Gamification of Spoken Skills: Technical Presentations and Pitching

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***Abstract* -This study investigates the impact of a gamified instructional model grounded in Self-Determination Theory (SDT) on enhancing technical presentation skills among engineering and management students. Traditional technical presentations are often perceived as stiff and anxiety-inducing, resulting in low engagement and limited creativity. To address this, a month-long intervention was developed incorporating SDT principles: autonomy, competence, and relatedness, through gamified elements such as quest menus, XP points, badges, feedback loops, and peer collaboration. A quasi-experimental design was employed to divide 100 engineering and Management students into two groups: a control group and an experimental group. Both quantitative (rubric-based assessments and questionnaire data) and qualitative (interviews and open-ended responses) methods were employed before and after the intervention. The experimental group demonstrated significant improvements in presentation clarity, creativity, audience engagement, and technical depth. Post-intervention analysis revealed increased motivation, reduced presentation anxiety, and greater ownership of learning among students participating in the gamified approach. The findings confirm that integrating SDT-aligned gamification into technical education can effectively enhance communication skills while nurturing a more engaging and student-centered learning environment. The proposed model provides a scalable and replicable framework for modern engineering and management education.**

***Keywords*— gamification; technical presentations; pitching; engineers; management, self -determination theory; spoken skills**

***JEET Category*— Research**
***ICTIEE* Track— Innovative Pedagogies and Active Learning**

***ICTIEE Sub-Track*— Gamification and Student Engagement Strategies**

I. INTRODUCTION

GRADUATE attributes are of prime importance in education, and especially so in engineering and management education. (Palmer & Ferguson, 2008). The focus on these attributes in engineering and management colleges has shifted their attention to the outcomes of education, encompassing both knowledge and skills. This has also led to an improvement in the overall education of engineers and management graduates. One of the important graduate attributes for engineering and management students is communication. They are expected to be well-versed in both technical knowledge and non-technical skills (Bhattacharyya, E., & Zainal, A. Z. ,2015). Which they can utilise in technical and scientific presentations within the engineering community. It is of serious concern that, although many engineers possess strong technical and core skills, they often lack effective communication skills.(Basri et al., 2012). The need, combined with the fact that engineering students lack the necessary presentation skills, makes it imperative that the teaching and learning of this skill be given utmost importance. (Jackson.D,2015)Pitching is one of the key skills for management students to develop. It is a common but essential pedagogical technique for management students. (Bliemel, 2013) Pitching supports the students to enhance entrepreneurial skills through valuable pragmatic experiences.(Donnellon et al., 2014) It also fosters resilience (Seow, Pan, & Koh, 2019), enhanced entrepreneurial knowledge (Rae, 2010), and verbal and non-verbal skills. (Johnson & Envick, 2014).

Gamification can be used to encourage students to learn and practice technical presentations and pitching. Its impact is felt in various fields, education being one. Gamification means to the use the structure and skills of games in non-gaming contexts (Deterding et al., 2011). It can also be understood as creating gaming experiences. Gamification is not a game per se, but it utilises the features of games in specific fields(Rodrigues et al., 2021).Foursquare first incorporated gaming elements into its design in 2009. Since then, many fields and departments have adopted it, reaping significant benefits. The reason gamification is rapidly gaining traction in the field of education is its potential to garner interest, change behaviour, and support innovation. Gamification of education encourages students to take risks by providing checkpoints and offering them multiple opportunities to succeed. The freedom to fail is a significant form of experimentation in education, often discouraged, yet it leads to increased student engagement(Kapp, KM, 2012). Storytelling, points, badges, and leader boards are some of

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the ways it is used in education. Other gaming elements incorporated into education include achievements or accomplishments that can be earned in the form of badges, points, bonuses, or tokens. Levels are also included and are one of the most engaging elements of gamification. Each level is designed to increase in difficulty. Community collaboration is also a fascinating concept, where students work together to achieve a common goal. Different types of games include puzzles, simulation games, strategy games, and edutainment games. The benefits of gamification are manifold, students are more engaged as they feel they own and control their learning, are free to fail, and there is an element of fun. Additionally, learning is more visible, and there are no restrictions on homework or exams.

