my day what I need to achieve" with a mean score of 3.578 while "I forward plan to deadlines and know if they need to moved" places as the least (3.089). for Efficiency subscale, the highest mean score of 3.600 which indicates that "I utilize my tools to benefit my objectives for the day." on the other hand, the lowest mean score of 3.111 states that "I can block out distractions to complete my daily tasks." In addition, for Response subscale, the highest mean score of 3.533 indicates that "I am able to self-motivate." while the lowest mean score of 2.800 indicates that "I am able to work faster without increasing errors if I need to". The top three highest score reveals that the students are aware of what they need to achieve, and thing theu need to do to stay motivated which is congruent to the arguments of Siegle, et. al. (2013) and Husain (2014). Meanwhile, utilizing tools that benefit the student's goals of the day also reveals to be the highest mean. Productivity tools and other technologies can enhance the learning process that promotes creativity, interaction, engagement, and development of skills among others. Educators can help students in addressing their productivity by means of suggesting the right tools and techniques in modern technology. Meanwhile, Di Nocera, et al. (2023) arguments are congruent to the three lowest mean scores.

On the other hand, the Amazing R.A.C.E group's results expounds that in the planning subscale, shows the highest mean score of 4.311 which indicates that "I have long term goals and plan my day to achieving them." while the mean score of 3.689 is the lowest which states that "I forward plan to deadlines and know if they need to be moved." Moreover, on the Efficiency sub scale, "I complete my tasks within the identified time period." declared the highest mean score of 4.444. On the other hand, the lowest mean score of 3.622 states that "I can block out distractions to complete my daily tasks." Furthermore, the Response subscale, the mean score of 4.386 is the highest states that "I am able to self-motivate." while, the "I can move into new tasks without losing focus." statement gain a lowest mean score of 3.622.

Overall, the three top most statements indicated that the students are already working on their deadline, time management, and

motivation after the application of the Amazing R.A.C.E technique. Souza, Mombach, et al. (2019), Durin, Lee, Bade., et al. (2019) and Malahito & Quimbo (2020) emphasize the effect of gamification on motivating students to achieve the completion of their tasks before the deadline, their studies suggest that game elements leads to student engagement. This is related to higher levels of productivity and achievement. In connection, game elements motivate learners because the approach enables them to earn rewards or points. However, it is emphasized that the success of gamification is aligned with the objectives of students to accomplish their task.

Table 3. *The significant difference between the post test scores of the Controlled and Amazing R.A.C.E groups*

Variables	*Z Value*	*Interpretation*
Post Test of Controlled and Amazing RACE groups	0.000	There is a significant difference

Table 3 shows the result of the difference analysis between the post test scores of the Controlled and Amazing R.A.C.E groups. The Z Value test score of 0.000 suggests that there is a significant difference between the groups (<0.05). Therefore, the researchers reject the null hypothesis. The results imply that the applied intervention is somehow effective in addressing productivity among students. The implementation of Amazing R.A.C.E methodology sought to address lag time and productivity issues among students who are writing their research papers. The technique uses a variety of game elements to encourage learners to focus on completing their assigned tasks. Hence, the technique is heavily anchored to the Gamification theory. Moreover, game elements and its implication in addressing academic productivity among students is a topic of interest in education. Studies have analyzed the use of gamification that includes the incorporation of game elements into the educational context, motivation, and academic performance. Findings suggest that gamification brings positive impact to student motivation, performance, and engagement (Manzano-Leon, Camacho, Lazarraga, Guerrero, et al., 2021; Puritat, 2019; Thurairasu, 2022; and Mert & Samur, 2018).

Amazing R.A.C.E (Revision, Action Items, Changes and Evaluation) is a developed adventure-type game that envisions to address productivity of students in writing Research. Embedded in the game are stages aligned to a part of a research paper which students need to surpass in order to get appropriate scores. Various game elements are incorporated in the game to encourage learners to accomplish their task.

