Chapter 13
Effects of Gamified Learning on Academic Achievements: Does Gender Matter?

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Abstract The term gamified learning or gamification of learning is a learning strategy incorporated by the academic institutions with a purpose to motivate and engage learners through various kinds of gaming elements in their academic curriculum. Gamification was acknowledged in academic sector in the late 2010. The objective of the research paper is to compare motivation and learning, learning achievement, attitude, and facilitating infrastructure towards gamified learning between male and female students of business management discipline. The researchers have conducted empirical research study and executed exploratory research method. Samples of students studying in post-graduation level from business management department are taken into consideration. The sample size for this research study were 314 students. A survey was carried out by filling up questionnaire from the students through Google Form. The link of the questionnaire was shared with the students. Data gathering took place in August, 2021, and face-to-face communication was avoided as the virus spread was high during that month. The analysis of the data has been carried out with the help of partial least square structural equation modelling (PLS-SEM). The findings of the study manifest that motivation and engagement, learning achievement, attitude, and facilitating infrastructures have positive influence on leaning intention, and there is no variance in the learning intention of male and female postgraduate students of business management domain. The gamified learning in business management discipline will assist students in obtaining a better understanding of the corporate culture that will sequentially shape them for future employment. Incorporation of game-based learning tools in the academic curriculum by the educators will transform the monotonous and uninteresting traditional teaching into a funny learning environment for the students. This research study will then comprehend in distinguishing the learning pattern of both male and female students of business management discipline through gamified learning.

Keywords Teaching-learning · Gamification · Motivation · Gender · Perceived learning · Gamified learning

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1 Introduction

Games have a significant impact on technology and are regarded as a component of enjoyment. Thus, it is thought that using them in the classroom can help to make learning more effective and enjoyable. Through the use of information technology, gamification enables the transformation of standard academic content into engaging game environments. Gamification aims to increase student engagement and help them succeed in their academic work, social interactions, involvement, and production (Hamari & Koivisto, 2013). The primary goal of gamification in education is to raise student participation to a level comparable to what video games can typically achieve. Gamification also aims to reinforce particular potentialities, create learning-related targets, involve students, improve learning, and promote social skills and conducts. To increase students' engagement in learning by including components of games is the strategy of gamification in education (Dichev & Dicheva, 2017).

Gamification in education process consists of regulations, different kinds of lucrative reward, badges, failures, opportunities to start the game afresh, and option to departure from the game. The previous studies have located that woman are much more impacted by the ranking system in comparison to men which may guide to unforeseen reverse representation. A continuous negative result in gamified learning without any improvement from the learner's part will give rise to avolition and displeasure amongst the students (Hanus & Fox, 2015). The researchers have anticipated that in succeeding years the concept of gamification will be astronomical in the domain of marketing, health and politics (MacMillan, 2011).

In the study of neuroscience of learning, it has been observed that a brain needs various conditions or circumstances in order to respond to stimuli and to develop new neurons. Connection of separate regions consisting of knowledge acquire, expansion of grasping ability, and cognitive function of brain together assist the person to construct the learning process more effective. Complex cognitive activity involves larger number of neural engagements which is helpful in learning process. It is fascinating to know that gamification encourage complex and collaborative learning only when answers to the questions are perceived through the information provided by several individuals. This reinforces the impression of diversification, as it is perceived that people learn more from socializing. Game-based learning has changed the concept of illustrative to experimental mode of learning helping the individuals to learn, socialize, achieve, and compete in a psychologically healthy and secured environment (Hlupic, 2019).

As the motive of every organization is to upgrade their products and services in order to have a competitive advantage, so is the aim of every educational institution is to guarantee quality education for all students (Yildiz, 2014). The success of any academy is based mostly on the quality of teaching, and to do so, a skilled educator becomes the utmost priority (Chen et al., 2014). Therefore, the prime focus of every educational expert is to upgrade the quality of teaching and learning activity in every area of curriculum. Application of educational games in learning will not only increase the knowledge of the subject but also improve the communication and

social skills of the students (Hamari et al., 2014). In the recent years, the educational institutions have started discovering that including game-based learning along with classroom teaching is feasible, worthwhile, and academically appealing (Glover, 2013). Many studies have been conducted application of gamification in education from primary section to higher education; it is found that game-based learning gives a firsthand experience to illustrate the success of such approach.

