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University Teachers' Awareness of Gamification and Their Attitude towards Gamification-Based Pedagogy

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ABSTRACT

Gamification is an innovative instructional approach that integrates game elements into teaching to enhance learner motivation, engagement, and active participation. Guided by Constructivist Learning Theory, gamification emphasizes active involvement, interaction, and problem-solving, enabling learners to construct knowledge rather than passively receive information. Teachers' awareness and attitudes toward gamification play a critical role in its successful implementation in higher education settings. This study employed a quantitative research design using adapted questionnaires derived from validated instruments. Data were collected from university teachers selected through multistage random sampling from public sector universities. Statistical analyses, including descriptive statistics, independent sample t-tests, one-way ANOVA, Pearson correlation, and regression analysis, were conducted using SPSS. The findings indicated that teachers demonstrated moderate to high awareness of gamification and held generally positive attitudes toward its pedagogical use. Correlation analysis revealed a significant positive relationship between awareness and attitudes, suggesting that higher awareness is associated with more favorable perceptions. Regression results confirmed that awareness significantly predicts attitudes toward gamified pedagogy. No significant differences were observed based on gender or academic designation, though variations emerged across experience levels.

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1.0 Introduction

Gamification represents a trans-constructive approach in advanced pedagogy that increases pupils' engagement and literacy through the integration of gaming features. The utmost research focuses on benefits to pupils; nevertheless, the role of university pedagogic staff in promoting and supporting gamification is significant. Their level of knowledge regarding gamification principles influences their ability to support pupils' learning conditioning; in addition, their positive, skeptical, or negative attitudes toward gamification will greatly affect the effectiveness of gamification integration within the pedagogy. University pedagogic staff with higher knowledge and a positive attitude will create more pupil-focused, cooperative, and active learning environments, while those with negative knowledge and negative attitudes may result in the "entertainment-only" feature of gamification. The knowledge and attitudes of university pedagogic staff are important constructs that need to be understood when assessing the readiness of their institution to adopt gamification-based pedagogy. Gamification is "integration of game features, such as rewards, challenges, and feedback, to pedagogy in support of pupil management, engagement, and learning." (Alsawaier, R. S. (2018)

University teachers' awareness of gamification is pivotal for developing interactive, pupil-centered literacy surroundings. Digitally knowledgeable and pedagogically open preceptors are better suited to work on gamification for problem-solving and active literacy, while limited exposure or negative perceptions can hamper its effective perpetration.(Allie et al., 2024; Antolín et al., 2021). Professional development, including shops, training, and peer literacy, enhances preceptors' knowledge, confidence, and amenability to borrow gamified strategies, fostering a culture of innovative, technology- enhanced tutoring. Empirical studies show that gamification improves provocation, engagement, and social commerce, while furnishing existential learning opportunities.(Rahman et al., 2019; Hamari et al., 2016).

Despite technological advances, sustaining engagement and support for gamification in advanced education remains grueling , pressing the need to understand teachers' attitudes and awareness for the successful integration of gamification. In education, gamification involves applying game rudiments tenon-game surrounds to enhance provocation, engagement, and literacy. Common features include points, situations, colophons, leader-boards, incorporation, searches, prices, challenges, instruments, and social relations similar as collaboration or gifting (Buckley & Doyle, 2017). These rudiments encourage participation, practice, collaboration, and healthy competition, fostering continuity and improved performance. Gamification totally applies game design to make literacy more pleasurable, interactive, and effective (Sacha, 2021; Hub, 2023).

Gamification remains a new trend in education, involving the integration of game-design rudiments such as points, situations, colophons, leader-boards, and challenges into game literacy surroundings to enhance provocation, engagement, and performance. Unlike full scale educational games, gamification supplements being classes with spoilsport mechanisms to produce interactive and engaging literacy guests. It can foster both natural and foreign provocation, aligning with the Determination proposition by supporting learners' needs for autonomy, capability, and

relatedness. Studies in advanced education indicate that gamification improves practical task participation, though its effect on proposition-grounded literacy is more limited (Dominguez et al., 2013). The successful relinquishment of gamification depends largely on university teachers' awareness, attitude, and readiness to integrate game-based elements into learning. Exploration shows that while preceptors generally hold positive views of gamification, numerous warrant sufficient training, institutional support, or practical familiarity with its operation (Alas, 2018; Zainuddin et al., 2020). This disparity is indicative of the need for professional development and structured support in order to rephrase the theory-based understanding of gamification into effective classroom practice. These findings emphasize the importance of professional development, peer support groups, and feedback provided by others. These findings suggest that peer support is helpful, not only to the teaching collaboration, discipline-specific guidance, and institution-wide support to improve teacher and grease the relinquishment of gamification in advanced education. There is a notion among teachers that games for teaching can be grounded on some conceptual foundations obtained from the constructivist learning theory. This theory holds that students should be active and collaborative in their learning. They learn by doing things that have meaning to them and by experiencing things in a way that makes sense to them. Some proponents of the Constructivist learning theory hold that students learn best when they are very engaged in the process of discovery, problem-solving, thinking about what they have learned, and constructing their knowledge. This is better than just sitting there and listening to someone talk. The people who came up with this theory, such as Piaget and Vygotsky, put this forth a long time ago in 1972 and 1978. The Constructivist learning theory is, essentially, about students being active and constructing their own knowledge, which is what gamification-based teaching methods are attempting to do. Gamification is a way to get students to be excited about learning. It is consistent with the idea that people learn by doing things and figuring them out for themselves (Piaget, 1972; Vygotsky, 1978).

