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"Gamified Language Learning Applications: Enhancing Motivation and Speaking Skills of First-Semester Informatics Engineering Students at Politeknik Negeri Bengkalis"

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Abstract

This study investigated the impact of gamified language learning applications on the motivation and speaking skills of first-semester Informatics Engineering students at Politeknik Negeri Bengkalis. Using a quasi-experimental design with 60 participants, it compared an experimental group using gamified apps such as ELSA Speak and Duolingo with a control group receiving conventional instruction. Quantitative data from pretests and posttests were analyzed using independent-sample t-tests, while qualitative data were collected through structured questionnaires. The findings showed that the experimental group achieved significantly higher scores in motivation ($t=8.76$, $p<0.001$) and speaking proficiency ($t=9.12$, $p<0.001$). The experimental group also reported a very high perception score (4.58), compared to the control group's moderate score (3.16). Gamification elements, including leaderboards and immediate feedback, enhanced learners' sense of competence and autonomy while reducing speaking anxiety. Overall, the study concluded that gamified tools were effective for improving engagement and learning outcomes..

Keywords: *Gamification, Motivation, Speaking Skills,*

I INTRODUCTION

In the era of digital education, technology-mediated language learning became essential for enhancing learner engagement and communicative competence. Among these technologies, gamified language learning applications, which incorporated game elements such as points, badges, levels, and immediate feedback, showed strong potential in improving motivation and speaking skills. By transforming routine exercises into interactive and rewarding experiences, gamification sustained learners' interest and participation in oral communication tasks.

Several contemporary theories explained the effectiveness of gamified approaches. Situated Expectancy Value Theory (SEVT) by Eccles and Wigfield (2024) emphasized that learners' expectations for success and the perceived value of a task were influenced by social and contextual factors. In digital learning environments, interface design, peer interaction, and situational cues shaped engagement and persistence. Self-Regulated Learning (SRL) frameworks articulated by Zimmerman and Schunk (2025) highlighted that learners who planned, monitored, and evaluated their learning strategically achieved better outcomes. In gamified apps, students set goals, tracked progress, and responded to feedback independently, which enhanced both motivation and skill acquisition.

From a language education perspective, Sociocultural Theory (Lantolf & Thorne, 2023) posited that language developed through mediated social interaction. Gamified applications that provided collaborative speaking tasks enabled learners to co-construct meaning and practice communication in meaningful contexts. Instructional Scaffolding Theory, as outlined by Wood, Bruner, and Ross (2022), posited that structured support, including prompts and adaptive hints, helped learners progress from their current competence to higher levels of proficiency. Digital scaffolds in gamified environments tailored challenges to learners' abilities, thereby improving confidence and oral production. Finally, Motivation Construction Models (MCM) by Dörnyei and Ushioda (2024) integrated goal setting, self-efficacy, and strategic regulation, and highlighted how adaptive feedback and task design dynamically influenced learners' motivation and engagement.Speaking skills remain a major challenge for beginners, especially in technical programs such as Informatics Engineering at Politeknik Negeri Bengkalis, where students often prioritize technical skills over communicative competence. This imbalance can result in low confidence and limited participation in spoken activities. Gamified language learning applications, by combining interactive tasks, feedback, and reward systems, offer a promising solution to improve both motivation and speaking performance, aligning with contemporary theories on self-regulation, scaffolding, and socially mediated learning.

Research explicitly concentrating on first-semester Informatics Engineering students in Indonesian polytechnics was still few, despite evidence that gamification improved engagement and language outcomes in general contexts. This disparity demonstrated the necessity for context-specific research, especially in technical school environments where students frequently placed a higher priority on analytical abilities than English communication proficiency. Additionally, a lot of students had fear and low self-esteem when speaking, which prevented them from actively engaging in language learning activities.

Thus, this study examined how students' motivation and speaking abilities at Politeknik Negeri Bengkalis were affected by gamified language learning programs. It sought to determine whether incorporating digital tools could help with motivational issues and enhance speech skills. The study also aimed to give educators empirical ideas for creating more dynamic and learner-centered lessons. The results were anticipated to support more efficient, interesting, and context-relevant language learning experiences as well as the incorporation of digital pedagogies in technical education.