In the era of digitalization, education has made a viable multiform of learning. With continuous development in gaming, technology has opened many options for game designing as per choice. Gamification is a source of entertainment, which develops interest and involvement of users by gaining badges, prizes, and incentives by playing and learning through those games (Tvarozek & Brza, 2014). Multiplayer games help the users to learn empathy, cultural acceptance, motivation, communication, conflict handling, negotiation, organizational rules, and values in nominal time (Tariq & Abonamah, 2021). This aids to enhance the relationship between managers and workers, by learning technologized skills, and also enhance their creative skills and imaginative skills, leading them to be committed and to think positive (Michael & Chen, 2005).

Motivated with the impact that component of games can develop, researchers have shown interest to use of gamification in teaching-learning and obtaining favourable outcomes, for instance, increase of student participation, retention of the user, knowledge, and teamwork (Hakulinen & Auvinen, 2014). In spite of that few research, studies have displayed some unpredictable or detrimental outcomes from gamification (Christy & Fox, 2014).

The amalgamation of arguable consequences related to the influence of gamified learning in education has commenced unpredictability concerning to its advantages in educational environment. In addition, study regarding the influence of gamified learning constituents on learners' educational association and added consequences is a general objective. The aim must be set on the theme of what elements of gamification are productive for a particular grade of students involved in a given condition (Dichev & Dicheva, 2017). Different model of gaming constituents used for building various activities of gamified learning will constrain the method of determining which elements or category of elements are productive enough to motivate the learners of specific group or participants executing a particular activity (Dichev & Dicheva, 2017).

There is a gap in the effectiveness of gamification in management education. Very few studies have been done in this field. In spite of motivation and engagement of students through game-based learning, there still many challenges regarding game design and application of it in teaching (Conway, 2014). In fact, gamification in education is costly and challenging for classroom learning, since it requires technical infrastructure and teachers with technical skills.

Application of gaming components in teaching-learning activity is a favourable device to draw attention and engage students. The study corroborates with the study conducted by (Silva et al., 2019) that learning achievements, motivation and engagement of students, facilitating infrastructure, and attitudes (conceptual research model) are the pertinent constructs of perceived learning through gamification in

management education. This paper shows the impact of gender in conceptual research model. From this, we can identify whether gender variable differs the perceived learning through gamification or not.

2 Literature Review

2.1 Gamification

Gamification can be interpreted as the application of gaming tools and sketching of non-game setting (Werbach & Hunter, 2012). Gamification was first introduced in marketing field and then expanded to different areas, like health, environment, sports, engineering, mathematics, computer science, biology, communication, and psychology. The idea behind gamification is to encourage and involve the students in certain areas, which may help them to enhance their learning in that field (Huotari & Hamari, 2012). A game is related to experimentation of defeat and success through continuous learning (Buckley & Doyle, 2014). The important element for the student's development is the feedback, in which the students get from their respective teachers regarding their activity during their course (Kapp, 2012). In gamification of learning, the students get their motivation through achieving the badges and points, which works as feedback regarding the activity they have learned so far. In common observation, it is evident that gamification do not motivate individuals in the same way, and therefore, students have positive, negative, and mixed expression towards gamification. However, it is contemplated by many authors to be advantageous (González & Area, 2013).

In gamification, it is discovered that dissimilarity in demographic may have different levels of motivational drive and engagement (Venkatesh et al., 2000). Age and gender are other important variables, which can differentiate the motivational level on learning through gamification, but researchers have overlooked on this area.

2.2 Gamification in Education

Gamification has been implemented into various fields, for instance, healthcare, business, and education. However, gamification is not restricted to the application of only technology-oriented game tools for learning motive; video games signify a huge part of all gamification in learning process, for instance, educational games in the form of critical thinking video games. In the research study done by Van Eck (2006), video games in learning process have been distinguished into three approaches:

(a) Application of commercial off-the-shelf video games (COTS) utilizes the game content in the video games and converts it into a learning process, for instance, SimCity, Roller Coaster, and Tycoon 3, which helps the user to build their leadership and decision-making skill (Lin & Lin, 2014; Shah & Foster, 2014).
(b) Application of critical games is a kind of video game which is not developed for any kind of entertainment, and the main aim of these type of video games is to provide education to the users, for instance, the ETIOBE Mates and ECOPET were developed to enhance learners' nutritional knowledge and train the students regarding the application of home energy conservation (Baños et al., 2013; Yang et al., 2012).
(c) As a societal viewpoint on education, it helps pupils to hone their individual games to develop and maximise their cognitive, programming skills and design the games according to their needs.