Gamification, for example, has shown promising results for generating increased student engagement and motivating them to attain higher academic results; however, implementation of gamification within higher education is inconsistent and often superficial (Sarsa, 2016; Domínguez et al., 2013). The teaching staff within universities, being agents of change in the improvement of teaching methods and practices, is of great importance for the development of the implementation of gamified learning strategies. The teaching staff, however, is often perceived to be conservative and uncertain about the development and implementation of gamification within the classroom; their perceptions, attitudes, and knowledge are often influenced by dimensions such as perceived usefulness, ease of use, and the broader learning environment. Certain barriers may influence teachers’ perceptions and attitudes, such as the lack of training, resistance to change, reduced teaching effectiveness, and the necessary and required effort and amount of time devoted to the whole concept of gamification (Nevin et al., 2021). Knowing the perceptions of the teaching staff is significant in understanding the barriers and facilitators of gamification, which is necessary for improving their teaching practices and engaging a wider number of learners (Zainuddin et al., 2020).

Objectives of The Study

1. To determine the university faculty's use of the gamification pedagogical strategy.
2. Teachers' attitude toward gamification and the awareness of gamification-based pedagogy.
3. The gender difference in the level of Awareness and attitude towards gamification-based pedagogy.
4. To identify the perceived weaknesses and strengths in gamification in teaching at university.

2. LITERATURE REVIEW

Gamification is a teaching method that is really changing things in universities and colleges. Gamification is a method of teaching that involves using things like points, badges, and leaderboards, which are commonly used in games to ensure that students are excited about learning. With gamification, many universities are using it to ensure that their students are better excited about their studies and therefore improve their performance in school (Deterding et al., 2011; Hamari et al., 2016). However, gamification comes as a solution to many of the challenges that have been facing many universities, including ensuring that students are focused on their school work. Gamification is becoming part of many of these universities worldwide as they use it to ensure that their students not only learn but also improve their performance. There is, however, the question of whether university instructors themselves need to know about gamification and how it all works out in order to effectively use it in the classroom (Zainuddin et al., 2020).

University teachers should be aware of what gamification is, what tools are available, and how they can use it as a tool to deliver their classes. This is actually very important because it will make university teachers feel good when using gamification for teaching. When university teachers have a feeling about gamification, it will enable them to try it out and see how it is best to be used. However, when university teachers are not aware of gamification, they will not be willing to use it, or its usage will be poor (Zainuddin et al., 2020; Alas, 2018). University teachers and gamification is a deal because, on one end, gamification is a wonderful way of teaching, but on another end, the university teachers have to be on board to make it a success. Thus, the awareness of university teachers about gamification and their attitude toward gamification-based pedagogues is a developing area of research interest for scholars, which is useful for identifying factors affecting the adoption of innovative pedagogical approaches in higher education (Nevin et al., 2021; Hamari et al., 2016).

Gamification" means things like challenges, getting feedback instead of rewards, and working with other people. When the teachers apply what is called gamification, what is actually created is an environment for the students to partner with one another, to be in charge of their learning process, and to relate what is learned to their real-life experiences. This way, what is created is an environment through which students learn from one another and learn to solve problems with the knowledge they have at their disposal. The concepts of Gamification and Constructivist Theory can be integrated very well to enable the student to learn and grow (Vygotsky, 1978). Actually getting to know the concepts and perceptions of teachers regarding what is called gamification, under the Constructivist Theory, is quite important, as these perceptions and concepts of them can be very powerful for the application and use of gamification-

based education in higher learning levels.

However, it appears that there is some empirical evidence in place to ensure that gamification in the educational field would gain acceptance from educators to a certain extent. The addition of elements such as points, badges, and a leader board system actually increased the levels of engagement, participation, and motivation among students (Hamari, Koivisto, & Sarsa, 2014; Dicheva et al., 2015). As the trend of incorporating elements of game design into the educational setting has increased, gamification has become a tool to increase the levels of engagement as well as educational performance. The addition of educators would be imperative to ensure that gamification teaching in a classroom environment actually achieves success. Several benefits of gamification teaching methods have been identified by educators, including increased motivation among students, increased levels of group collaboration, and the creation of an active and engaging learning environment(Domínguez et al., 2013).

Further, the significance of the teachers' attitudes in facilitating effective professional practices in matching learning objectives and strategies of learning through games is of critical importance. Teachers' attitudes are also influenced by the kind of perceptions teachers have regarding the teaching environment, students, and teaching challenges. Teachers' perceptions are influenced in a number of ways, including learning experiences, subject matter, diversity, and teaching challenges (Richardson, 1996). Teachers' perceptions play a critical role in facilitating the effectiveness of teaching and learning since a teachers' experiences will influence the students' learning. Therefore, it can be accordingly concluded that various types of teachers possess different perceptions based on the nature of their requirements. Besides, subject matter knowledge appears to be of critical importance to the development of teacher attitudes. For example, math teachers might emphasize the significance of precision and logic in solving problems, which can be compared with the significance of knowledge based on literature, requiring creativity, interpret ability, and reflection to solve problems (Shulman, 1987). Additionally, the development of classroom management, from democracy to authoritarianism, may play an important role in teacher-student interactions.

The views of the teachers can also be affected by the different educational needs that the students present. For example, special needs teachers, language support program teachers, and socioeconomically disadvantage teachers can make use of differentiated approaches to teaching. In addition, the views of the teacher also come in handy in developing the classroom environment. This is because positive teacher views have been demonstrated to highly influence student motivation and classroom environment. (Domínguez et al., 2013). There is empirical evidence to suggest that positive teacher views are strongly related to increased student motivation, creativity, and engagement. In addition, teachers' views of learning and students' potential influence motivated, creative, and active learning, thus sustaining a growth-oriented view of ability development over time. Positive teacher-students relations also enhance learner autonomy and intrinsic motivation; thus, it contributes to improved learning outcomes (Ryan & Deci, 2000)

While pedagogical innovations have gained increasing interest and have found their introduction into everyday teaching practices in various ways, teachers nevertheless perceive a

number of factors that challenge effective implementation.