II METHOD

This study examined the effects of gamified language-learning programs on the motivation and speaking abilities of Politeknik Negeri Bengkalis first-semester Informatics Engineering students using a quasi-experimental design with a pretest–posttest control group. While the control group used traditional English learning

techniques without gamification, the experimental group received instruction through gamified applications. In order to gauge changes in motivation and speaking ability, both groups were evaluated both before and after the intervention. The methodology made it possible to compare the two groups methodically, which allowed the researchers to assess how well gamified learning resources enhanced students' oral communication abilities and level of involvement.

Purposive sampling was used to choose 60 students, 30 of whom were in the experimental group and 30 of whom were in the control group, depending on their access to computers or cellphones and their basic English skills. Three tools were used to gather data: a performance-based speaking test based on Lantolf and Thorne (2023) and Wood, Bruner, and Ross (2022); a motivation questionnaire modified from Dörnyei and Ushioda (2024) and Eccles and Wigfield (2024); and an observation checklist to track participation and engagement in the experimental group. Additionally, by collecting both quantitative and qualitative components of students' learning experiences, the use of different instruments ensured data triangulation, strengthening the validity and dependability of the findings.

The research was carried out over a period of six weeks. To create baseline data, both groups finished the pretest. While the control group continued receiving traditional instruction, the experimental group used gamified apps like Duolingo and ELSA Speak that were incorporated into classroom activities. Both groups finished the posttest following the intervention, and the experimental group's engagement was noted.

Effect sizes were computed to gauge the extent of the intervention's influence. Paired-sample t-tests were used to assess quantitative data to look at improvements within groups and independent-sample t-tests to find differences between groups. To identify trends in student participation and engagement, qualitative data from observations were descriptively examined. To guarantee the validity and dependability of the findings, SPSS version 27 was used for all statistical analyses.

III RESULT

3.1 Quantitative Findings t-test

The numerical data and statistical analysis from the Politeknik Negeri Bengkalis study were shown in this section. The main goal was to assess how well gamified language learning programs improved first-semester informatics engineering students' motivation and speaking abilities. Descriptive statistics, which gave a summary of the pretest and posttest scores, paired-sample t-tests, which assessed improvements within the experimental and control groups, and independent-sample t-tests, which contrasted the two groups' final performance, comprised the three primary analytical components of the quantitative findings. In order to measure students' opinions and attitudes on the gamified intervention, the structured questionnaire data were also incorporated. When taken as a whole, these statistical metrics provide an impartial foundation for assessing whether gamification had a major influence on the students' language learning process.

Table 3.1 The Descriptive Statistics

No	Group	Variable	Pretest Mean (SD)	Posttest Mean (SD)
1	Experimental (n=30)	Motivation	58.23 (5.12)	72.45 (4.87)
2	Control (n=30)	Motivation	57.80 (5.45)	60.12 (5.31)
3	Experimental (n=30)	Speaking Skills	50.67 (6.14)	68.33 (5.78)

4	Control (n=30)	Speaking Skills	51.10 (5.98)	54.20 (6.12)

The structured questionnaire data were also used as an additional source of evidence to gauge students' attitudes and opinions toward the gamified intervention. The questionnaire recorded a number of aspects of the learners' experiences, such as their degree of interest, the applications' perceived utility, their speaking confidence, and their general level of participation throughout the learning process. These answers provide insightful information about how students viewed the incorporation of gamification into their language learning exercises.

When taken as a whole, these statistical measures offered a thorough and impartial basis for determining if gamification significantly impacted the students' language learning process. A more comprehensive interpretation of the results was made possible by the combination of quantitative test results with qualitative perception data, guaranteeing that learner experiences and performance outcomes were taken into consideration. Consequently, the analysis provided more proof of the efficacy of gamified learning in enhancing speaking abilities and motivation.

Table 3.2. Paired-Sample t-Test (Within-Group Improvement)

Experiment Group				
Variable	**T**	**df**	**P**	**Cohen's d**
Motivation	12.34	29	<0.001	2.25
Speaking Skills	13.56	29	<0.001	2.48
Control Group				
Variable	**T**	**df**	**p**	**Cohen's d**
Motivation	2.41	29	0.022	0.44
Speaking Skills	2.08	29	0.046	0.38

Both groups saw statistically significant improvements, according to the paired-sample t-test results, even though their growth rates differed significantly. The intervention was quite successful in the experimental group. This was demonstrated by the motivation variable, which showed a significant increase in students' motivation following the intervention with a t-value of 12.34, a significance level of $p<0.001$, and a very large impact size of $d=2.25$.

