

Assessing the Perceptions of ELT Teachers on a Gamification Tool- A Scale Development

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Abstract

Technology is being blended to language teaching especially in classroom atmosphere to increase students' motivation and learning. For this purpose, numerous gamification tools have emerged to be integrated in classroom teaching. Various kinds of tools are used widely in the world for different purposes in teaching and learning. Many of these tools are found to be motivating both by teachers and learners. There have been many studies on measuring the perceptions of learners on gamification tools; however, only few of these present studies aimed to emerge the perceptions of ELT teachers on the contribution of these tools to the education context. Considering the popularity and frequent use of these tools, it is a significant issue to find out teachers' perceptions on the gamification tools.

The aim of this present study is to develop a scale to assess the perceptions of English teachers on gamification tools. The data analysis was carried out by employing the phenomenology method of qualitative research involving ELT teachers in scale development stage. Exploratory factor analysis (EFA) was employed to the scale aiming to reduce the dimensions. The descriptive profiles of participants (gender, age etc.) were compared by taking the factors of EFA into account. The results indicated that the scale is a valid and reliable assessment tool for measuring the perceptions of English teachers on a gamification tool.

Key Words: Gamification tools, ELT teachers, perceptions, phenomenology method, EFA

1. Introduction

Teaching a language is a dense field in which educators keep trying to find the best and most effective way for motivating and engaging learners in the learning process. As it is known, game-based learning plays a significant role in teaching. Games promote communicative competence and encourage creative and spontaneous use of language (I-Jung, 2005). Undoubtedly, games are irresistible almost in every area of life regardless who you are or how old you are.

Due to the rapid changes and improvements in technology, numerous gamification tools (GT) have emerged for this purpose recently. Gamification is defined as the application of typical elements of game playing (rules of play, point scoring, and competition with others) to other areas of activity, specifically to engage users in problem solving (Wikipedia and Oxford Online Dictionary).

However, gamification is not a brand-new term. It is not easy to detect the exact time, but it is said to be dated back to 1912. It has also been used in other fields apart from education. Though it has gained its importance with the rapid growth of technology and internet.

2. Literature Review

2.1 Gamification for Teaching and Assessment

There have been numerous definitions and view of the term “gamification” in the literature almost in every field. Games provoke interest and motivation for learners even with unattractive contexts and continuous interest means continuous effort. (Thiagarajan, 1999; Wright, et. al., 2005). This effort can be effective on making the learning process permanent. The term gamification is defined as the use of game design elements in non-game contexts by Deterding et al. (2011). In the same way, Kapp (2012) stated that gamification is using game-based mechanics, aesthetics and game thinking to engage people, motivate action, promote learning, and solve problems. Garris et. al. (2002); similarly, defines the term as a method of demonstrating learning level actively as its root comes from learning by doing.

The benefits of implementing gamification in to teaching have been indicated in education area. Gamification is not just designed for learner fun and enjoyment. It is also an instructional approach that can be used to enhance the effectiveness of instruction on student learning (Kim et al., 2018). In addition, Shute & Ventura (2013) indicated that gamification helps people learn by doing, which ultimately improves processes and outcomes. When learners take part in this process actively and experience learning by doing, the learning can be more efficient. Due to all these reasons, it can be said that gamification will keep gaining importance in teaching-learning process.

While gamified learning is used in teaching and motivating students, it can also be used for assessing learners’ improvement. Including GTs in assessment can be advantageous as it can

be conducted without awareness of students, promptly, and in a fun way. Wood et al. (2013) pointed out that using gamification in education provides novel opportunities for assessment which can be helpful in gaining more precise overview of learners' achievement. Gamification has been used as a real-time assessment tool accordingly in classroom setting recently and this kind of assessment provides instant feedback of what has been taught (Palomo et al., 2016). Moreno et al. (2008) found that gameplay gives chance to support real-time adaptation to meet the needs of learners, in-game assessment, grading and integrating online educational tools to the learning context.

In their study, Wood et al. (2013) investigated that using game-based elements was applicable in assessing authentic learning and efficiency. Using GTs demand triggering background knowledge and assess the participants' performance while learning the target subject (Méndez and Slisko, 2013). Licorish et al. (2018) demonstrated that when GTs are used it is not crucial for learners to use additional revision in order to recall and report related content accurately while being assessed. Another research administered by Iaremenko (2017) using Kahoot (an online GT) revealed that the majority of students felt positive about being assessed through a GT. Keeping these in mind, it can be said that using GTs in assessment process is beneficial for both learners and educators.