Keeping the above benefits and strategies in mind, the authors designed a gamification approach for two important concepts in engineering and management education: technical presentations and pitching.

The objectives of the study were a) to investigate whether gamification enhances technical presentation skills in engineering students and pitching in management students, and b) to evaluate student engagement, motivation, and confidence when using gamified activities. c)To compare performance outcomes between gamified and non-gamified instruction. A quasi-experimental model and a survey were also conducted to assess motivation and engagement and to strengthen the study.

II. REVIEW OF LITERATURE

Gamification, defined as "the use of game design elements in non-game contexts" (Deterding et al., 2011), has been found to increase usability in learning and education (Hamari & Koivisto, 2015). The primary feature of gamification is motivation, which is why it is garnering significant attention in educational circles. Gamification and e-learning can be combined to enhance educational benefits. Gamification in e-learning necessitates techniques and tools to create interest and incentives for enrolling in and completing a course. (Rozman & Donath, 2019). Additionally, gamification can create social learning experiences that motivate and engage learners in education. (de Marcos-Ortega et al., 2020). Engagement and motivation are by-products of gamification in learning that increase with the inclusion of the fun element in games. (Adams & Dormans, 2012). Along with intrinsic motivation, gamification builds and enhances critical thinking skills, social skills, and professional competencies. (Souza et al., 2018). Gamification as compared to other strategies is better as it provides better learning experiences. (Grivokostopoulou et al., 2020).

It allows students to manipulate and apply information and data practically (M. Popovic, K. Vladimir, and M. Silic, 2018). Gamification incorporates elements such as badges, points, and leader boards to promote motivation, engagement, and enjoyment in learning (K. McClarty, 2012).

Engineering education has evolved as companies now seek engineers who possess not only core technical skills but also soft skills. (Jamila, 2020; El-Sakran & Prescott,2013). This shift has directly influenced the research, teaching, and learning of soft skills within engineering education (L et al., 2020). Some researchers even argue that mastering soft skills is more crucial for engineers than their technical expertise. (Lowden et al., 2011). Gamification of soft skills can help address the issue of low motivation and interest in developing these skills. Games offer immediate feedback, introduce an enjoyable element, and aid in retention (J.McGonigal,2011). Building on the benefits of gamification for soft skills in engineering, Fang adapted certain gamification principles to develop a computer simulation project that included both written and oral presentations. The results indicated that 80% of students believed this method enhanced their communication skills (N. Fang, 2012). Ruocco at Williams University designed a game called 'Um game', which focused on reducing the use of filler words during presentations. Students were asked to deliver impromptu presentations and were stopped at their first filler word. This game encouraged engineering students to minimise unnecessary filler words (A. Ruocco, 2007). Similarly, Proske and his team investigated the impact of gamification on presentation skills; although students felt motivated, no significant improvement was observed in their grades. His study concluded that instructional design is essential for effective implementation of game-based learning, ensuring that it not only motivates students but also helps them integrate learning into their studies.(Proske et al., 2014)Evans et al. developed a communication skills course incorporating gamification elements, such as badges, that covered the fundamentals of communication. The findings showed that students' dissatisfaction was linked to harsh feedback from instructors. The study concluded that additional scaffolding is necessary to help students meet the course objective. Another study by J. Jeuring employed a game called 'Communicate' to teach interpersonal communication skills. This game involved role-playing, allowing students to express a given piece of information in their own way. The grades and subsequent interviews revealed that students found the game a more effective way to learn communication skills (Jeuring et al., 2015).