The group also showed impressive improvement in speaking abilities, with an even greater effect size of 2.48 and a t-value of 13.46 ($p=0.001$). These results indicated that the gamified learning apps greatly improved students' oral communication skills in addition to increasing their interest. The overall size of these findings demonstrated the intervention's significant influence on skill-based and motivational outcomes.

However, the control group's improvements were far more modest. Their speaking abilities produced a t-value of 2.08 ($p=0.046$) and a small effect size of 0.38, whereas their motivation scores produced a t-value of 2.41 ($p=0.022$) with a small-to-medium effect size of 0.44. When compared to the experimental group, these data showed that while there was some improvement, the amount of change was still modest.

In the end, even though both groups made technical progress, the experimental group's significantly higher t-values and huge effect sizes indicated that the particular intervention was the main cause of their noteworthy advancement. On the other hand, the control group's typical techniques only resulted in a slow and insignificant improvement in speaking performance and motivation.

Table 3.3. Independent-Sample t-Test (Between-Group Posttest)

No	**Variable**	**t**	**df**	**P**	**Cohen's d**
1	Motivation	8.76	58	<0.001	2.26
2	Speaking skills	9.12	58	<0.001	2.36

The posttest performance of the experimental and control groups differed significantly across all variables, according to the independent-sample t-test results (Table 3.3). In terms of

motivation, the study produced a t-value of 8.76 with 58 degrees of freedom and a significance level of $p<0.001$, meaning that the difference between the two groups was statistically significant. A relatively large effect size (Cohen's $d = 2.26$), which indicated that the intervention had a significant impact on the participants' motivation in comparison to the control group, further corroborated this conclusion. Overall, these findings demonstrated that gamified language learning apps greatly raised students' motivation levels, surpassing the traditional teaching strategies used in the control group.

Similarly, there was a significant difference between the groups in Speaking Skills ($t= (58)=9.15$ and $p<0.001$). By the end of the trial, the experimental group had substantially surpassed the control group in language proficiency, as seen by the effect size for speaking skills, which was likewise noticeably high at 2.36. Overall, these results show that the experimental therapy was very successful because it caused significant and statistically significant variations in the two groups' motivation and speaking abilities.

3.2 Qualitative Results of Questionnaire

In order to provide a psychological context for the previously noted statistical benefits, this section examines the results of the perception questionnaire given to both the experimental and control groups. The questionnaire data captures the students' subjective experiences of their motivation and speaking confidence during the study, even if the t-test results demonstrate the considerable improvement in performance. The impact of gamification components on learning engagement and students' self-perception of their speaking ability are the two main aspects of the analysis. This section shows how the gamified application affected the experimental group's attitude toward language acquisition by comparing the mean scores of the two groups. The experimental group's average total score was 4.58 (Very High), whereas the control group's was 3.16 (Neutral/Moderate).

Table 3.4. Table 4.1. Students' Perception of Motivation and Speaking Skills toward Gamified Language Learning

	Statements	**Experimental Group (n=30)**	**Control Group (n=30)**
	Motivation (Intrinsic & Extrinsic)	**Mean Score**	
1	Excited to start class with the app/method.	**4.63**	3.10
2	Points, badges, and leaderboards encourage effort.	**4.77**	2.87
3	Do not feel bored during practice.	**4.50**	3.20
4	Immediate feedback motivates fixing mistakes.	**4.70**	3.40
5	Sense of accomplishment upon completion.	**4.57**	3.53
6	Spend more time practicing than with textbooks.	**4.43**	2.93
	Speaking Skills (Confidence & Proficiency)	**Mean Score**	
1	App features help improve pronunciation.	**4.73**	3.03
2	Less anxious about making mistakes.	**4.60**	2.80
3	App provides a "safe space" for practice.	**4.67**	3.17
4	More confident in classroom discussions.	**4.40**	3.23
5	Vocabulary has increased significantly.	**4.53**	3.47

6	Easier to construct oral sentences.	**4.37**	3.13
AVERAGE TOTAL SCORE		**4.58 (Very High)**	**3.16 (Neutral/Moderate)**

The experimental group had a very high average total score of 4.58, whereas the control group maintained a moderate score of 3.16, according to the questionnaire data, which showed a sharp difference in perceptions between the two groups. High levels of enthusiasm for their English sessions were reported by students in the experimental group (mean: 4.63), primarily due to competitive features like leaderboards and points, which got the highest rating of 4.77.Additionally, students' speaking confidence was much enhanced by the interactive elements of the program; they thought that it offered a "safe space" for practice (mean: 4.67) and dramatically decreased their fear of making mistakes (mean: 4.60). Students in the control group, on the other hand, had a lower mean score of 2.80 for confidence in making mistakes and higher levels of speaking anxiety.