Card

The essence of the Amazing R.A.C.E technique lies in the Card used by the researcher, which is distributed to different groups and serves as a guide for student-researchers to accomplish their tasks. The “card” features locks corresponding to the tasks that students need to unlock. As stated by Students 2A, 3A, and 3C, "nakaka fulfill po siya ibig sabihin tapos na po namin yung task na yun kahit late or sobrang aga." This collective sentiment portrays a noteworthy impression of accomplishment and contentment experienced by the students. The act of affixing badges onto their “cards” appears to serve as a visible testament to the efforts dedicated to the fulfillment of each task. The students' collective opinions align with the conclusions drawn by Afirando et al. (2023), which suggest that integrating game elements such as points, cards, and badges into education can significantly boost motivation and emotional value for the user.

Badges

“Badges” are stickers given by the teacher to successful students who complete their respective tasks. Students are expected to affix their “badges” onto their Amazing R.A.C.E cards. The researchers used four distinct “badges”: "Go! Go! Go!", "UWU", Legend, and "Periodt". The designs are inspired by trending memes and caricatures, aiming to make them relatable to students. "sobrang helpful po nung "go go badge" dun din po kami naencourage," said Student 2A. Students 1B and 1C further expressed that "ayun din po yung mas nag boboost dun sa productivity po namin to work." The comments articulated by the students underscore the badge's pronounced impact on augmenting their productivity levels during academic pursuits. Their expression, "boost in productivity," aligns with the findings of Tahir et al. (2022), that badges can influence student learning outcomes by mediating time-on-task and moderating the relationship between badges and student interest in the topic. Additionally, the use of badges in higher education courses has been analyzed, showing how they can reward successful task completion and impact student engagement (Sousa-Vieira et al., 2021). Research has shown that badges play a significant role in incentivizing task completion and promoting motivation and engagement in learning (Facey-Shaw et al., 2019; Alsawaier, 2018). Understanding the nuances of how badges influence behavior and outcomes can help educators and designers optimize gamified experiences for enhanced learning and participation.

Points

In line with this, “Points” represent the quantitative value of the “badges” received by students after completing tasks. Student 1A stated, "Naging way din po siya para hindi maging bara-bara yung pag gawa namin. Kailangan po makuha namin yung mga matataas na points." "Meron pong mga points na ganyan, mas lalo pa po akong na motivate na talagang agahan," stated Student 3C. Points, as a key element in gamification, have been found to impact intrinsic motivation and performance in tasks (Mekler et al., 2013). Rodriguez et al. (2023) noted that while the initial novelty effect of points in gamification may exist, over time, they can benefit from a familiarization effect. This underscores the aspirational drive among students to excel and attain commendable scores, thereby indicating the significance associated with higher points as markers of academic achievement and proficiency. A study by Kostolányová & Klubal (2018) cited that gamification, including the implementation of a pointing system, has a positive impact on students' willingness to participate in the educational process, learning outcomes, learning habits, and socialization skills. This further supports

the notion that the use of a pointing system in gamification can contribute to enhancing student engagement and learning experiences.

Link

After completing a task, the teacher provides a “link” to the next task. Students are not allowed to share this “link” with other groups, as it is given alongside the “badge” received upon task completion. According to student 2A, "yung link po ata na binigay samin ni sir; chine-check po namin siya daily." This indicates the students' eagerness and initiative to organize and focus on their task. Additionally, student 4A stated that "nagustuhan ko dun sa link is the fact po na yung nag bibigay samin ng goals." The “link” became the students' primary guide for what should be done at that particular time. It became their "to-do" list for keeping track of their pending tasks. The incorporation of “game elements”, including “links”, aims to foster user engagement and motivation in educational environments (Naseri et al., 2023). Additionally, the design and development of links have been proposed to encourage teacher-sourcing of social recommendations and to foster student engagement in higher education (Yacobson et al., 2021; Bilro et al., 2021).