Intrinsic motivation is an essential component for cognitive, social, and physical development, as it nurtures inherent interest and motivation that develop once skills and subsequently learning (Ryan & Deci, 2000). Learners with intrinsic motivation participate and succeed in learning related activities (Morgan,2021). The model provides an understanding of Self-Determination theory, as proposed by Ryan and Deci (Ryan & Deci, 2000), which posits that human beings are motivated by meeting three basic needs: autonomy, competence, and relatedness. Autonomy refers to the control individuals have over their actions. Competence is directly related to their capabilities, and relatedness refers to the recognition they

receive from others upon completing an activity. They also specify two kinds of motivation, namely extrinsic and intrinsic, and further emphasise that intrinsic motivation brings better performance and engagement. They also posit that external motivation, overall, can lead to intrinsic motivation(Vallerand et al.,1992).SDT theory in video games has demonstrated that choice, repeatability and feedback, which are important elements of games, can positively bring intrinsic motivation (Rogers, 2017). Research has proved that intrinsic motivation is necessary for studies, and games can augment it as suggested by SDT. The SDT framework, along with gamification, can be used as an advantage to bring better learning among learners. (Fotaris et al., 2016). Students can be motivated externally through badges, points, or leader boards, which can later evolve into intrinsic motivation.

III. THEORETICAL APPROACH TO GAMIFICATION

Self-determination theory(Ryan & Deci, 2000),
It is a meta theory of human motivation and personality development that offers a comprehensive understanding of human motivation and functioning. Intrinsic and extrinsic motivation can encourage students to become motivated to learn. There is ample evidence that gamification works on the motivation and achievement of learners. (Kapp, 2012) (Su,2016). Competence, autonomy, and relatedness are the three core concepts of intrinsic motivation that can be aligned through gamification.
In SDT, extrinsic motivations can shift towards intrinsic motivations as they become more internalised. The journey to internalisation depends on how much the activities support autonomy, competence, and relatedness, which are the core principles of Self-Determination Theory (Ryan & Deci, 2020). By awarding badges based on students' achievement levels and nurturing collaboration, students can learn technical presentation skills through gamification that promotes Self-Determination Theory. In the context of pitching, autonomy is supported when students are given the freedom to choose the content and format of their pitch. Competence is improved through scaffolded learning, feedback, and gamified progress tracking. Relatedness is cultivated through collaborative pitch tasks, peer evaluation, and mentorship. The study hypothesises that aligning pitch training with these motivational needs increases both participation and the quality of presentations.

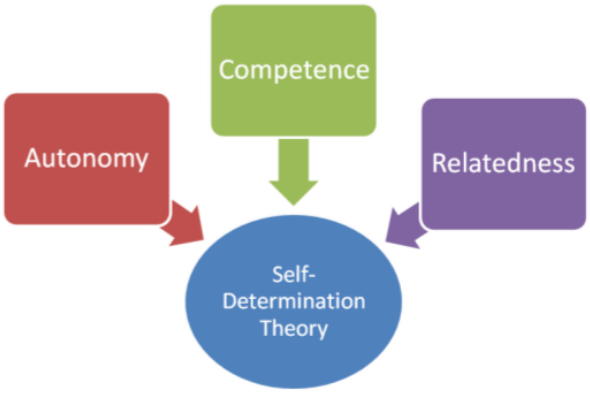

Fig. 1. Self-Determination Theory
(Ryan,Deci,2017)

IV. RESEARCH DESIGN

A. Methodology

This study employed a quasi-experimental method to examine the strength of gamification in enhancing speaking skills and student motivation, guided by the principles of Self-Determination Theory (SDT). SDT emphasises nurturing intrinsic motivation by addressing three core psychological needs: autonomy, competence, and relatedness. The study examined the impact of gamified speaking interventions on learners across two academic disciplines: engineering and management.
The study was administered at a university in Gujarat, India, and involved undergraduate students drawn from various institutes within the university system. A total of 100 students participated, selected through stratified random sampling to ensure representation from both the engineering (n = 50) and management (n = 50) streams. Each group was further randomly divided into a control group (n = 25) and an experimental group (n = 25). Engineering students were trained in delivering technical presentations, while management students focused on pitching business ideas, both of which are essential speaking tasks aligned with their respective disciplines.
The research design followed a three-phase sequence. First, all participants completed a motivation questionnaire based on the SDT framework, administered before the intervention. This questionnaire consisted of 20 closed-ended statements rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree), covering four key motivational dimensions:

TABLE I
KEY MOTIVATIONAL DIMENSIONS OF SDT

Autonomy	questions related to control, choice, and self-direction in learning
Competence	items focusing on proficiency, growth, and confidence in speaking skills,
Relatedness	items assessing social interaction, peer support, and collaboration,
Attitude towards Gamification	gauging learners' openness and expectations of gamified methods.