IV DISCUSSION

4.1 The Independent-Sample t-test Experiment Group and Control Group

The statistical evidence that contrasted the results of gamified learning with conventional approaches formed the basis of this study. A thorough examination of the posttest data revealed a number of important conclusions about the pupils' development. The statistical findings made it evident how the intervention affected the participants' learning paths.

Every measured variable showed a significant difference in posttest achievement between the experimental and control cohorts, according to the data from the independent-sample t-test. Regarding motivation, the statistical analysis yielded a significance value of $p<0.001$ and a t-value of 8.76 with 58 degrees of freedom, indicating that the performance difference between the groups was highly significant. A very substantial effect size (Cohen's $d = 2.26$) supported this conclusion by showing that the gamified intervention had a far greater impact on student motivation than the conventional teaching techniques employed in the control group. These results showed that, in comparison to traditional teaching methods, the gamified intervention significantly increased the motivation of first-semester Informatics Engineering students, indicating that it was not only successful but transformative.

1. Enhancement of Motivation through Gamification

The experimental group's notable increase in motivation was consistent with Deci and Ryan's Self-Determination Theory (SDT), which held that relatedness, competence, and autonomy were necessary for intrinsic development. By giving pupils a sense of advancement and social connection, gamification components like points, badges, and leaderboards which had an exceptionally high mean score of 4.77 on the questionnaire directly met these psychological demands. The application promoted intrinsic motivation by providing instant feedback (mean: 4.70), successfully turning a difficult work like language acquisition into an interesting and fulfilling pastime.

This result was in line with recent studies on gamification in education (2020–2023), which show that well-crafted digital game components greatly increase student engagement and promote more positive attitudes toward difficult learning tasks (Koivisto & Hamari, 2020; Subhash & Cudney, 2020). Furthermore, the updated Fogg Behavior Model applications in digital learning contexts (Fogg, 2020) indicate that when ability is enhanced through streamlined, interactive learning pathways and motivation is reinforced through rewards, learners are more likely to cross the "action line." By integrating user-friendly cues that encouraged constant

practice with motivating components like points and feedback, the application in this study maintained excellent interest. The experimental group's higher preference for the application over textbooks (mean: 4.43) in contrast to the control group's lower rating (mean: 2.93) demonstrated that gamified learning tools were thought to be more accessible and engaging than conventional approaches.

Additionally, the results can be explained by Self-Determination Theory (SDT) in recent revisions (Ryan & Deci, 2020), namely the idea that learning environments that are nonjudgmental and supportive of autonomy improve students' psychological safety and confidence. The application's "safe space" (mean: 4.67) allowed students to practice without worrying about social criticism, which increased their confidence in speaking English.

In sharp contrast to the control group's experience (mean: 2.80), the low anxiety levels reported (mean: 4.60 for feeling less nervous about mistakes) further indicated that reduced evaluative pressure supported more effective language use and participation in speaking activities.

The high t-value of 9.12 for speaking skills was explained by students' growing persistence in overcoming language difficulties as their self-efficacy increased. The findings also supported Bonny Norton and Bonny Norton Peirce's Investment Theory, which argued that students were more likely to "invest" in a language when they saw significant benefits from their work.The "sense of accomplishment" score of 4.57 for the experimental group showed that students thought using the program was very beneficial, which strengthened their desire to participate more fully in the language learning process..

This is consistent with recent research by Sailer et al. (2017), who showed that certain gamification design features, when properly paired, perform as useful tools that maximize the learner's cognitive load rather than just acting as "eye candy". In the end, the combination of these psychological factors explains why the experimental group's performance was statistically transformative rather than just superior.

2. Development of Speaking Skills and Anxiety Reduction

The experimental group thought that the program offered a "safe space" for practicing (mean: 4.67) and reported feeling much less nervous about making mistakes (mean: 4.60).