Among these, workload stands out as a major constraint, since innovative teaching practices require a great deal of planning and development (Fullan, 2007). Teachers also have reservations about the applicability of these practices in their classrooms, especially when the needs of standardized testing and examination-oriented education are not properly aligned with innovative practices. There are also concerns about whether these practices are within the acceptable boundaries of academic work. The perspectives of teachers on teaching innovation have been widely explored in studies focusing on different teaching paradigms. Whereas teachers in traditional learning environments view themselves more as knowledge disseminate, with a main priority of knowledge dissemination and instructional roles. In comparison, teachers in modern learning environments view themselves more as facilitators of learning; that is, teaching involvement prioritizes involvement, learning, and participation more than instruction itself (Sawyer, 2014).

These differences affect the meaning of engagement. The traditional concept of engagement is more or less simpatico with compliance and engagement with tasks, while the progressive concept of engagement is intellectually engaged, working together, or critical thinking. These paradigms influence learning outcomes, where compliance concepts are excellent for immediate task performance but not good for conceptual mastery, while progressive concepts are excellent for problem-solving and student engagement. High-stakes testing influences the attitude, practice, and personal integrity of all teachers (Fullan, 2007). The study revealed the implications of testing on curriculum narrowing, lack of flexibility in instructional hours, and the removal of subjects not tested for in schools. Instructional practices include the extensive use of script writing, test preparation exercises, and strategic instruction for those near the cutting line scores (Booher-Jennings, 2005).

The traditional approaches in science and technology education have always been based in systematic processes, where lectures have been the most preferred mode of teaching due to their success in conveying a substantial amount of basic information. In addition to the mode of teaching in lectures, there is also laboratory-based teaching that is being adopted to cultivate technical skills and scientific thinking, enabling students to have the expertise necessary to achieve scientific literacy in a conceptual framework (Hofstein & Lunetta, 2004). On the other hand, Constructivist-based educators are recognized to be strong proponents of the need for students to move from being passive recipients of information to active producers of meaning.These major types of such learning processes are known as Inquiry-Based Learning, Problem-Based Learning, and Project-Based Learning. "In Inquiry-Based Learning, students are actively engaged in asking questions, collecting data, and thinking scientifically. In Problem-Based Learning, students are actively engaged in solving real world problems, which prove to be interdisciplinary in nature. One step further than the above-mentioned learning processes is Project-Based Learning, since in this type, the students are given the task of designing and implementing efficient solutions to real world problems, thus innovating, critically thinking, creatively, and incorporating knowledge from the area of STEM." (Prince & Felder, 2006; Hmelo-Silver, 2004; Darling-Hammond, 2008)

The role of learning of new things helps the learner learn how to think independently as well as interact with other students. This very idea is the essence of the Science and Technology classroom. This is what the Science and Technology classroom is all about. This is what makes the Science and Technology classroom a pleasant room. This is what makes learning an interesting place. The concept interactive, a concept of the Science and Technology classroom. (Piaget, 1972; Vygotsky, 1978).

Science and Technology is totally different in new technology. We can cool learning spaces. For instance, there are labs for Science and Technology they can conduct experiments and are able to learn Science and Technology in a certain way. This is really helpful for Science and Technology students because they can play around with Science and Technology things and see what happens. Science and Technology is also a one way to comprehend Science and Technology concepts which may be difficult to comprehend in actual Science and Technology lab (de Jong et al., 2013). The virtual labs are really helpful for Students of Science and Technology. They get to learn by doing things and seeing what happens. This makes Science and Technology classes more interesting and fun. The students can be taught about Science and Technology with ease.

Science and Technology students can take advantage of online learning platforms to learn before joining and to class (Bishop & Verleger,).

It has been shown that this approach helps Science and Technology students understand things better. It also helps them stay engaged and do better in Science and Technology. This is a thing for Science and Technology students because they can learn in a better way. Blended learning takes advantage of physical and virtual learning spaces by using learning management systems, virtual labs, and collaboration tools, playing to the strengths of both. This has been associated with increased accessibility, flexibility, and student success in STEM education (Garrison & Kanuka, 2004).

3. METHODS AND PROCEDURE

Methodology is the planned, theoretical consideration of procedures applicable to a topic of study. This section provides a brief explanation of the study's design, population, sample selection process, and sample size, instrument creation and validity, data collection, manner of data collection, and data analysis. The above-mentioned factors illustrate that the structure and features are critical to the reliability and validity of the study findings.

Research Design

Research design can be defined as the plan or blueprint that is used in the process of conducting a research study. Research design is defined as a system of concepts associated with the research questions, variables, and analysis to the objectives of the research study. A research design can be applied to ensure that the results are logical, valid, and reliable. In accordance with the research design, data collection, measurement, and analysis will be completed in order to systematically examine a research problem. A research design that is well-structured is “one that is put or supposed to be put useful in eliminating biases, improving the accuracy of the findings, and improving validity of the conclusions (Creswell & Creswell, 2018).

The study adopted a quantitative research approach which entailed both descriptive and

inferential research. The descriptive research was used to gather detailed information description of the extent of awareness and attitudes of university teachers towards gamification and gamification-based teaching. The descriptive research was used to and establish patterns and trends among the study population. The inferential research was employed in establishing relationships and differences between variables using statistical tests. The data was analyzed using independent samples t-test, one-way ANOVA, and Pearson correlation, and regression analysis. Furthermore, the study design was applied since it is capable of providing accurate and objective measurements, systematic collection of data, precise statistical tests to ensure the results' validity and reliability.

Research instrument

Any kind of research depends on the research instrument, which is the primary medium to It is designed to collect appropriate and valid data. In this survey, the researchers intended to measure university teachers' awareness of the gamification teaching approach and investigate their attitude towards. gamification-based pedagogy. For this purpose, two different scale was adopted: independent variable, awareness of gamification in pedagogy, and dependent variable.