The questionnaire also included open-ended questions designed to capture qualitative insights about learners' expectations, prior experiences, and perceived challenges

in speaking activities. These responses provided a contextual understanding of student motivation prior to the intervention.

Second, the intervention phase lasted four weeks. A trained faculty member guided each group. Control groups received conventional instruction, involving lectures, structured practice, and faculty feedback. Experimental groups participated in gamified speaking modules that integrated features such as point-based scoring, badges, team challenges, role-plays, leader boards, and peer assessments. These elements were carefully aligned with SDT constructs to enhance autonomy (through choice and self-paced tasks), competence (through timely feedback and visible progress), and relatedness (through team-based collaboration and peer interaction).

Third, when the intervention ended, all students underwent a post-test questionnaire and speaking assessment. Performance was evaluated using a rubric developed for this study, measuring four key parameters:

TABLE II
PARAMETERS OF THE RESEARCH STUDY

Technical Clarity	logical structuring and explanation of content
Slide Quality	visual clarity and relevance of support material
Audience Engagement	ability to connect and maintain attention
Delivery Confidence	fluency, body language, and vocal expression

These parameters were selected to reflect the expectations of professional and academic oral communication in both technical and managerial settings.

To further enrich the data, students in the experimental group submitted weekly feedback forms and kept reflective logs, recording their experiences, progress, emotional engagement, and motivational changes during the intervention. These documents, along with open-ended questions in the initial questionnaire, formed the qualitative dataset. Faculty facilitators also kept structured observation logs, noting student participation, peer collaboration, and behavioural cues relating to motivation. The data collected was presented and analysed in terms of pre- and post-test Likert scores, as well as Parameter scores, including the mean and standard deviation scores of experimental and control groups simultaneously. The tabular and graphical information was then presented, followed by the discussion.

V. THE EXPERIMENT

1) Participants Profile

The study involved 100 participants, divided into four distinct groups (C1, E1, C2, and E2), comprising 25 students in every group. Groups C1 and E1 consisted of engineering students, with C1 engaging in conventional technical presentations and E1 participating in gamified technical presentations. Similarly, groups C2 and E2 were composed of management students; C2 focused on traditional business idea pitching, while E2 experienced gamified business pitches. This structured participant profile allowed for a comparative analysis of learning outcomes and engagement across different academic streams and presentation methodologies.

TABLE III
GROUPS FOR THE STUDY

Group	Stream	No. of Students	Activity Focus
C1	Engineering	25	Technical Presentations
E1	Engineering	25	Gamified Tech Presentations
C2	Management	25	Business Idea Pitching
E2	Management	25	Gamified Business Pitches

2) Pre-Test

A questionnaire comprising various questions on Self-Determination Theory (SDT) components, namely, Autonomy, Competence, Relatedness, and attitudes towards gamification, was administered to the students. Their responses were recorded using a Likert scale, with options 1 (strongly disagree) to 5 (strongly agree).

TABLE IV
LIKERT SUMMARY OF THE PARAMETERS

Group	Autonomy	Competence	Relatedness	Attitude towards Gamification
C1	3.1	2.9	3.2	2.5
E1	3.2	2.8	3.1	4.1
C2	3.4	3.3	3.5	2.7
E2	3.5	3.2	3.4	4.2

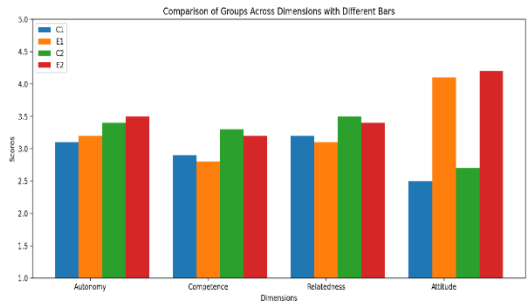

Fig. 2. Likert Summary of the Parameters

The open-ended responses are summarised below, presenting the speaking concerns, students' expectations from gamified tasks, and their suggestions for training.