2.2 Gamification for Motivation

Keeping students motivated in the learning process is inevitably important for effective learning. As Milligan, et al. (2013) claim motivation helps increasing the participation and success of learners as a key factor. For this reason, the term motivation has been an aspect to be investigated in studies for efficient results of learning. According to Bunchball (2010), the need of achievement or accomplishing difficult things through efforts or goals, motivate some people and the admission of their achievements is the most satisfactory benefit for these people. In their study on psychological perspectives on motivation through gamification, Sailer et al. (2013) found that in various contexts, gamification has the potential to promote motivation. They also resulted in three main components in implementing motivation through gamification in their study, which are *person*, *gamification environment* and *context*. Keeping these components in mind while employing gamification in learning can be efficient for greater results. Similarly, the study conducted by Cahyani (2016) revealed that gamification has an impact on in order to increasing motivation in learning. As the term motivation has always been a significant aspect in education field, GTs can be supportive tools for increasing learners' motivation.

2.3 Gamification for Recognition and Feedback

Learning new words or structures from the target language has been a hard issue for foreign language learners. For overcoming this issue, educators have been trying new and various ways. Recognizing new structures is a significant part of learning a new language process, and

gathering feedback for this process is inevitably important, too. Kayseroğlu and Samur (2018) in their study collected pre-tests and post-tests in quantitative data to assess the progression of word recognition and the effect of games in German vocabulary learning. The study's results indicated that the majority of the participants (97%) felt more eager to learn new words with the help of gamified tools.

It is a known fact that feedback is efficient in assessment and learning (Hattie & Timperley, 2007). In this sense, gamification can be a valuable tool to provide great feedback on what has been learnt as it is crucial for educators to evaluate both learning and teaching process. Gamification makes real-time feedback possible (Lee&Hammer, 2011) and this kind of feedback leads learners to critical thinking (Nicholson, 2012). Stott and Neustaedter (2013) also put in that real-time feedback in gamification is directly related to formative assessment. It is stated by Gåsland (2011) that point-based system in GT is motivating and engaging. The reason for this can be the instant feedback and recognition supplied by these points when finishing a task or activity (Mekler et al., 2013).

2.4 Gamification for Learning

The increasing demand of learning a foreign language has led the educators and stakeholders to seek for various methods or tools to enhance learning. The integration of technology to classroom environment found effective by many educators and learners. Bearing this aim in mind, GTs have become popular among learners as they support learning, competition, achievement and having fun. In order to present efficient learning opportunities, educators have been trying to make learning conditions and contexts more attractive.

For this purpose, GTs can be seen as supportive tools for learner achievement. Steinberg (2011) claims that even non-academic games can lead learners to the feeling of achievement encouraging teamwork and cooperation. Likewise, Flores (2015) puts in the positive contribution of gamification in L2 learning experience. He, also; claims that each game element applied in GTs increases L2 teaching and learning process spontaneously.

By conducting over 60 studies to investigate the effects of using academic games Marzano (2010), came up with the result that using games in classroom, adds 20% gain to students' achievement. This finding definitely reveals the strong impact of achievement and learning in education setting. It should also be kept in mind that games help learners to overcome poor learning habits (Lister, 2015).

3. Methodology

3.1 Data Collection and the sample

The total population of the study is English Language teachers (ELTs) of preparation schools of Turkish universities. The sampling on the other hand, is the 168 ELTs who agreed to participate to the survey which was uploaded on Google forms. Administrations of the

preparation schools of various universities in the country have been informed, and the data collected between November 2018 and April 2019.

Descriptive profiles of employees were demonstrated in Table 1. As can be seen from the table, the majority of the participants are female (76.8 %). When the ages of participants are considered, 31-40 group with 53 percent is in the lead and 51-60 is at the end with 5.4 percent. The dominant experience level of the participants is '11-15' years with 31 percent while '1-5' years experienced participants are at the end with 10.1 percent. One interesting result about the experience could be related with the generations; being young does not necessarily mean being technology friendly.

Table 1: Descriptive Profile of Participants

N=168	n	f (%)
Age		
<i>21-30</i>	25	14,9
<i>31-40</i>	89	53
<i>41-50</i>	45	26,8
<i>51-60</i>	9	5,4
<i>61-<</i>	-	-
Gender		
<i>Male</i>	39	23,2
<i>Female</i>	129	76,8
Experience		
<i>1-5</i>	17	10,1
<i>6-10</i>	35	20,8
<i>11-15</i>	52	31
<i>16-20</i>	35	20,8
<i>21-<</i>	29	17,3

Scale Reliability, Validation and Data Analysis

The questionnaire used in the present study, was composed of two sections. In the first section, three demographic questions were located to query about participants' gender, age, and working experience. For the second section, the phenomenology method (Patton, 2002, p. 104) of qualitative research was employed by involving 12 ELTs who are frequent gamification users. The questionnaire after phenomenology stage, consisted 31 seven-point Likert scale type items (1=strongly disagree & 7=strongly agree) since the three or five-point Likert-type scale might leave some judgements out of range (Leclerc and Martin, 2004: 190).