The role of educators in gamification is to pull the students up to game-based learning, so that they can develop their areas of interest through this process. During the years, the educators have made an effort to introduce games in learning process to make it interesting (Denny, 2013).

The students learn through game-based education by achieving badges, rewards, and ranking, which depicts their level of knowledge towards their subject. The ranking and badge achieved by the individuals creates competitiveness amongst the users, which help them to prosper in their field. Gamification in learning has some challenges as well, like competitiveness amongst the users can create rivalry amongst them, which can lead to negative result (Zichermann & Cunningham, 2011). Therefore, the aim of teacher's should be to create a positive impact of game-based learning on the students by clearly defining the objective, rewards, and feedback (Csikszentmihalyi, 1990).

Involvement of students in various activities can be grouped into three parts, such as cognitive, affective, and behavioural (Kahu, 2013). Cognitive connection depicts the students understanding of critical level. Affective participation describes the student's interest in performing their assignment given to them. Behavioural engagement of student depicts the students' effort and determination towards their goal.

Gamification should provide opportunities for the educators to design obstacles, depending on the student's difficulty level with a goal to acquire new skills through learning. The games should be placed systematically and scientifically that users can explore different feature of their personality by playing new and different characters (Banks, 2008). Through various studies on games-based learning, it is evident that experience gathered through gamification helps in educating and learning, which leads to student's interest and engagement towards the process. Even though gamification has some advantages, still it does not convince that learning objectives will be achieved (Dicheva et al., 2015).

2.3 Competency and Gamification

In this modern digital era, the university graduate students are challenged for job opportunities, and in order to achieve the opportunity, the key factor is competency-based learning, which is based on the alliance between industry demand and classroom education. Researchers have indicated that these days, the main aim of higher education comprises of developing the student's capability and making them prepared for corporate ready, so that they can utilize their learning knowledge in professional work environment (Noskov, 2007). In order to develop skill and knowledge within the students and make the students capable of converting these classrooms' theoretical knowledge into practical use, competency-based education has been introduced in the new pattern of the education system. Present research studies demonstrate that gamification in education can help to achieve top-level cognitive skills, for instance, critical thinking, creativity (Klopfer & Yoon, 2005). Prior studies have established that critical games played in mobile phones have developed the students' cognitive and cooperative skills. In the digital era, critical games have also helped to develop many other skills within the users, such as communicative skills, teamwork, and social skill (Romero et al., 2015). On this matter, it can be said that gamification depicts a huge prospect in the field of competency-based learning, where the attention is student centric and result-based system in place of syllabus-based classroom education. More clearly, it can say that gamification encourages structured instruction, depending on individual leaner's requirement, and gives individual students instant and repeated assessment on hit or miss learning process (Hanus & Fox, 2015).

2.4 Gamification in Management Education

In management education, the initial game-based learning was quite monopoly. After some time, the game-based learning became famous and favoured by individuals to learn at home as a unified method. During the World War II around the mid-1950s, a game was designed, which was used as an important tool for business management and politics studies stream. Moreover, different management-based games concentrate on taking decision-making on the different areas of management, like general administration, marketing strategies, accounting management, and so on.

In the recent years, game-based learning is being used in different areas of management, such as marketing, entrepreneurship, tourism, accounting, and general administration. In case of accounting, word processors, spreadsheets, etc. were utilized for developing quiz-based learning (Moncada & Moncada, 2014). Many game-based tools, which were not made for educating management, were found to be effective in respect to learning financial accounting. PowerPoint and Excel, being a simple tool for teaching, made it easier to improve exercises and memorize the

concept of financial accounting. In relation to management, there were still limited studies done on the application of gamification in management education.

2.5 Gamification Constructs

Gamification is a frame, consisting of various educational game-based tools based on the knowledge imparted by management educators, which helps to understand the impact of motivation and engagement, learning achievement, facilitating infrastructure, and attitude of students on gamification on learning.