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TABLE V
SUMMARY OF OPEN-ENDED RESPONSES

Group	Speaking Worries	Expectations from Gamified Tasks	Suggestions for Training
C1	Too technical; Fear of forgetting points; Not confident in	More practice sessions, Model presentations, Peer feedback	

	voice modulation		
E1	Monotony; Fear of audience judgment; Too many slides	Should be more fun; Expect team challenges; Like levels and feedback	Interactive tasks; Use videos/games; Real-time feedback
C2	Hard to hold the audience; Forget flow; Not good at storytelling	More practice sessions, Model presentations, Peer feedback	
E2	Pitch sounds too rehearsed; Fear of Q&A; Lack of creativity	Makes learning feel less formal; Would like rewards and peer competition; Gamified learning feels refreshing	Interactive tasks; Use videos/games; Real-time feedback

Before starting the intervention programme, participants were randomly distributed to control or an experimental group. Afterwards, engineering students were tasked with delivering a technical presentation on 'safety standards in engineering labs,' while management students presented on 'pitching a business idea.' These initial presentations were assessed based on four key parameters: technical clarity, slide quality, audience engagement, and presenter confidence. The following is the representation.

TABLE VI
PRE-TEST MEAN AND SD SCORES (BEFORE GAMIFICATION INTERVENTION)

Category	Group	Control Mean	Control SD	Experimental Mean	Experimental SD
Technical Clarity	Engineering	2.04	0.84	2.16	0.85
	Management	2.18	0.76	2.20	0.78
Slide Quality	Engineering	2.00	0.65	1.72	0.84
	Management	2.12	0.58	2.10	0.60
Engagement	Engineering	2.24	0.88	2.16	0.90
	Management	2.10	0.83	2.15	0.80
Delivery Confidence	Engineering	2.08	0.81	1.88	0.88
	Management	2.25	0.70	2.20	0.68

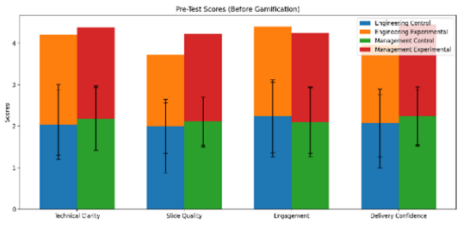

Fig. 3. Pre-Test Mean and SD Scores (Before Gamification Intervention)

3) The Intervention Program

A four-week gamification intervention was carried out with the experimental groups (E1 and E2). Conversely, the control groups (C1 and C2) received training and practice in technical presentations through traditional methods, which involved theoretical instruction, video demonstrations, and practice presentations. The 4-week gamification intervention is outlined in the table below, followed by the Quest Menu that has elements that were embedded during the 4-week gamification intervention.

TABLE VII
WEEK-WISE GAMIFICATION ELEMENTS AND ACTIVITIES

Week	Focus + Gamification	SDT	Activities – Eng. / Mgmt.
1	Baseline & Gamification Introduction – Topic quests, scoreboards	Autonomy, Competence	Eng: Pre-test, topic allocation, rubric & gamification overview Mgmt: Pre-test, topic choice, rubric & gamification overview
2	Mini Challenges – Peer reviews, badges, level-ups	Competence, Relatedness	Eng: Team presentations, peer feedback, badge for clarity. Mgmt: Pitch drafts, mock delivery, badge for creativity
3	Creative Missions – Scenario twists, XP, role-play	Autonomy, Competence	Eng: Present with limits, switch presenters, XP twists. Mgmt: Investor role-play, handle interruptions, XP spontaneity
4	Final Showdown & Reflection – Final boss, leader boards, certificates	Autonomy, Competence, Relatedness	Eng: Final presentation, post-test, leader board, reflection. Mgmt: Final pitch to panel, post-test, leader board, reflection