To implement quantitative analyses, SPSS 22.0 was used at the first stage. After collecting the data set for factor analysis, 168 valid questionnaires were used as the sample. The Kaiser-

Meyer-Olkin measure of sampling adequacy (0.924) and Bartlett's Test of Sphericity criteria (0,000) were acceptable to execute exploratory factor analysis (EFA). These factors explained 67.51 % of the total variance. AMOS 22.0 was used a means of analyses to validate the structure of the factors. Confirmatory factor analysis (CFA) was performed for the 22 items of gamification Kahoot scale.

Table 2 demonstrates descriptive statistics of the data. Cronbach's α coefficients of all four dimensions are found reliable (Hair et al., 1998). The rest of the variables demonstrated in the Table 2 are related with normality. Kolmogorov-Smirnov's normality test is recommended for larger samples (> 300) whereas Shapiro-Wilk is recommended for smaller samples (Wuensch, 2016). Shapiro-Wilk results of the dimensions were not met since they are all significant as mentioned in the table. However, the assumption of normality in the observations ($\rho > .05$) with Levene's test were met for the data of the study. Among others, tests of the significance of skewness and kurtosis are not considered appropriate with large samples, as very small standard errors will always produce significant results (Linley et al, 2009). According to Tabachnick and Fidell (2011), the skewness and kurtosis values between -1.5 and +1.5 are considered acceptable in order to prove normal univariate distribution. That said, as shown in Table 2, the values of skewness and kurtosis still fall within the acceptable range of -1.5 to 1.5 (even within the range of -1 to 1 for the present study). Hence, the data is accepted appropriate for parametric tests in the present study.

Table 2: Descriptive statistics, including skewness and kurtosis

	<i>Teaching & Assessment</i>	<i>Motivation</i>	<i>Recognition & Feedback</i>	<i>Learning</i>
<i>Cronbach's α</i>	0,92	0,91	0,87	0,86
<i>Test of Normality (Shapiro-Wilk)</i>	$\rho < 0,001$	$\rho < 0,001$	$\rho = 0,002$	$\rho < 0,001$
<i>Box's test of equality of covariance matrices</i>	Box's M = 20,033 F = 1,922 $\rho = 0,038$			
<i>Levene's test</i>	F = ,021 $\rho = 0,886$	F = ,177 $\rho = 0,674$	F = 1,488 $\rho = 0,224$	F = ,470 $\rho = 0,494$
<i>Skewness-Kurtosis</i>	Skew.= -,825 St.Er = ,187 Kurt. = ,477 St.Er = ,373	Skew.= -,697 St.Er = ,187 Kurt. = -,283 St.Er = ,373	Skew.= -,390 St.Er = ,187 Kurt. = -,222 St.Er = ,373	Skew.= -,621 St.Er = ,187 Kurt. = -,263 St.Er = ,373

4. Findings

Table 2 demonstrates the EFA results. As a summary, 27 items and four dimensions occurred in the study. The first dimension of the EFA consists of eight items, and the factor loadings

range is between 0.80-0.60. The second dimension has seven items and the highest factor loading is 0.84 while the lowest range is 0.57. The third dimension consists of eight items and the factor loading range is between 0.69-0.53. Finally, the fourth dimension with four items has factor loadings between 0.74-0.55 ranges. On the other hand, the other values of EFA are also within the acceptable range as demonstrated in the table.

Table 3: EFA of the Dimensions on Gamification Kahoot

	Eigenvalue	Variance Explained	Cronbach's Alpha	Factor Loadings	Communalities
<i>F1 Teaching & Assessment</i>	12.75	47.22	0.92		
TA1				0.80	0.77
TA2				0.76	0.66
TA3				0.75	0.75
TA4				0.72	0.59
TA5				0.72	0.65
TA6				0.70	0.72
TA7				0.68	0.67
TA8				0.60	0.78
<i>F2 Motivation</i>	2.34	8.69	0.91		
M1				0.84	0.83
M2				0.81	0.82
M3				0.75	0.70
M4				0.73	0.78
M5				0.63	0.58
M6				0.58	0.52
M7				0.57	0.68
<i>F3 Recognition & Feedback</i>	1.84	6.83	0.87		
RF1				0.69	0.56
RF2				0.68	0.71
RF3				0.67	0.59
RF4				0.61	0.54
RF5				0.61	0.66
RF6				0.59	0.57
RF7				0.58	0.57
RF8				0.53	0.65
<i>F4 Learning</i>	1.28	4.75	0.86		
L1				0.74	0.68
L2				0.71	0.68
L3				0.59	0.68
L4				0.55	0.73
<i>KMO: .924</i>				<i>Bartlett's Sphericity Test: .000</i>	