2.5.1 Learning Achievement

In many studies, it has been described that gamified education not only makes a student determined, dedicative, and participative in nature but also leads to learning achievement. A game challenge faced by the students in gamified learning results in positive learning achievement (Sánchez-Martín et al., 2017). Some studies have by far described that amalgamation of gamified learning in modern education system like flipped learning can be a productive approach for strengthening the learner's learning achievement (Jo et al., 2018; Huang et al., 2019). It has been observed by many researchers that evaluation of the students through gamification has resulted in the development in their responses and grades in comparison to the traditional evaluation system without gamification.

2.5.2 Motivation and Engagement

The majority of the studies done till now on gamification shows the impact of games in learning the domain of knowledge, with a motive to acknowledge the student's motivational influence on learning achievement, attitude, and perceived learning (Silva et al., 2019). The main objective behind the application of gamification is to find out how game influences a student's motive and their attitude towards the use of gamification. Gamification is also done to evaluate the student's knowledge base after the implication of game-based learning and also to find out the impression of students' perceived learning after using this kind of teaching method (Hamari et al., 2014). Motivation is a process that instigates, guides, encourages, and builds, determination in people to achieve their goal. Motivation can be intrinsic as well as extrinsic in nature, where the individual behaves differently in different environment or circumstances. In educational context, motivation describes the student's labour and dedication towards their learning and is considered as a key factor in teaching and learning process. Therefore, it is the duty of educators to decide which type of teaching style will increase the student's engagement and motivation towards their subject, which will lead to achieving positive result.

2.5.3 Facilitating Infrastructure

As per Rogers (2003) study, another construct in gamification in learning is facilitating infrastructure. It refers to that point at which an individual presumes that the prevailing technical infrastructure of an organization can give assistance in the teaching-learning process (Chan et al., 2010). In case of gamification facilitating infrastructure plays an important role as game-based learning is totally dependent on technology. Therefore, the educational institute needs to keep in mind that there is technological infrastructure for gamification. The teachers recruited must be technology savvy and must be trained as per the requirement.

2.5.4 Attitude

In social science research, attitude remains one of the interest areas for research, as it helps to understand the social behaviour of an individual (Ajzen, 2001; Omrane & Bag, 2022). Attitude can define as individual's judgement and feelings about someone or towards something, which is portrayed through their behaviour. All individuals have different types of personalities; hence, an educator cannot expect homogenous attitude in their students. Attitude towards learning can be positive and negative. Positive attitude will motivate the student to secure good result. The student's will be more engaging and dedicated towards the teaching process, whereas negative attitude of a student towards education means they are not engaged or interested towards the teaching process, which can lead to school dropout (Saeed & Zyngier, 2012).

2.5.5 Gamification on Learning

Educators play a pivotal role in teaching-learning mechanism. They are the important element in student's development. It is the duty of teachers to guide the students on the right path, engage and motivate them, develop their skill and attitudes, and enhance their creative thinking (Sinha & Bag, 2023). To do that, they need to decide which teaching style will give maximum success. It is evident that schools with innovative perspective and well-defined learning goals are more qualified in assisting their students to be productive. Hence, analysing gamification on learning is important for student's development through effective learning process.

The following four hypotheses are formulated to find out the difference between male and female students of business management discipline regarding the learning intention through gamification.

H_1: Learning achievement through gamification is significantly different between female and male students.

H_2: Motivation and engagement through gamification are significantly different between female and male students.

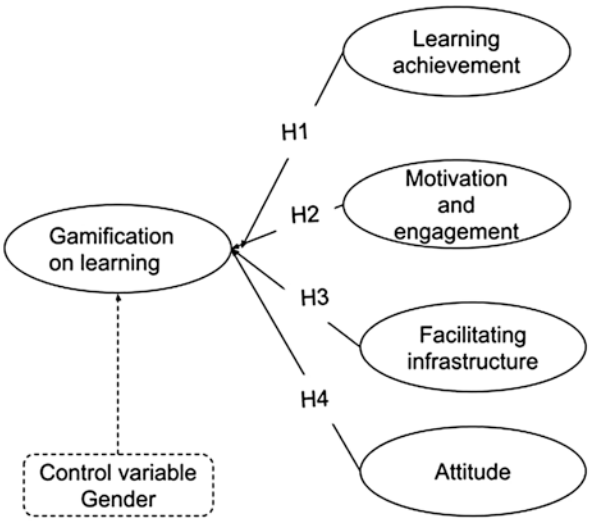

Fig. 13.1 Conceptual model

H_3: Facilitating infrastructure for learning through gamification is significantly different between female and male students.
H_4: Attitude for learning through gamification is significantly different between female and male students (Fig. 13.1).