The following is the quest menu given to the students for engineering:

TABLE VIII
QUEST MENU FOR ENGINEERING STUDENTS

Quest & Objective	Twist	Mode	XP
Rebuild the Broken Bridge – Analyse and redesign a failed structure	Simulation or diagram	Team	15
Power Up the Grid – Integrate renewable energy into smart grids	Real-world case study	Pair	10
AI on the Assembly Line – Impact of AI in manufacturing	Real product example	Solo	20
Survive the Mars Mission – Design a critical system for the Mars colony	Infographics/flowcharts	Team	25
Signal in the Storm – Wireless tech in disaster recovery	Interactive Q&A	Pair	15
Game the System – Gamified classroom/workplace solution	Storyboard or demo	Team	20

Engineer's Mind Map – Complex concept via analogies	No technical jargon	Solo	10
Lab to Life – Classroom concept applied in industry	Interview or real case	Any	15
Pitch Your Prototype – New tech solution proposal.	Elevator pitch (3–4 min)	Pair	20

Following is the quest menu for Management students:

TABLE IX
QUEST MENU FOR MANAGEMENT STUDENTS

Quest & Objective	Challenge Twist	Mode	XP
Crack the Customer Code. Identify a target customer segment and build a pitch around their problem	Include a user persona and customer journey map	Team	15
Create a product pitch with brand identity (logo, tagline, USP)	Present as an unboxing experience or brand reveal	Pair	10
Shark Bait Pitch a new business idea to mock investors	Handle three impromptu questions from the "investors"	Solo	20
Break the Bias: Design a pitch for a social enterprise solving a systemic issue.	Must highlight diversity, inclusion or accessibility	Team	25
Flip the Fail. Choose a failed product or idea and redesign the pitch to make it viable	Include SWOT analysis and what you would do differently	Pair	15
The Pivot Point Take an existing idea and pivot it for a different market	Use a business model canvas snapshot	Team	20
Sell Without Selling Pitch an idea using only storytelling and emotional appeal	No numbers, no slides, only narrative	Solo	10
Present a pitch inspired by a real startup story or business case	Include a short video clip or quote as a hook	Any	15
Elevator to Unicorn Deliver a high-impact business pitch in under 3 minutes	Include a one-line value proposition at the end	Pair	20

4)Post Test

After a 4-week gamification intervention with students from both disciplines across experimental groups using the Likert scale results for the SDT Components and attitude towards gamification is summarised below.

TABLE X
TABLE X
LIKERT SUMMARY OF SDT (AFTER GAMIFICATION)

Group	Autonomy	Competence	Relatedness	Attitude towards Gamification
C1	3.1	2.9	3.2	2.5
E1	3.2	2.8	3.1	4.1
C2	3.4	3.3	3.5	2.7
E2	3.5	3.2	3.4	4.2

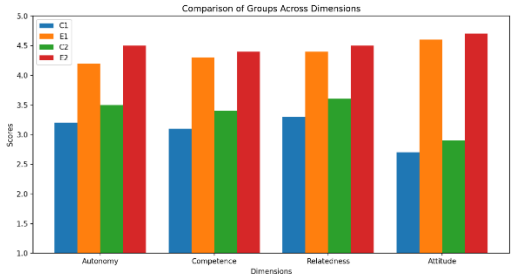

Fig. 4. Likert Summary of SDT (After Gamification)

After the Intervention, the open-ended questions were summarised as follows from both engineering and management students. The sample is given in the table.

TABLE XI
SAMPLE OPEN-ENDED RESPONSES AFTER INTERVENTION

SDT Dimension	Question	Sample Student Comments
Autonomy	How did the gamified presentation affect your sense of choice or control over your work?	"I liked the choice in presentation; it felt more personal."
Competence	Did the gamification elements make you feel more skilled or confident?	"The rewards and badges encouraged me to do better." "I felt I improved with each level."
Relatedness	Did working in a gamified environment change your interaction with classmates?	"We worked more as a team." "It felt less competitive and more collaborative."
Engagement & Motivation	How did gamification affect your motivation and interest?	"It was more fun than usual. I wanted to win points." "It did not feel like an exam anymore."
Perceived Value	What value did you find in the gamified process?	"It helped me enjoy learning to present." "I think I learned more than in regular presentations."