CFA was performed for 22 items of 'gamification Kahoot' scale. Although four factor-structure remained the same, CFA revealed that five items of EFA wouldn't fit in the scale. Hence, these items were eliminated from the scale. Goodness of fit was evaluated and measured indices confirmed that four-construct CFA was convenient as shown in Table 3. Composite Reliability (CR) and Average Variance Extracted (AVE) of the scale were examined. Hair et al., (1998) indicates that CR is expected to be higher than 0.70 and AVE is expected to be higher than 0.50. However, Fornell and Larcker (1981) affirms that AVE values

below 0.50 would fit the scale on the condition that reliability and validity values are acceptable. Thus, CR and AVE values of the scale are convenient in this aspect. Finally, the factor loadings of the items ranged between 0.54 and 0.89 are providing the recommended values (Hair et al., 1998).

	Factor Loadings	T Value	CR	AVE	Goodness-of-Fit Indices
<i>F1 Teaching & Assessment</i>			0,908	0,663	X ² /df : 1,737
I like using Kahoot for consolidation	,874				RMSEA= 0,06
I like using Kahoot for grammar skill	,779	12,385			CFI= 0,94
I like using Kahoot for making revision	,835	13,916			TLI: 0,93
I like using Kahoot because it helps to detect mistakes	,770	12,140			GFI= 0,85
I like using Kahoot in my lessons actively	,809	13,177			SRMR= 0,05
<i>F2 Motivation</i>			0,867	0,568	
I think Kahoot involves even introverted students to lessons	,852	10,896			
I think Kahoot involves even unwilling students to lessons	,801	10,207			
I think Kahoot attracts unmotivated students	,688	8,721			
I think my students like Kahoot tool	,852	10,900			
I think students find Kahoot enjoyable	,660	8,294			
I think Kahoot motivates more than written materials	,731				
I think Kahoot increases my students' motivation in learning	,820	10,479			
<i>F3 Recognition & Feedback</i>			0,840	0,472	
I think Kahoot provides peer feedback after each question	,591				
I think Kahoot can be used for all kinds of language skills	,547	8,000			
I think Kahoot helps recognition of new words	,764	7,426			
I think Kahoot is good for post-test	,630	6,534			
I think Kahoot helps recognition of new grammar structure	,722	7,150			
I think I can help my students more effectively via Kahoot	,827	7,796			
<i>F4 Learning</i>			0,858	0,605	
I think competition makes students more careful	,679				
I think Kahoot provides the chance of learning from mistakes	,716	10,192			
I think students learn from Kahoot and enjoy at the same time	,807	9,302			
I think Kahoot supplies effective learning for my students	,892	10,044			

Table 4: CFA of the Dimensions on Gamification Kahoot

Conclusion

There have been innumerable studies conducted on gamification in the literature as it is highly accepted to have influence on not only in teaching or learning a foreign language, but also in other majors. Deterding et al. (2011), Shute & Ventura (2013), Palomo et al., 2016, Moreno et al. (2008), Licorish et al. (2018), Milligan, et al. (2013), Sailer et al. (2013), Stott and Neustaedter (2013), Marzano (2010), Wood et al. (2013), Méndez and Slisko (2013), and Iaremenko (2017) are only a few illustrations from the literature which focused on various issues to investigate or evaluate the term gamification. However, considering the most popular gamification tools, a unique scale was developed in this particular study. The scale developed in this study focuses on the perceptions of ELT teachers while similar studies in the literature focus on learners'. Moreover, the scale in the present study was verified employing statistical procedure –including DFA- which has not been encountered in the literature.

The aim of this paper was to develop a scale on assessing the perceptions of teachers on a gamification tool in ELT classroom. Here; in this study, Kahoot, which is one of the most popular and demanding tool, is used as a GT for this purpose. We have ended up with a 22-itemed scale aiming to measure ELT teachers' perceptions on GTs. The scale's reliability is validated through series of analysis.

This particular study is not without limitations. The main limitation is about the subject GT of the study. Only Kahoot, which may be the most popular GT, is used for revealing the perceptions of ELT teachers; however, a study focusing on gamifications in general would contribute literature better. Another limitation is that the major participants of this present study are females with 76,8 %. The studies with more male participants may lead different results. Therefore, future research on this aspect can include equal numbers of genders. [1][5EP]

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