3 Method

3.1 Data Collection

The research study is based on exploratory research approach. Samples of students studying in post-graduation level from business management department are taken into consideration. The sample size for this research study is 314 students. The survey was carried out by filling up questionnaire from the students through Google Form. The link of the questionnaire was shared with the students. Data gathering took place in August, 2021, and face-to-face communication was avoided as the virus spread was high during that month.

3.2 Data Analysis

The statistical tool used for the measurement and conceptual model of the study were analysed by partial least square structural equation modelling (PLS-SEM) (Bag et al., 2020; Ringle et al., 2015). Furthermore, multi-group analysis (MGA) is

also executed to compare the effect of gamification on male and female students. The appropriate nonparametric SEM for multi-group analysis is PLS-SEM. Preceding to multi-group analysis, the greatest prerequisite is to construct measurement invariance, in order to apply measurement invariance for composite (MICOM) technique (Rasoolimanesh et al., 2017).

4 Result

4.1 Measurement Models

To evaluate the measurement and conceptual model for both male and female business management students, PLS-SEM is used. The theoretical outline for this research paper consists of four constructs, such as motivation and engagement, learning achievement, attitude, and facilitating infrastructures, which affect intention towards learning through gamification. To establish measurement model, discriminant validity, reliability of indicators, and convergent validity of constructs concerning male and female students (Ali et al., 2018; Hair et al., 2017) have been checked. For indicator reliability, each construct (refer to Fig. 13.2) filled up with items should be more than 0.6 (Islam & Bag, 2020). Using composite reliability (CR) and Rho A, the construct reliability and the convergent validity must be greater than 0.7 (Bag & Omrane, 2022). The average variance extracted (AVE) on the other hand should be above the threshold value of 0.5 (Hair et al., 2017; Omrane & Bag, 2022; Ray et al., 2020). Table 13.1 exhibits that the composite reliability, reliability, and convergent validity of the measurement model, consisting of all the constructs of the study, have been acceptable for both male and female business management students.

Heterotrait-monotrait (HTMT) ratio has been carried out to test the discriminant validity. In order to develop discriminant validity, HTMT ratio of each dimension should be less than 0.9 (Bag et al., 2021; Henseler et al., 2015). Table 13.2 exhibits the outcome of HTMT ratio, depicting acceptance of the discriminant validity for both male and female students of business management discipline.

The important benchmark to carry out multi-group analysis is to measure invariance for both groups of students. The measurement invariance for composite (MICOM) approach is ideal for PLS-SEM. In order to conduct MICOM, three stages should be performed: (a) measurement of configural invariance, (b) measurement of compositional invariance employing the constructs correlation, and (c) measurement of equal means and variance. Besides, partial measurement invariance is to be computed in order to execute MGA, which is established by compositional and configural invariance. Table 13.3 exhibits the outcome of MICOM, which shows the full measurement invariance. Thus, depending on the outcome, MGA can be executed to compare the path coefficients for both the groups and to validate the proposed hypotheses.