The independent variable (awareness of gamification in pedagogy) questionnaire was adopted from the article *Teachers' Self-Efficacy towards Gamification: A Scale Development author by* Orgut, Ugur Erdogmus, F. (2024). The items were used without modification to maintain consistency with the original validated instrument.

The dependent variable (Attitude Toward Gamified Pedagogy**)** questionnaire was adapted from the article *Development and Validation of an Attitude Scale towards Online Teaching and Learning for Higher Education Teachers " by* Sangwan, A., & Punia, P. (2020). The items and sub-variables were modified. Data were collected using a five-point Likert scale, ranging from Strongly Disagree to Strongly Agree .

Population and Sampling

All universities in Punjab were included in the study; from these universities, through stratified sampling, three public universities were selected.

Samples were selected through purposive social sciences/ natural sciences. A five points Likert scale from strongly disagree to strongly agree is used to collect the data. Out of the total sample size of 98 teachers, data collection is done from the University of Sargodha (UOS). Out of the total sample size of 158 teachers, data collection is done from the GC University Faisalabad (GCUF). Out of the total sample of 168 teachers, data collection is done from the University of Gujarat (UOG).

An online questionnaire was designed for data collection, and the respondents were sent the link to respond to the questionnaire. Friends, fellow teachers, relatives, and members of the family assisted in sending the questionnaire and motivating people to respond, thereby ensuring the desired and required rate of response. In university of sargodha the researcher collected the data himself to print the questionnaire.

Pilot testing

Before administering the questionnaire for the final data collection, a pilot study was conducted to examine the quality and clarity of the instrument. Pilot testing is a small-scale study

carried out to identify potential issues in the implementation of the actual research (Hundley, 2001). For this purpose, data was collected from 30 teachers belonging to all faculties of the University of Sargodha. The pilot data was analyzed to observe the reliability of each scale and to ensure its generalization for the population. The pilot testing indicated that the items were clear, understandable, and did not require any modifications.

Table 1. Pilot testing

Sr. no	Variables	Sub Variables	Cronbach's Alpha	No of items
1	Awareness of gamification in Pedagogy	Cognitive Development through Gamification	.869	1 to 6
		Perceived Student Development through Gamification	.870	7 to 14
		Motivation & Engagement through Gamified Pedagogy	.803	15 to 21
2	Attitude Toward Gamified Pedagogy	Appreciation for gamification in pedagogy	.748	22 to 30
		Gamification in pedagogy	.767	31 to 37
		Proficiency in gamification	.811	38 to 43
		Knowledge of Gamification in Pedagogy	.800	44 to 47

After pilot-testing, the next step was to identify the item that affects the overall reliability of the variables. The reliability analysis revealed that all constructs and their respective sub-dimensions demonstrated. Cronbach Alpha values of greater than 0.80, which indicate good internal consistency. The item total statistics further showed that the removal of any item did not result in an improvement in reliability. Therefore, all items were retained for the main study. These results confirm that the research instrument is clear, reliable, and capable of generating valid data aligned with the study objectives, and it is suitable for investigating awareness levels, attitudes, and demographic differences among university teachers regarding gamification-based pedagogy.

Data Analysis

The data collection process involved identifying and selecting participants, obtaining their consent, and gathering information through both questionnaires.

The data collected from the questionnaire were analyzed using the help of SPSS version 24 on the basis of descriptive statistics, t-test, ANOVA (Analysis of Variance), correlation, and regression analysis. On these analyses, results, conclusions, and recommendations were made to respond to the objectives of the research. These measures enabled the researcher to make systematic meanings of trends in the data, but were more relaxed in shifting between stages where he or she could. The result of this process gave more insights into the research questions by the identification and explanation of meaningful themes.

4. RESULTS AND FINDINGS

The results and the findings of the study were as follows:

Demographic

Demographic information ensures us whether our sample is truly representative of the population or not. Demographic variables are about those components that can be measured and utilized to put members of a selected population into smaller groups. The demographic portion of the research instrument was created to collect information about the University, Department, Designation/Position, Gender, Age, and work Experience. This information provides a clear profile of the participating university teachers.

Table2. Demographic Profile of Respondents

Demographic	Detail	Frequency	Percentage %
Gender	Male	218	51.4%
	Female	206	48.6%
Age	Less than 30 Years	102	24.1%
	30-40 years	121	28.5%
	40-50 years	119	28.1%
	More than 50 years	77	18.2%
Organization	UOS	98	23.1%
	GCUF	158	37.3%
	UOG	168	39.6%
Department	Arts / Humanities	66	15.6%
	Social Sciences	204	48.1%
	Natural Sciences	154	36.3%
Work Experience	Less than 5 years	84	19.8%
	5-10 years	122	28.8%
	10-20 years	148	34.9%
	More than 20 years	70	16.5%
Designation	Assistant Professor	92	21.7%
	Associate Professor	120	28.3%
	Professor	78	18.4%
	Lecturer	134	31.6%

Table2. Indicates that the maturity of replies was combined with the University of Gujarat UOG), accounting for 39.6 of the total sample. This was followed by 37.3 from Government

College University Faisalabad (GCUF) and 23.1 from the University of Sargodha UOS). Regarding departmental representation, nearly half of the actors (48.1) were from social lore, followed by 36.3 from Natural lore, and 15.6 from trades and Humanities, suggesting different participation from colorful academic disciplines. In terms of work experience, the maturity of teachers had 10 – 20 times of tutoring experience (34.9), followed by those with 5 – 10 times (28.8), lower than 5 times (19.8), and more than 20 times (16.5). This shows that the sample included a balanced blend of junior-level and elderly faculty members.