Game elements

“Card”, “Badge”, “Points”, and “Links” lead to the theme “Game Elements”. The study utilized specific designed elements to implement a gamified approach to education for the students. Research conducted by Shavab et al. (2021) has established a correlation between the implementation of gamification in education and enhanced student engagement as well as improved learning outcomes. Yang et al. (2021) revealed that the use of game elements in gamification has been associated with enhancing motivation in various settings. Studies have shown that gamification elements, such as badges, leaderboards, and points, can evoke internal motives and influence individuals' behaviors by affording their motivations. In addition, Zadeja and Bushati (2022) have observed that gamification may boost various types of motivation and has the capacity to counteract the decline in students' autonomous motivation. The integration of “game elements” into education has demonstrated potential in improving motivation, engagement and learning outcomes. Hence, it is crucial to take into account the different preferences of users and the potential influence of various game elements on educational effectiveness.

Eustress

Moreover, “Eustress” refers to a positive form of stress that can be beneficial for students. Experiencing eustress, Student 1A reported feeling anxious and worried about having to decide what things to prioritize and concentrate on. That turned into their approach, nevertheless, to carefully review their article. Additionally, 4B and 3B students stated that they no longer submit work after the deadline when they are under pressure to achieve it. While there is a substantial body of work on the benefits of gamification, little is known about its impact on perceived stress (Schlömmer et al., 2021). However, Pura (2022) has demonstrated that gamification can lead to positive stress, enhancing motivation and engagement among users.In many cases, stress serves as a motivator for better study techniques and time management, demonstrating the advantages of de-stressing in the classroom. Research reveals that eustress raises students' engagement and self-efficacy perception, which is beneficial for their learning outcomes (Sharif et al., 2022). In addition, eustress is believed to contribute to favorable results for learners and may have comparable consequences for the development of one's identity, suggesting its potential influence on students' self-perception and personal development (Johnson et al., 2023).

Competitiveness

Students become “competitive” in accomplishing tasks due to the established game environment of the Amazing R.A.C.E technique. Student 1A, 2A, and 3C expressed "when it was introduced to us po parang namayani po yung competitiveness po namin. Yung goal po namin is mauna po dun sa ibang grupo po." The introduction of Amazing Race prompted a competitive atmosphere among Students 1A, 2A, and 3C. Their shared aim is to surpass other groups, highlighting a collective aspiration for advancement and success. Gamification has been recognized as a powerful tool to enhance competitiveness among users. By incorporating elements such as Competition, gamification can create an environment that motivates users through fun and competitiveness (Nah et al., 2019). Additionally, a study conducted by Li et al. (2022) has demonstrated that class competition can yield diverse outcomes among students with differing levels of academic attainment. Students may face pressure from competition, prompting them to intensify their studying efforts and attain higher grades.

Motivation

“Eustress” and “Competitiveness” encapsulates "Motivation" as a theme. “Motivation” is a complex psychological phenomenon that drives individuals to pursue and achieve goals. Mekler et al. (2017) stated that games frequently incorporate feedback mechanisms and rewards. Immediate feedback on one's performance, coupled with tangible rewards or virtual achievements, reinforces positive behavior and encourages continued effort. “Competitiveness” taps into intrinsic motivation by appealing to an individual's desire to improve, excel, and demonstrate competence. The findings of this study also supports Sailer & Homner (2019), it has shown that gamification can have a positive impact on motivation across different contexts. For instance, studies have highlighted the effects of gamification on cognitive, motivational, and behavioral learning outcomes . Additionally, gamification has been found to enhance intrinsic learning motivation through the lens of self-determination theory, with features like social, achievement, and immersion playing a role in influencing motivation (Luarn et al., 2023). The drive to outperform others or oneself can be a powerful motivator (Morales-Trujillo & García-Mireles, 2020).