After the Intervention program, the same topics were given for presentations as in the pretest. The parameters were also the same; the following tables give the information:

TABLE XII
MEAN & SD OF GROUP ON THE CHOSEN PARAMETERS, AFTER INTERVENTION

Category	Group	Control Mean	Control SD	Experimental Mean	Experimental SD

Technical Clarity	Engineering	2.06	0.82	3.15	0.71
	Management	2.22	0.75	3.40	0.68
Slide Quality	Engineering	2.05	0.63	3.05	0.70
	Management	2.18	0.56	3.50	0.60
Engagement	Engineering	2.26	0.86	3.30	0.65
	Management	2.14	0.80	3.65	0.66
Delivery Confidence	Engineering	2.12	0.79	3.25	0.69
	Management	2.28	0.68	3.70	0.62

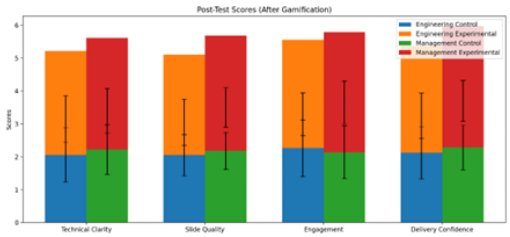

Fig. 5. Mean & SD of groups on the chosen parameters, after intervention

VI. ANALYSIS & DISCUSSION

The gamification intervention based on the principles of Self-Determination Theory (SDT) had a significant impact on both motivation and presentation performance across both disciplines (Ryan & Deci, 2000; Fotaris et al., 2016). Post-intervention responses from the SDT-based Likert questionnaire indicated that students in the experimental groups who experienced gamified modules reported higher engagement and more positive attitudes towards learning than their peers in the control groups, aligning with findings that gamification can increase motivation and performance of learners (Kapp, 2012; Su, 2016). Autonomy and competence showed slight improvement, but the most notable change was in attitudes towards gamification, echoing earlier research that integrating game elements in learning environments can boost enjoyment and engagement (Hamari & Koivisto, 2015; Adams & Dormans, 2012). Engineering students in the experimental group scored 4.1, while management students scored 4.2; the control group, however, remained below 3.

Engineering students demonstrated clear improvement across all four speaking parameters: technical clarity, slide quality, audience engagement, and delivery confidence. Their average score for technical clarity increased from 2.06 in the control group to 3.15 in the experimental group. Slide quality improved from 2.05 to 3.05, engagement from 2.26 to 3.30, and delivery confidence from 2.12 to 3.25. These gains indicate that, although engineering students may not naturally favour expressive or creative formats, the gamified structure helped reduce monotony and introduced more active learning methods, consistent with the claim that gamification can make learning more interactive and engaging (Rozman & Donath, 2019; de Marcos-Ortega et al., 2020). Tasks such as *the Engineer's Mind Map and the Mars Mission* provided opportunities for experimenting with content while emphasising clarity and teamwork, which aligns with the SDT principle of relatedness (Ryan & Deci, 2000).

Management students showed even greater improvement. Their technical clarity rose from 2.22 to 3.40, slide quality from 2.18 to 3.50, engagement from 2.14 to 3.65, and delivery confidence from 2.28 to 3.70. The feedback they provided demonstrated strong alignment with the task design. Activities such as *Shark Bait* and *Sell Without Selling* encouraged spontaneity and story-driven pitches, which suited their communication styles, supporting earlier evidence that role-playing and storytelling games can improve interpersonal communication skills (Jeuring et al., 2015). Several students noted that gamification helped them feel less nervous, especially during Q&A sessions, echoing McGonigal's (2011) argument that games can reduce anxiety and enhance engagement.