These responses were holding varied academic designations, such as 31.6 speakers, Associate Professors 28.3, Assistant Professors 21.7, and Professors 18.4, which showed that there is a wide range of academic ranks. Regarding age, 28.5% teachers are within the age range of 30–40 years, 28.1% teachers were 40–50 years. The good representation of the various age groups was seen with 24.1% less than 30 years and 18.2% more than 50 years. Regarding gender, the sample had almost equal representation, Male 51.4 percent 48.6 percent. In general, the demographic description indicates that the sample of the university teachers was heterogeneous in terms of age, gender, department, experience, and designation, thus being a suitable sample to investigate the awareness and attitude towards gamification-based pedagogy.

The Comparison of Male and Female University Teachers for their Awareness and Attitude towards Gamified Pedagogy on Seven Sub-Variables. The result of the independent samples t-test highlights that there are no statistically significant differences between males and females on all sub-dimensions. The results of the one-way ANOVA computation on the findings wherein there were no statistically significant differences found among the groups in all the identified sub-variables of Awareness and Attitude toward Gamified Pedagogy since they were all non-significant at the (.≥ .05) level. This refers to non-significance in the differences of groups in identified variables: Results on Cognitive Development through Gamification (.824); Perceived Student Development through Gamification (.337); Motivation & Engagement (.721); Appreciation for Gamification (.262); Gamification in Pedagogy (.994); Proficiency in Gamification (.450); and Knowledge of Gamification (.899). This implies that there were no effects of groups on the awareness or attitude of the respondents toward gamified pedagogy since their perceptions showed similar responses with other groups.

Table 3. Comparative Analysis of Awareness and Attitude Toward Gamified Pedagogy Across Organizations

Variable Category	Sub-Variable	Source	df	F	Sig
Awareness of g amification in pedagogy	Motivation & Engagement through Gamified Pedagogy	Between Groups	2	7.180	0.001*
		Within Groups	421		
Attitude Toward Gamified Pedagogy	Appreciation for Gamification in Pedagogy	Between Groups	2	4.196	0.016*
		Within Groups	421		
	Proficiency in Gamification	Between Groups	2	5.922	0.003*
		Within Groups	421		
	Knowledge of Gamification in Pedagogy	Between Groups	2	7.051	0.001*
		Within Groups	421		

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The results of the one-way ANOVA computation on the findings wherein there were no statistically significant differences found among the groups in all the identified sub-variables of Awareness and Attitude toward Gamified Pedagogy since they were all non-significant at the (.≥ .05) level. This refers to non-significance in the differences of based in identified variables: Results on Cognitive Development through Gamification (.824); Perceived Student Development through Gamification (.337); Motivation & Engagement (.721); Appreciation for Gamification (.262); Gamification in Pedagogy (.994); Proficiency in Gamification (.450); and Knowledge of Gamification (.899). This incident that there were no effects of groups on the awareness or attitude of the respondents toward gamified pedagogy since their perceptions showed such responses with other groups.

Table 4. Comparative Analysis of Awareness and Attitude Toward Gamified Pedagogy Between Departments

Variable Category	Sub-Variable	Source	df	F	Sig.
Awareness of Gamification in Pedagogy	Cognitive Development through Gamification	Between Groups	2	3.201	0.042*
		Within Groups	421		
	Perceived Student Development through Gamification	Between Groups	2	4.567	0.011*
		Within Groups	421		
	Motivation & Engagement through Gamified Pedagogy	Between Groups	2	3.263	0.039*
		Within Groups	421		
Attitude Toward Gamified Pedagogy	Proficiency in Gamification	Between Groups	2	5.867	0.003*
		Within Groups	421		

The ANOVA values indicate that of all the Awareness of Gamification in Pedagogy sub-variables, Cognitive Development through Gamification was significant at F= 3.201 and p = 0.042, Perceived Student Development was significant at F = 4.567 and p = 0.011, while Motivation & Engagement was significant at (F = 3.263 and p = 0.039.)

Though in terms of Attitude Toward Gamified Pedagogy, results indicated that Proficiency in Gamification was significant, F(5.867), and p = 0.003, implying there are considerable variations in skill proficiency across each of the classes. Appreciation for Gamification, F(2.312), and p = 0.100; Knowledge of Gamification, F(1.198), and p = 0.303; and Gamification in Pedagogy, F(0.199), and p = 0.820, were not regarded as meaningful in terms of significance level, implying there are no considerable variations across each of the classes.

The results of the one-way ANOVA of the sub-variables of Attitude toward Gamified Pedagogy and Awareness of Gamification in Pedagogy are presented in Table X. The results indicated that there were, in fact, discernible differences across various sub-variables. For example, with respect to issues under Attitude toward Gamified Pedagogy, Appreciation of Gamification in Pedagogy (F = 2.675, p = 0.047), Gamification in Pedagogy (F = 2.944, p = 0.033), and Proficiency in Gamification (F = 3.835, p = 0.010) were seen to have discernible differences. Meanwhile, in terms of issues with respect to Knowledge of Gamification in Pedagogy, there were no differences (F = 1.237, p = 0.296). As can be seen in the table above, in the Awareness section, aside from Motivation & Engagement through Gamified Pedagogy, there was a significant effect found in the data (F = 4.260, p = 0.006), which indicates that the Students' Motivation & Engagement levels differed from group to group, while the other variables, including "Cognitive Development through Gamification" (F = 0.835, p = 0.475) and "Perceived Students' Development through Gamification" (F = 0.263, p = 0.852).