Initiative

Furthermore, “Initiative” pertains to the willingness of a group member to take charge in activities, contributing to the success of achieving “badges” and “points”. The students' proactive involvement has resulted in a notable increase in the efficiency of completing tasks and individual components, as stated by Student 1A, "Naging way po sya para po lahat po ng kagroup na-kagrupo namin is kumilos po talaga." Additionally, Student 1C highlighted that "mas bumilis po yung paggawa namin dun sa mga tasks and parts namin individually." In summary, the students suggest that initiative plays a crucial role in fostering both collaboration and individual task performance within the group dynamic. Additionally, Limantara et al. (2023) highlighted the expectation that gamification strategies can boost student learning motivation, initiative, and performance. Other studies have shown that gamification can influence learners, with the potential to enhance initiative depending on factors such as initial motivation and player profile (Reyssier et al., 2022, Trinidad et al., 2021). This underscores the anticipation of gamification as a powerful tool to enhance students' drive and improve learning outcomes.

Organization

Meanwhile, “Organization” refers to the impact of the Amazing R.A.C.E technique on the management and organization of students' tasks for efficiency. According to Student 5A, “Meron kaming online na parang nagiging To-do list.” Moreover, Student 2B noted, “Meron po naka set na deadline before po sa deadline ni sir Niel.” Additionally, Student 2C emphasized, “Parang pinapaalala po sa amin na isang grupo pa rin po kami na may iisang goal at the end of the yun.” In essence, the students suggest that the Amazing R.A.C.E technique fosters a systematic and collaborative approach to task organization, contributing to overall efficiency in their academic endeavors. Moreover, gamification has been found to influence students' time-on-task, with badges and other gamified features mediating the learning process and enhancing student motivation (Tahir et al., 2022). The use of gamification in education has been associated with increased student effort during assessments and improved motivation when engaging with educational content (Yu et al., 2019). In the realm of leadership and teamwork, gamification has been utilized to improve leadership skills and achieve efficient teamwork in organizational settings (Taguas et al., 2022).

Productivity

The study centers on “productivity”, which is defined as the amount of work a group completes in a given length of time to write their research paper. "Mas nagiging productive kami sa paggawa ng research," stated students 1A and 3A. Alahmari et al. (2023) reported that students and teachers have benefited from gamification through the promotion of productivity and the advantages it offers. In summary, the students' statements imply that encouraging active engagement and operational efficiency within the group positively influences overall productivity in the process of crafting a research paper. Moreover, Student 1C and 3B observed that "mas naging mabilis po kami in terms of doing individual tasks." Furthermore, gamification has been linked to increased student learning levels, active participation, and motivation in lessons (Turan et al., 2016; Uaidullakyzy et al., 2022; Ismail et al., 2021; Pham, 2022). These findings collectively suggest that gamification has the potential to positively impact student productivity in educational settings.

Bridging the Communication Gap

During the implementation of the Amazing R.A.C.E method, certain students have experienced clear communication barriers. The word "communication gap" refers to situations in which misinterpretations or misunderstandings occur among members of a group while the activity is being completed. A "communication gap" within a group of students suggests that there are difficulties or breakdowns in effective communication during their collaborative efforts. Student 2B, for example, noted that "may mga times na may ka group kami hetic yung schedule talaga nagkakaroon po ng parang tampuhan clash." Student 2C further stated that "nagkakaroon kami ng mga problem or mga misunderstandings sa grupo lalo na po as a research member." This may affect the group's capacity to plan tasks, respect one another's viewpoints, and collaborate effectively to achieve shared objectives.