The significant t-value of 9.12 in speaking skills resulted from students' increased receptivity to language input and willingness to generate output when their worry (the affective filter) was reduced.

This result was in line with recent research by Azizah et al. (2024), who found that digital interactive tools provide structured and low-stress repetitive practice that significantly enhances EFL speaking fluency. Furthermore, the findings can also be interpreted through the lens of recent skill acquisition studies (2024) emphasizing technology-assisted deliberate practice, where automatic feedback systems support continuous error correction and skill refinement, as reflected in the high mean score for pronunciation improvement (4.73).

Furthermore, new research on digital scaffolding (2020–2024), which emphasizes that technology-enhanced learning settings enable learners to achieve beyond their independent competence through directed support, provides a better interpretation of Vygotsky's Zone of Proximal Development (ZPD). By offering lexical support and structured prompts (mean: 4.53),

the program served as a type of digital scaffolding in this study, enabling students to create sentences that they might have found challenging in high-pressure classroom situations (mean for sentence construction: 4.37). Lin and Warschauer (2021), who highlighted that mobile-assisted language learning systems enable scaffolded environments where learners can progressively gain linguistic competency through guided engagement and feedback before engaging in real-time communication, support this interpretation. In a similar vein, Godwin-Jones (2022) observed that digital language tools lessen cognitive burden and give students a secure environment for practice, strengthening their preparedness for public speaking assignments.

Furthermore, Paas and van Gog's (2020) and Kalyuga's (2020) expansions of the Cognitive Load Theory, which stress that good instructional design in digital learning should minimize needless mental work while promoting gradual skill acquisition, provide a better explanation for the gamified interface. The tool assisted students in controlling their cognitive load and preventing overload during learning activities by dividing difficult speaking tasks into smaller, more manageable chunks. Sweller, van Merriňboer, and Paas (2019), who emphasized that well-structured learning materials should limit superfluous cognitive load, particularly in situations where learners must simultaneously process grammar, vocabulary, and communication demands, also endorse this approach. The gamified approach offered structured scaffolding that promoted more effective learning and enhanced speaking performance, in contrast to traditional speaking lessons where several cognitive demands occur simultaneously.

This more effective learning process was demonstrated by the experimental group's higher confidence in class discussions (mean: 4.40) compared to the control group (mean: 3.23). Ultimately, these results corroborated those of Ahmadi (2018), who emphasized that rather than just supplementing traditional methods, technology-integrated language learning dramatically changed learners' cognitive and affective engagement with the language.

3. Synthesis of Results

Here was the comprehensive expansion of your discussion section in English, incorporating the additional theories of Flow State, Self-Determination Theory, and the practical implications for technical education:

Gamified applications were a better teaching tool for this group, as seen by the experimental group's visual dominance in the data, which accounted for 59.2% of the total mean scores compared to the control group's 40.8%. The strategy addressed both the intrinsic and extrinsic drives of learning by fusing the private "safe space" of individual practice with the social comparison made possible by leaderboards. The t-test gains of 8.76 for motivation and 9.12 for speaking abilities at the conclusion of the trial demonstrate the significant improvements brought about by this balanced strategy. These results demonstrated how gamified learning can improve students' interest and communication skills at the same time.

Self-Determination Theory (SDT), which emphasizes that instant feedback and incentive systems in digital learning settings can increase learners' perception of competence and sustain engagement, can further explain this phenomenon in light of its recent advances (Ryan & Deci, 2020). Instant rewards like points and badges (mean: 4.77) served as external motivational supports in this situation, encouraging students to learn language consistently by boosting their sense of accomplishment. The application's ability to provide immediate correction (mean: 4.70) was in line with recent findings in educational feedback research (Hattie & Clarke, 2020), which emphasize that timely, specific feedback significantly improves learning efficiency and skill development, in contrast to traditional approaches that often relied on delayed feedback. This resulted in more effective speaking practice and better performance outcomes by ensuring that students' learning behavior was continuously supervised and enhanced.

Furthermore, the integration of these tools significantly boosted the students' Self-Efficacy, as defined by Albert Bandura. As students successfully navigated through levels and saw their progress on leaderboards, their belief in their ability to construct oral sentences

improved (mean: 4.37), which is a critical factor for Informatics Engineering students who often prioritize technical over linguistic competence. This is consistent with research by Landers (2014), who argued that gamification does not replace learning but enhances it by mediating the relationship between student attitudes and instructional content.