A Bonferroni Analysis showed that there were no statistically significant differences

between faculty designations for both Awareness of Gamification through Pedagogy and Attitude toward Gamified Pedagogy ($p > 0.05$). It showed that designation did not make a difference when it came to faculty awareness and attitude toward gamified pedagogy." The Bonferroni test was used to see if there were any differences between the academic titles, like Assistant Professor, Associate Professor, Professor, and Lecturer, when it came to things like cognitive, development, motivation, appreciation, gamification, proficiency, and knowledge.When we discussed cognitive development, motivation, appreciation, gamification, and other aspects, it appears that proficiency, we found that academic titles such as "Assistant Professor," "Associate Professor," Professor, and Lecturer did not really make a difference for most of these things because however, the results were not significant as all the p-values were greater than 0.05. The teachers had the level of knowledge and skills, no matter what their job title was. They were all just as good at teaching and using games to make learning fun. The teachers also had a high level of motivation and appreciation for online education. This is true for all the types of teachers, and it shows that the teachers were equal when it came to online education and their ability to teach. Knowledge of gamification Significant differences were found in the Knowledge of gamification variable are Lecturers vs. Associate Professors: Mean difference = 0.90896, $p = 0.00$ Lecturers vs. Professors: Mean difference = 0.95254, $p = 0.008$ Associate Professors vs. Lecturers: Mean difference = -0.90896, $p = 0.003$ Professorsvs. Lecturers: Mean difference = -0.95254, $p = 0.008$ These results indicate that there were significant differences between the knowledge of technological reforms of Lecturers and Associate Professors/Professors.

The first objective was fulfilled through the analysis of awareness-related sub-variables such as knowledge of gamification, cognitive development through gamification, perceived student development, and motivation and engagement. The results indicated that university lecturers possess moderate to high levels of awareness regarding gamification as a pedagogical strategy, demonstrating adequate conceptual understanding of its educational benefits.

The second objective was achieved by investigating attitude-related dimensions, name appreciation for gamification, gamification in pedagogy, and motivation and engagement. Results indicated that university lecturers generally have positive attitudes toward gamification-based pedagogy and are willing to adopt gamified approaches in teaching and learning.

The third aim is fully realized in the independent samples t-test, one-way ANOVA, and the Bonferroni post-hoc tests. The results indicated that gender and academic designation had no significant influence on teachers' awareness and attitudes toward gamification. While there were some differences across experience groups in certain sub-variables, general awareness and attitudes showed very little difference.

This fourth objective was achieved by analyzing perceptions of teachers regarding the practicalities of gamification in pedagogy: proficiency in gamification and perceived student outcomes. It follows that teachers appreciate gamification potential contribution to improving learning, student approach, and motivation, even as different groups differ on some practical realities of implementation.

The fifth objective identifies the strengths and weaknesses of the two gamification

elements of strength and weakness were identified. The strengths of the two elements were a positive attitude and appreciation of gamification, and the benefits to be obtained from using gamification for motivating and engaging students. On the other hand, the weaknesses were identified as moderate proficiency level and differences in knowledge of technology among faculty ranks. The sixth objective was achieved through using Pearson's product moment correlation analysis. The result showed that there were relationships between a teacher's awareness of gamification and their attitudes toward a gamified teaching method. This implies that learning and experiences can lead to a more positive attitude and an increased willingness to apply a gamified method of teaching.

The correlation matrix was developed to examine the nature, strength, and direction of relationships among all the study variables. Pearson's product-moment correlation coefficient was employed to determine how the variables are statistically related to one another. This analysis provides an initial understanding of the interrelationships among teachers' awareness of gamification and their attitudes toward gamified pedagogy across different sub-variables. The correlation matrix helps in identifying significant associations and serves as a preliminary step before conducting further inferential analyses. The results of the correlation analysis are presented in the form of a matrix showing correlation coefficients among all study variables.

Table 5. Correlation Matrix of all study Variables

		Cognitive Development through Gamification	**Perceived Student Development through Gamification**	**Motivation & Engagement through Gamified Pedagogy**	**Appreciation for gamification in pedagogy**	**Gamification in Pedagogy**	**Proficiency in gamification**	**Knowledge of Gamification in Pedagogy**
Cognitive Development through Gamification	Pearson Correlation	1	.429**	-.051	-.097*	-.017	-.011	.050
Cognitive Development through Gamification	Sig. (2-tailed)		.000	.290	.045	.730	.825	.303
Perceived Student Development through Gamification	Pearson Correlation	.429**	1	-.032	.065	.067	.113*	.013
Perceived Student Development through Gamification	Sig. (2-tailed)	.000		.517	.185	.170	.020	.784

Motivation & Engagement through Gamified Pedagogy	Pearson Correlation	-.051	-.032	1	.081	.161**	.183**	.132**
Motivation & Engagement through Gamified Pedagogy	Sig. (2-tailed)	.290	.517		.095	.001	.000	.006
Appreciation for gamification in pedagogy	Pearson Correlation	-.097*	.065	.081	1	.259**	.190**	.175**
Appreciation for gamification in pedagogy	Sig. (2-tailed)	.045	.185	.095		.000	.000	.000
Gamification in Pedagogy	Pearson Correlation	-.017	.067	.161**	.259**	1	.272**	.340**
Gamification in Pedagogy	Sig. (2-tailed)	.730	.170	.001	.000		.000	.000
Proficiency in gamification	Pearson Correlation	-.011	.113*	.183**	.190**	.272**	1	.252**
Proficiency in gamification	Sig. (2-tailed)	.825	.020	.000	.000	.000		.000
Knowledge of Gamification in Pedagogy	Pearson Correlation	.050	.013	.132**	.175**	.340**	.252**	1
Knowledge of Gamification in Pedagogy	Sig. (2-tailed)	.303	.784	.006	.000	.000	.000	

The findings state that there is a moderate and statistically significant positive relationship between Cognitive Development through Gamification and Perceived Student Development through Gamification ($r = .429$, $p < .01$), suggesting that teachers who perceive gamification as enhancing their own cognitive development also believe it appreciatively contributes to student' development. Still, cognitive development showed weak and negative correlations with

Motivation and Engagement (r = −.051, p>.05) and Gamification in Pedagogy (r = −.017, p>.05), indicating no meaningful association. The statistically significant negative relationship was set up between cognitive development and Appreciation for Gamification (r = −.097, p<.05), suggesting that advanced cognitive development comprehensions do not inescapably restate into lesser appreciation.