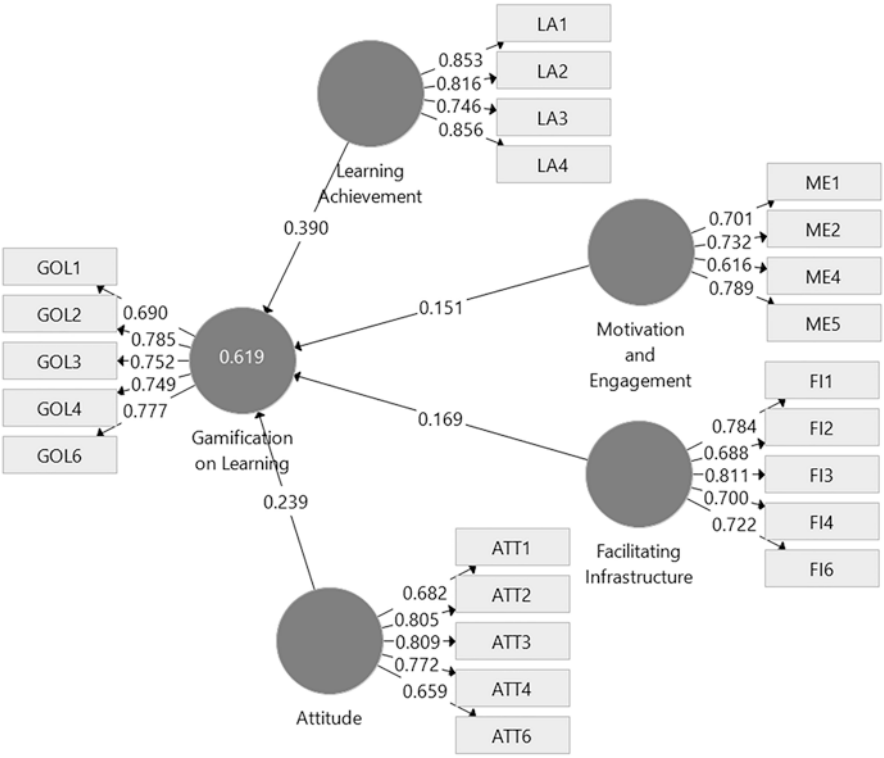

Fig. 13.2 Model of path analysis

Table 13.1 Reliability and validity of measurement model

	Cronbach's alpha		Composite reliability		AVE	
Constructs	Female	Male	Female	Male	Female	Male
ATT	0.839	0.773	0.820	0.775	0.548	0.517
LA	0.824	0.774	0.816	0.769	0.540	0.515
GOL	0.850	0.816	0.854	0.814	0.598	0.537
FI	0.864	0.755	0.865	0.753	0.563	0.518
M & E	0.788	0.770	0.790	0.760	0.565	0.537

Note: *ATT* attitude, *FI* facilitating infrastructure, *LA* learning achievement, *GOL* gamification on learning, *M & E* motivation and engagement

4.2 Assessment of Multi-group Analysis

Table 13.4 exhibits the positive and remarkable effects of motivation and engagement, learning achievement, attitude, and facilitating infrastructure on learning through gamification intention for female and male students of business management students. Table 13.4 also exhibits the outcome of multi-group analysis and

Table 13.2 Discriminant validity

Female						Male				
	ATT	LA	GOL	FI	M & E	ATT	LA	GOL	FI	M & E
ATT										
LA	0.837					0.807				
GOL	0.825	0.507				0.796	0.606			
FI	0.870	0.647	0.813			0.824	0.726	0.791		
M & E	0.760	0.819	0.412	0.742		0.642	0.828	0.556	0.668	

testing of proposed hypothesis. To formulate the impact of management students' engagement dimension on learning intention between male and female business management students, two conservative and nonparametric approaches, such as Henseler's MGA, implementing bootstrapping, as well as permutation approach (Chin & Dibbern, 2010), have been taken into consideration. Applying these methods, the outcome of MGA exhibits that there are no differences between female and male students from business management discipline towards learning intention through gamification.

5 Discussion and Conclusion

The main objective of this study is to conduct a comparative analysis of perceived learning achievement, motivation and engagement, facilitating infrastructure, and attitude towards learning through gamification between male and female students in the business management discipline. Although the use of gamification is less common in the management discipline, previous study has shown that it helps to increase learning in a variety of areas in education. The current research study conducts an empirical investigation into how management education might be made more fun for both male and female students. The findings show that gamification on learning is significantly impacted by learning achievement, motivation and engagement, facilitating infrastructure, and attitude. Gamification in education is thought to be a successful strategy for boosting student engagement and motivation while also advancing their social and cognitive abilities. In respect to management discipline, gamification in learning will help the students get an experience on the work culture, which in turn will help them to become ready for future employment. In order to strengthen employment, the educational institutions must make notable changes in the teaching style and also must motivate and educate the teachers and students towards the game-based learning.