Establishing efficient channels of “communication” is essential to identifying and correcting communication gaps in a student group context. Open and transparent channels of communication should be promoted to allow members to freely discuss their opinions, worries, and ideas. Student 3B stated that "nag open forum po kami na sana mag respect dun sa time ng ibang members." Furthermore, the group's development of conflict resolution techniques and the creation of feedback systems support a positive strategy for dealing with communication difficulties. Student 1B and Student 2B, for example, stated that "sasaluhin po ng isang member yung gawain ng isa kapag hirap gawin para po kami agad ng parts." The statements of the students align with the findings of Ren & Barrett (2023) where they found that gamification improved the quality of communication within these groups and organizations. Prandi et al. (2018) further supported the idea that gamification promotes teamwork, oral communication skills, and social interaction, all of which are crucial for effective communication among members. In conclusion, it is critical to take into account interventions that have been effective in enhancing communication skills, creating a supportive atmosphere, encouraging intercultural competency, and boosting student welfare in order to solve communication gaps among student groups.

Student Outcome

“Initiative”, “Organization”, “Communication”, “Communication Gap” leads to the theme "Student Outcome." The overarching aim of the Amazing Race initiative was to assess and monitor key student outcomes, including initiative, organization, productivity, and

communication. Analysis of the feedback from students indicates a discernible positive impact, suggesting that the Amazing Race has played a role in progressively enhancing these targeted student outcomes. The observed improvements suggest that the initiative has been effective in fostering positive developments in students' "initiative", "organizational skills", "productivity levels", and "communication abilities" over time. The students' response also correlates to the study by Ngai et al. (2023), which found that implementing gamified experiences can lead to enhanced student learning outcomes, particularly in terms of increasing student engagement and experiential learning. Furthermore, gamification tactics have been demonstrated to increase student achievements and reduce equity gaps across different student groups (Johnson et al., 2020).

Size

Through the Focus group Discussion, Key Informants emphasized key elements of the Amazing R.A.C.E method. The card is printed on 200 GSM specialty boards and measures 3x5 inches. The front of the card includes locks representing each task the student needs to accomplish. Students are required to paste their acquired badges in the designated locks as a representation of their accomplishments. The back of the card provides space for any necessary revisions. The badge itself is 1.1 inches in diameter and has proportions similar to a ten peso coin. The physical characteristics of the game elements must be emphasized, and not just in terms of how they are used methodically. There is a clear concern regarding the card's limited space, as stated by Student 5A. In a similar vein, Student 5B states that sticking stickers on a bigger card would be more exciting. According to Nilasari et al. (2018), the size of stickers has a significant impact on communication dynamics, material behavior, and phase separation phenomena in diverse systems. Understanding the impact of sticker sizes is essential for optimizing design, functionality, and performance in diverse applications. Students' feedback indicates that there is a perceived need to increase the card size in order to improve its usefulness and give more room for interaction.

Color

Color has a significant impact on perceptions, behaviors, and preferences in a variety of fields. Color's impact on thoughts, feelings, and behaviors has been emphasized in psychology and marketing research, with a focus on affect and cognition (Yu et al., 2017; Li et al., 2020). The cards were designed using a monochromatic brown color scheme. The badge designs differed according to the chosen "meme." While some participants were appreciative of the badge designs, Student 2B noted that "ang cute niyang tignan Kasi yung ginagwang sticker ni sir is mga meme." On the other hand, Student 3A proposed that "mas maganda po sana if mas vibrant or mas colorful po sya." Despite the positive feedback regarding the badge designs, it is important to highlight that there was constructive criticism regarding the color selection. According to the feedback, the color scheme might be refined to increase visual appeal, draw attention, and possibly improve the user experience in general.

Aesthetic

In evaluating the aesthetics of the physical elements, it becomes evident that there is an opportunity for enhancement, particularly concerning the sizes and the appropriate color palette. Conversely, there is a positive reception among students for the "meme" badge concept. According to feedback from Student 3A and 1B "ang cute lang po nila pag natatanggap po namin yung mga badges since ayun nga memes sila." The concept resonates well with them due to its timeliness and relatability in the current era.