Perceived Student Development through Gamification was significantly and appreciatively related to Proficiency in Gamification (r = .113, p<.05), indicating that teachers who feel more proficient in gamification tend to perceive less pupil development. Still, its connections with provocation, appreciation, pedagogical use, and knowledge were weak and insignificant.

Motivation and Engagement through Gamified Pedagogy showed significant positive correlations with Gamification in Pedagogy (r = .161, p<.01), Proficiency in Gamification (r = .183, p<.01), and Knowledge of Gamification in Pedagogy (r = .132, p<.01). This suggests that advanced motivation and engagement are associated with lesser pedagogical integration of gamification, advanced proficiency, and increased knowledge.

Appreciation for Gamification in Pedagogy was appreciatively and significantly identified with Gamification in Pedagogy(r = .259, p<.01), Proficiency in Gamification(r = .190, p<.01), and Knowledge of Gamification in Pedagogy(r = .175, p<.01), indicating that teachers who value gamification are more likely to apply it, feel competent in its use, and retain less knowledge.

The construction Gamification in Pedagogy demonstrated moderate positive correlations with Proficiency in Gamification (r = .272, p<.01) and Knowledge of Gamification in Pedagogy (r = .340, p<.01). This reflects that effective pedagogical use of gamification is nearly linked to teachers' chops and understanding of gamified tutoring approaches.

Eventually, Proficiency in Gamification was significantly and appreciatively related to Knowledge of Gamification in Pedagogy (r = .252, p<.01), suggesting that teachers with less knowledge tend to feel more competent in applying gamification strategies.

In the relationship between awareness of gamification pedagogy and attitudes towards gamification pedagogy among university teachers, a regression analysis was performed. The purpose of the regression analysis was to find out if awareness of gamification is a significant predictor of university teachers' attitudes towards the adoption of gamification in their teaching practices. Through the determination of the strength and nature of the relationship between the variables, the study offers an understanding of the impact of university teachers' awareness and knowledge of gamification on their preparedness and readiness to adopt gamification in their teaching practices. The next section offers the model summary of the regression analysis.

Table 6. Model Summary of Regression Analysis between Awareness of Gamification Pedagogy and Attitude toward Gamified Pedagogy

Model	R	**R^2**	**Adjusted R^2**
1	.840a	.706	.705

The regression analysis showed that there was a strong positive relationship between the

independent variable and the dependent variable, as inferred from the correlation coefficient (R = 0.840). Similarly, the coefficient of determination ($R^2 = 0.706$) implies that it is possible to explain 70.6% of the total variability of faculty attitudes regarding gamified approaches to teaching by their awareness of gamification. More specifically, the value of the Adjusted R^2 (i.e., 0.705) suggested that the regression equation was an appropriate fit to the data and to the actual number of predictors**.**

Table 7. Regression Coefficients: Awareness and Attitude toward Gamified Pedagogy

Predictors Variables	**B**	**Std Error**	**Beta (β)**	**t**	**Sig. (p)**
(Constant)	18.888	1.296	–	14.572	.000
Awareness of Gamification in Pedagogy	1.077	.034	.840	31.812	.000

The regression analysis results provided above show that Awareness of Gamification in Pedagogy is an important predictor variable that affects attitude towards gamification used in the pedagogy class. From the standardized regression coefficient provided ($\beta = 0.840$), the relationship can be interpreted as strong and positive since there is an increased awareness of gamification used by teachers in their classes; thus, teachers develop an increased attitude towards gamification used in the pedagogy class since $p < .001$.

From the regression analysis conducted to identify the relationship between the teachers' awareness of gamification in pedagogy and their attitude towards gamified pedagogy, it is observed that there is a strong positive relationship. From the graph below, it is clear that each participant's actual scores are represented by the points, while the regression equation is represented in the graph using the regression line. The slope of the regression line clearly shows that increased awareness of gamification correlates positively with increased attitudes towards gamified teaching.

In quantified terms, the result for the regression coefficient B = 1.077 means that with every one unit increase in awareness, attitude towards gamified teaching increases by 1.077 units. Now, this finding put in context and appreciating its importance, note that if, for example, for an increase of 10 units in awareness, the resultant increase in attitude would be about 10.77 units, which is not insignificant and is potentially achievable by raising awareness and familiarity about gamification among teaching professionals.

In the final analysis, all this evidence is corroborated by both the statistical analysis outcome, which supports this proposition, and the visualized output that increasing awareness related to gamification among educators can have a positive impact on promoting their gamification attitude, hence becoming an important pathway to pedagogical intervention.

5. **DISCUSSION**

The first objective of the research work conducted is to determine the levels of university lecturers' familiarity with the concept of gamification. The findings obtained pointed out that lecturers were moderately to highly familiar with the application of gamification to education with

respect to its benefits related to the intellectual development of students. The findings also highlighted the fact that lecturers' familiarity is mostly theoretical and not based on practical experiences or approaches. Despite being convinced of the application of gamification for effective instructional delivery, lecturers might not receive the appropriate exposure and training related to its application.

The analysis further helped come up with conclusions that the results showed university teachers have positive attitudes and are interested in and engaging with the gamification approach to teaching and learning, but the performance levels regarding knowledge and proficiency are moderate, which can be interpreted as a reserve in direct application. The willingness among teachers to implement gamification was evident, but there was a disconnect between preparation and application regarding pedagogical skills and the tools used, which aligns with past analysis by other scholars that attitudes alone are insufficient without the backing of institutional and technical training in order to effectively implement gamification in the teaching and learning process in higher institutions of learning. This, therefore, warrants gamification training among teachers and the provision of technological tools for the proper adoption and application of gamification in teaching and learning in higher institutions.