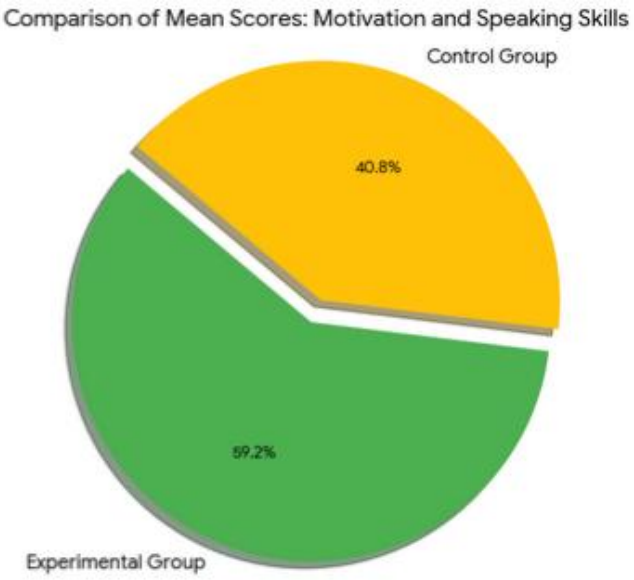
Mayer's Cognitive Theory of Multimedia Learning (Mayer, 2020) and recent extensions of multimodal learning research by Li and Zhang (2022), which highlight how integrating visual and auditory input in digital learning environments enhances comprehension, lessens cognitive load, and strengthens retention, provide a better explanation for this study. The application's integration of visual badges and auditory feedback (pronunciation mean: 4.73) enabled students to digest information through both verbal and nonverbal channels, effectively supporting more effective learning and memory encoding. Additionally, integrated multimodal feedback systems improve learners' confidence and communicative readiness in real-life speaking circumstances, according to Kohnke and Moorhouse's (2021) research on mobile-assisted language learning. This is demonstrated by the experimental group's higher confidence level in class discussions (mean: 4.40) as opposed to the control group's (mean: 3.23), suggesting that the skills acquired through digital multimodal interaction were effectively applied to social communication in the real world..

Additionally, Mihaly Csikszentmihalyi used Flow Theory to analyze this success. In order to avoid the boredom usually associated with traditional methods (control group motivation mean: 3.16), the application successfully created a "flow" state in which the difficulty level of the tasks was perfectly balanced with the students' evolving skills (mean: 4.57 for sense of accomplishment). The main psychological demands described in Self-Determination Theory (SDT), which proposed that students' intrinsic motivation became more sustained when they felt capable and in control of their learning path, were also met by this increased sense of competence (mean: 4.70).

From a practical standpoint, these findings made a strong case that gamified mobile learning was especially appropriate for engineering students who were predisposed to digital environments. The psychological obstacles that come with speaking a foreign language were broken down with the aid of a framework that was both competitive and encouraging. In order to produce graduates who were both technically adept and globally communicative, the English for Specific Purposes (ESP) curriculum had to incorporate such technology, which was no longer only an optional addition.

4.2. Students' Questionnaire Experimental Group and Control Group

The perceptual information gathered from both the Experimental and Control groups using a standardized questionnaire was thoroughly compared in this section. This analysis's goal was to correlate the statistical results from the t-tests with the students' subjective experiences, paying particular attention to how their motivation and speaking abilities changed over the course of the study. This part demonstrated the different attitudes between students who used the gamified application and those who adhered to the traditional teaching style by looking at the mean scores for each statement..



A good reaction to the gamified application was indicated by the Experimental Group's mean score of 4.58, which was classified as "Very High," whereas the Control Group's mean score of 3.16 was classified as "Neutral/Moderate". The pie chart, which showed that the Experimental Group accounted for 59.2% of the total combined mean scores, as opposed to merely 40.8% for the Control Group, visually supported this discrepancy. The experimental students rated some motivators like points and leaderboards at an outstanding 4.77, whereas the control group's motivation for comparable work trailed at a significantly lower 2.87. This considerable relevance revealed a distinct discrepancy in student involvement and skill estimation.

These results were in line with Deci and Ryan's Self-Determination Theory (SDT), which proposed that gamification elements such as badges and instant feedback (rated 4.70) met the psychological needs for competence and autonomy, thereby promoting intrinsic motivation. Students felt more capable and in control of their learning process, which increased their engagement and willingness to practice consistently.