Computer games are good source for learning, as it creates virtual situations that help to create a psychological reality for the learner. In order to implement gamification in management education, the educational institution needs to build up the infrastructure technology friendly, must decide the type of games they need to implement in their syllabus, and also needs to train the teachers, so that they

Table 13.3 Results of invariance measurement testing using permutation

Constructs	Configural invariance	Compositional invariance (correlation = 1)		Partial measurement invariance established	Equal mean assessment			Equal variance assessment			Full measurement invariance established
		$C = 1$	Confidence interval (CIs)		Differences (Female-male)	Confidence interval (CIs)	Equal	Differences (Female-male)	Confidence interval (CIs)	Equal	
AT	Yes	0.998	[0.998, 1.000]	Yes	−0.233	[−0.243, 0.227]	Yes	0.273	[−0.373, 0.429]	Yes	Yes
FC	Yes	0.998	[0.997, 1.000]	Yes	−0.023	[−0.218, 0.231]	Yes	0.151	[−0.457, 0.201]	Yes	Yes
FL	Yes	0.998	[0.999, 1.000]	Yes	−0.120	[−0.266, 0.259]	Yes	0.313	[−0.228, 0.485]	Yes	Yes
LI	Yes	0.999	[0.999, 1.000]	Yes	−0.169	[−0.234, 02.33]	Yes	0.460	[−0.459, 0.481]	Yes	Yes
MT	Yes	0.999	[0.992, 1.000]	Yes	−0.137	[−0.229, 0246]	Yes	0.115	[−0.310, 0.312]	Yes	Yes

Table 13.4 Results of hypothesis testing

Hypothesis	Relationship	Path Coefficient		Path Coefficient Difference	Henseler's MGA	Permutation *p*-values	Remarks
		Female	Male				
H1	**LA → GOL**	0.135	0.286	−0.151	0.212	**0.215**	**No/No**
H2	**M & E → GOL**	0.214	0.162	0.052	0.625	**0.619**	**No/No**
H3	**FI → GOL**	0.473	0.335	0.138	0.207	**0.186**	**No/No**
H4	**AT → GOL**	0.208	0.121	0.087	0.362	**0.322**	**No/No**

can guide and support them whenever the students need help in game-based learning process.

In respect to the dissimilarity between male and female students of business management discipline studying in post-graduation level, it is established that there is no significant distinction between learning achievement, motivation and engagement, facilitating infrastructure, and attitude towards gamification on learning intention.

In this digital arena, it is the perfect time for the educational institutions imparting higher education in management to focus on gamification in teaching-learning method to make the learning process more interesting, motivating, and participative in nature. The use of gamification in education will not only help students and teachers become more technologically savvy, but it will also enable students experience the corporate world virtually. The students' talent, creativity, and behaviour will be shaped by the educational institutions' positive structures, preparing them to prove their worth. The proficiency must be acquired from the institutions in order to inspire pupils and drive them forward.

6 Limitation and Recommendation for Future Research

Alike to other comprehensive study, our trivial effort is not without any kind of limitations. The research study encounters with time limitation, and it would have been satisfactory if we could have allocated more time to reach the optimum result. However, on the other side, the result would be more reliable and competent if we would have managed to communicate with large number of respondents, since small sample might not demonstrate worthy in displaying the outcome. Primary data is collected through exploratory research. The elucidation of the data and observation from our findings are a trivial image of the data we managed to collect from the respondents through a structured questionnaire. The study corroborates with the study conducted by Silva et al. (2019) on gamification in management education. However, this research paper demonstrates that, along with learning achievement, motivation and engagement, facilitating infrastructure, and attitude

also play an important role in perceived learning with the help of gamification in management education discipline. The study is confined to four constructs, such as learning achievement, motivation and engagement, facilitating infrastructure, and attitude, which would have been appropriate if we would have managed to throw light on other constructs too. A definite apathy is observed amongst the respondent to respond rationally, logically, and critically. The voluntary participation would certainly help us to obtain a maximum profit. Hence, this study would definitely unlock avenues for the researchers to throw light on different issues. Due to the limitation of time, we have been able to determine five constructs for this study.

With regard to future research, we recommend that other empirical qualitative and quantitative studies be considered on the implementation of gamified learning activities in teaching management curriculum as well as the influence of employing gamified learning constituents on students' learning achievement, motivation and engagement, facilitating infrastructure, and attitude. Besides, the present-day games consisting of individual procedures and principles, in comparison to previously tested games, must be evolved and evaluated as per its repercussion. Another logical argument is to investigate the learners in an exclusive incident, along with various research methods, that assimilates control class and group of new participants who are adopting the game for comparison.

In the future, researchers would certainly evaluate more constructs to attain a far more satisfying outcome. The determination and effort would exceptionally give support to the educational institutions imparting management education to develop a model to make the learning process through gamification more engaging, motivating, and interesting for the students.

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