Consistency

"Consistency" concerns irregularities in the way the implementer distributes corresponding badges and in the way the technique is used as a whole. Students 1 and 5A both communicated that there are times when badges are not provided, which is explained by the implementer's distraction from other duties. Furthermore, Student 5B pointed out that stickers are still available, despite a minor distribution delay. Research has emphasized the importance of consistency in balancing individual responsiveness and achieving desired outcomes in implementation (Fu et al., 2018). In conclusion, there is a need to address the inconsistent badge distribution and general execution, which emphasizes the necessity of making deliberate adjustments to maximize participant participation.

Emphasis

"Emphasis" relates to the feedback from respondents regarding the focus on the implementation of the Amazing R.A.C.E card. Dunfa (2019) suggests that selection and specification of implementation strategies are vital for addressing contextual barriers and promoting the adoption of new practices. According to student 3A, 4A, 1B, 4B, and 3C, "Merong time ngayon 4th quarter na nag sabay-sabay po talaga lahat ng pasahan. Sa mga time nayun parang nabalewala yung use nung card. Yung mga ginagawa po namin is dina po naka cater." The students express a perception that, during such periods, the effectiveness and purpose of the card are compromised, possibly affecting the overall engagement with the card-based system. According to the feedback, there is a need for a closer examination of the implementation strategy, particularly during peak submission times.

Timely Appropriation

"Timely appropriation" pertains to the prompt and well-timed implementation of the Amazing Race throughout the course of the semester. Student 3A observed that "if ginawa po siya mas earlier like simula chapter 1 po naimplement na yung technique, mas magiging consistent po and mas parang maaccept po namin siya." Additionally, Students 1B, 3B, and 5B expressed that, "if mas maaga po sana syang na simulan mas mas ma eengage po or mas maattach po kami dun sa game." Students suggest that an early introduction

would result in greater consistency, acceptance, and enhanced engagement among participants. According to Ramirez et al. (2015), ideal timing of data collection methods is essential for a better chance of success in research. In conclusion, the students emphasize the need for a proactive approach in implementing the Amazing R.A.C.E, commencing it earlier in the academic term.

Reinforcements

"Size", "Color", "Aesthetic", "Consistency", "Emphasis", and "Timely Appropriation" leads to the theme "Reinforcements." Reinforcements is a collective term for the improvements needed for the future implementation of this technique. The challenges with emphasis and consistency that have been found highlight how crucial it is to improve implementation techniques in order to maximize participant involvement. Students' suggestions regarding timely appropriation highlight the need of taking the initiative and starting the Amazing Race earlier in the academic term. All of these observations point to the need for calculated changes that will improve the approaches' acceptability and efficacy, giving participants a smoother and more enjoyable semester-long experience.

To summarize, the Amazing R.A.C.E technique enhances student motivation, initiative, organization, productivity, and communication through a gamified approach to education that includes components like "cards", "badges", "points", links, and game dynamics. The application of "eustress" and "competitiveness" enhances educational achievements by motivating students and creating a sense of accomplishment. Based on feedback provided by students, the physical aspects—such as card size, color, and attractive design—offer potential for improvement. Future development opportunities are highlighted by the areas of inconsistency that have been found and the necessity of prompt appropriation. The main objective of the Amazing R.A.C.E is to consistently enhance and refine these components in order to give students a dynamic and interesting learning experience

Conclusion

The study concluded that there was a significant difference between the participants' scores in the post-test, which was attributed to the intervention applied. Through Key Informants' feedback, it became evident that the integration of game elements not only fostered increased engagement but also instilled a sense of competitiveness that fueled motivation among the participants. Moreover, the implementation of the Amazing R.A.C.E approach was associated with positive student outcomes, emphasizing its efficacy in educational settings. Furthermore, it is recommended for future researchers to focus on addressing aesthetics and reinforcement strategies employed in the approach as highlighted by the informants. In addition, it is also encouraged to apply the approach in the beginning of the Research class to see its possible outcome in student productivity at the start of the research writing process. Addressing these factors in subsequent studies can enhance the effectiveness of interventions aimed at improving student productivity and outcomes.

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