Autonomy, which focused on students' sense of choice and control, improved in both experimental groups, in line with SDT's emphasis on learner autonomy as a driver of intrinsic motivation (Ryan & Deci, 2000). Engineering students reported a slight increase from 3.1 to 3.2, while management students reported a slight increase from 3.4 to 3.5. Open-ended feedback confirmed that students enjoyed having options and felt more invested when they could decide how to present their work, which supports Rogers' (2017) findings on the role of choice and feedback in enhancing intrinsic motivation through games. Competence, related to students' confidence and skill development, displayed similar patterns. While engineering students remained somewhat cautious, reporting a minor decline from 2.9 to 2.8, management students remained steady at around 3.2. They expressed that the rewards and challenges made them feel more prepared and capable, consistent with the view that scaffolding and gamified progress tracking can improve competence (Ryan & Deci, 2020; Evans et al., 2014).

The relatedness component showed the strongest emotional connection for both groups, reflecting findings that collaborative gamified activities foster social connections and shared purpose (de Marcos-Ortega et al., 2020; Souza et al., 2018). Students said that working in teams and collaborating to unlock levels made the tasks feel more like group projects than competitive speaking tasks. This sense of shared purpose lowered anxiety and made presentations feel less isolating, which aligns with SDT's principle of relatedness (Ryan & Deci, 2000).

When comparing the two disciplines, it is evident that management students benefited more quickly and in a wider range of areas than engineering students. This may be due to several factors. First, the nature of their tasks allowed for more storytelling, creativity, and emotional appeal (Jeuring et al., 2015). Second, their academic

exposure to soft skills prepared them to be more confident in using language persuasively (Lowden et al., 2011; Jamila, 2020). Third, gamification features such as peer assessment, role-playing, and spontaneous challenges are closely aligned with how business communication generally functions (A. Ruocco, 2007). Conversely, engineering students were more cautious in adapting to these formats, reflecting earlier observations that technical learners often prioritise accuracy over narrative freedom (Proske et al., 2014). Nonetheless, their progress in engagement and confidence in delivery is notable, particularly given that these areas are not typically emphasised in their curriculum (El-Sakran & Prescott, 2013).

Faculty observation logs supported this contrast. Engineering students were quieter during the first two weeks. However, they became more active and reflective as the sessions advanced, consistent with the gradual internalisation of extrinsic to intrinsic motivation proposed by SDT (Ryan & Deci, 2020). Management students quickly embraced the gamified approach. They collaborated effectively, responded eagerly to the twists in the tasks, and gave each other informal feedback, echoing the benefits of gamification for collaboration and peer learning (Souza et al., 2018). Weekly reflections from both groups showed a shift in tone—from nervousness and formality to enjoyment and enthusiasm (Adams & Dormans, 2012).

Overall, the study demonstrates that gamification, when aligned with SDT principles, can significantly enhance presentation skills across various streams (Fotaris et al., 2016). Management students improved their fluency and polish, while engineering students made notable progress in delivery and confidence. The sense of autonomy, peer connection, and visible progress contributed to increased motivation and anxiety reduction (McGonigal, 2011; Rogers, 2017). What emerged was not just better presentations but also better learners—more engaged, more expressive, and more willing to take ownership of their development (Ryan & Deci, 2000; Hamari & Koivisto, 2015).

CONCLUSION

This study proves that integrating gamification into communication training, when aligned with the principles of Self-Determination Theory, can meaningfully enhance students' Speaking skills and motivation. Engineering and management students who were exposed to gamified modules demonstrated a significant improvement in technical clarity, slide design, audience engagement, and delivery confidence. The intervention helped reduce anxiety, encouraged experimentation, and built a sense of ownership over the learning process. The use of game elements directly contributed to a more engaging and student-centred classroom experience.

The findings show that the value of designing discipline-specific gamification frameworks lies in accounting for learners' motivations, task nature, and communication challenges. When implemented thoughtfully, gamification is not merely a motivational layer but a pedagogical strategy that promotes deeper learning, peer collaboration, and intrinsic motivation. As communication skills continue to grow in importance across various professional domains, particularly in STEM and business, this study presents a replicable and scalable model for enhancing spoken performance in higher education.

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