It means that gender does not have a significant influence on either the awareness or attitude of teachers since both male and female teachers showed equal awareness regarding the cognitive, developmental, and motivational gains of gamification. On the other hand, teaching experience did turn out to be the more influential factor, as less experienced teachers "show greater appreciation, perceived usefulness, and confidence in applying gamification compared to the more highly experienced teachers." However, the basic awareness level remained the same for all different experience groups. This seems to indicate a greater increase in confidence from practical rather than theoretical exposure. Overall, the findings of this study reveal that university teachers are moderately to highly aware and generally hold positive attitudes toward gamification-based pedagogy; however, their practical ability remains limited. Therefore, targeted professional development is required, particularly for early-career faculty, in order to enhance the skill of implementation and thereby support successful adoption in higher education.

6.CONCLUSIONS

This research endeavored into the awareness of gamification in Pedagogy, attitude Towards Gamified Pedagogy among teachers in the faculty of social sciences in three state universities university of Sargodha, Government College University, Faisalabad, and University of Gujarat, using the approach of Quantitative check styles. The findings provide an in-depth insight into the way gamification as an innovative pedagogical model is viewed, adopted, and practiced in the context of university tutoring. The results provide insight into the awareness of gamification in university teachers, their orientation to gamification-based pedagogy, and the impact of defined demographic factors on these understandings. Results indicated that there were moderate to high cases of awareness of gamification in pedagogy, which implies that university teachers are less accustomed to their implicit role in improving the effectiveness of tutoring and the learning problems of pupils, and so are aware of the pedagogical importance of gamification.

Despite the non-significant differences, the teacher with lower tutoring experience demonstrated somewhat higher awareness of situations, which can be attributed to the possibility of professional exposure and practice in the classroom to have a deeper insight into the gamified tutoring strategies.

In general, there were no major variations in the stations of teachers who presented positive views regarding gamification-grounded pedagogy, where it is appreciated due to its utility, ability to increase pupil engagement, and implicit in making literacy interactive and effective. Teachers, regardless of age and gender, did not show significant differences, indicating that the general acceptance of gamification as a tutoring strategy is a stable phenomenon. bigger differences were based on gender, which implies that both male and female teachers were exposed to the advantages and problems of gamification in a similar way. However, the teacher who has more experience in tutoring demonstrated stronger appreciation and superiority in using gamified strategies, and it can be considered that experience influenced pedagogical preparedness. In spite of its positive stations, the results also demonstrate that teacher -reported proficiency and knowledge of gamification are still at a medium level, which creates a gap between abstract appreciation and practical perpetration. Teachers testify about the educational advantages of gamification, but many of them will need new support, training, and institutional stimulus to implement gamified pedagogy in their classrooms.

The findings also support that having a lesser awareness of gamification is explosively linked to more favorable stations of gamification grounded pedagogy, showing that knowledge of gamification generalities leads to more efficacy and allowance to include them in tutoring sessions. Simultaneously, teachers manifested sensitivity of the unspoken issues, no less important than the necessity to pay attention to the design of educational activities, to the adequacy of their alignment with the objects of literacy, and to the ineffectiveness of the superficial or non-effective implementation of the gamification modes. This is an indication of a moderate approach where enhanced awareness not only results in enthusiasm but also pedagogical care. Educationally and policy-making-wise, the findings serve as a sharp contrast to the importance of institutional support, planned professional development, and pedagogical training that is focused on gamification. Accordingly, professional development enterprise accustomed to teachers with different circumstances of experience can be used to provide guarantees of indifferent and effective relinquishment of gamification through advanced institutions of education. Overall, the paper concludes that the willingness and positive attitude of university teachers toward gamification-based pedagogy exist, and awareness and station are the key determinants in the abandonment of the latter. To optimally incorporate gamification into university teaching and learning practices, the further improvement of teachers' practical chops and pedagogical knowledge using specific training can be used to make the relevant changes.

7.RECOMMENDATIONS

The following are the recommendations of the study:

The results of this study show that university teachers who know more about gamification pedagogy really like it. University teachers who are very aware of gamification pedagogy have

feelings about using it to teach. This is interesting because it shows that the more university teachers know about gamification pedagogy the more, they want to use it. University teachers need to know more about gamification pedagogy to be good at it. They also need to be able to use it and be excited about it. Therefore, in light of the above, some things that can be done are as follows. First of all, universities can introduce professional development programs that can improve teachers' knowledge about gamification tools. Next, universities can conduct workshops that can improve teachers' proficiency level regarding gamification teaching methodologies. Last, universities can encourage peer teaching among teachers so that they can share with each other their experiences about gamification teaching methodologies.

Based on the findings of this study, strategic steps for higher education institutions and policymakers to promote gamified pedagogy may be taken. The awareness and training sessions on gamification may be included in the professional development plan of the higher education institutions. It is advisable to consider designing policies to recognize and facilitate the efforts of the instructors who incorporate gamified approaches in their pedagogies. Instructors of different designations and faculties must be facilitated to apply gamified pedagogy with the help of technology.

The aim of this study is to examine the perception of teachers at three universities about the use of games. For further information regarding the use of games for learning, we need to conduct studies. For this, we can consider the perception of teachers at different universities, community colleges, and other learning centers. Here, we also need to consider the impact of the use of games for learning on what the learning results show over a period of time, the level of motivation, and the level of engagement. For this, we need to consider things such as whether the school system is providing support, the number of students for each class, and the topic to be learned, as they impact the use of games for learning. Examine the effectiveness of various gamification tools.

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Contribution

Anam Hameed: Problem Identification, Theoretical Framework, Data Analysis, and Drafting
Nargis Abbas: Supervision

Conflict of Interests/Disclosures

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