Additionally, Krashen's Affective Filter Hypothesis was supported, as the app successfully reduced speaking anxiety (mean: 4.60) compared to the control group (mean: 2.80). The presence of a "safe space" lowered mental barriers, allowing students to practice without fear of making mistakes. As a result, they became more confident and active in using English, which contributed to more effective speaking skill development.

Beyond motivation, the data supported modern perspectives on engagement and flow-based learning (Deterding et al., 2021; Wong & Looi, 2023), which highlight that learning is best when digital tasks strike a balance between difficulty and skill, enabling learners to engage deeply and maintain focus. The "sense of accomplishment" score of 4.57 and the reduced level of boredom in comparison to traditional textbooks (4.43) were indicative of this condition. Recent behavioral design research (Deterding et al., 2021), which expands on concepts from the Fogg Behavior Model and explains that interactive prompts, micro-learning structures, and immediate feedback significantly increase the likelihood of sustained language practice by lowering effort barriers and reinforcing immediate rewards, corroborated the findings.

Recent research on gamification in education (Koivisto & Hamari, 2020; Subhash & Cudney, 2020) supported this study by showing that well-designed gamified systems greatly boost student engagement and promote more positive attitudes toward difficult learning activities. In this instance, adding game elements like points, stages, and prizes encouraged students to participate more actively in educational tasks that they might have otherwise found challenging or boring. As a result, while utilizing the target language, students showed greater persistence, zeal, and willingness to take chances, demonstrating the motivational effect of structured gamified learning settings in boosting learner involvement and confidence.

Additionally, the high pronunciation improvement score (mean: 4.73) was in line with the results of Fadhilawati's (2021) study, which showed that interactive digital tools provided low-stress, repetitive practice that was essential for EFL (English as a Foreign Language) students to develop oral fluency. Students were able to practice pronunciation repeatedly without worrying about being judged thanks to the gamified app, which boosted their accuracy and confidence.

Speaking abilities were accelerated, and proper pronunciation patterns were reinforced through frequent exposure and instant feedback.

The results were in line with recent research on gamification in higher education (Koivisto & Hamari, 2020; Dichev & Dicheva, 2020), which emphasizes that while extrinsic rewards may encourage initial engagement, social and motivational elements incorporated into gamified systems have a greater impact on sustained participation. In this situation, leaderboards served as a type of social comparison that motivated students to keep an eye on and enhance their performance as they became more conscious of their advancement in relation to their peers. The competitive yet encouraging atmosphere encouraged a sense of accomplishment and accountability, and this understanding inspired students to keep up a steady effort in finishing speaking assignments. Peer comparison and motivation worked together over time to promote learning persistence and sustained engagement in educational activities.

Furthermore, the results indicated that gamification promoted deeper cognitive and emotional involvement in addition to increasing motivation. In addition to completing assignments for prizes, students showed a sincere desire to advance their language proficiency. The interactive and immersive nature of the application created a learning atmosphere that reduced anxiety and encouraged experimentation, which was essential for language acquisition.

In the end, the statistical data showed that the gamified approach produced a learning environment that was much more effective, effectively turning passive learners into highly motivated and independent participants. These results demonstrated how crucial it is to incorporate well-thought-out gamification techniques into language instruction, especially in technical education settings where students could gain from organized, interesting, and technologically enhanced learning opportunities.

V CONCLUSION

As demonstrated by the transformative t-test gains in motivation ($t = 8.76$) and speaking proficiency ($t = 9.12$), the incorporation of gamified language learning applications considerably improved the motivation and speaking abilities of first-semester Informatics Engineering students at Politeknik Negeri Bengkalis. A "Very High" student perception score of 4.58, where components like leaderboards and instant feedback successfully met psychological demands for competence and autonomy while offering a "safe space" that decreased speaking anxiety, supported these statistical gains.

In order to better understand the particular app features that drove engagement, it was suggested that future research examine the long-term sustainability of these gains beyond the initial "novelty effect," broaden the study's scope to include a variety of technical disciplines, and include in-depth qualitative interviews. In the end, even though these results offered a solid empirical foundation for implementing gamified tools in the English for Specific Purposes (ESP) curriculum, more research into cooperative game mechanics and different AI-based platforms was necessary to maximize digital scaffolding for technical students.

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