

Determinants of Graduate Business Student's Intention to use Gamification in an Organization

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Abstract

In the present era, digitalization of games has become a common phenomenon compared to the late 90s. Prior to this era, the concept of gaming has been viewed as a way of engaging people in their free time. Gamification is a plan approach that draws from game structure to prompt gameful encounters in various settings, especially at work environment. Hence, the open excitement for the consideration of gamification in the work place: with bearing on the rapid progression of technology. Several studies have examined the use of gamification in an organization. However, the perspectives to graduate business students who are prospective managers on the use of gamification is limited in the literature. Therefore, this study investigated factors affecting prospective managers' intention to use gamification. Survey questionnaire was employed to collect data from 352 graduate business students in a university in North Cyprus. Descriptive statistics and multiple learning regression (ANOVA) test were used to analyse the responded data. Results revealed that perceived engagement (mean=4.29, SD=0.710), perceived immersion (mean=4.16, SD=0.675), and perceived challenges (mean=3.95.08, SD=0.79) are factors affecting the use of gamification in an organization. The study provided graduate business students, the opportunity to express their willingness and intention regarding the use of gamification in an organization.

Keywords: Determinants, Gamification, Intention, Managers, Organization.

INTRODUCTION

The term gamification has been given various definitions by different scholars: in the context of motivation, it has been defined as a groundbreaking invention to facilitate motivation with emphasis on the usage of game features in non-game settings (Deterding *et al.*, 2011), an alteration, and implementation of game design ideologies and game interface features to organizational procedures and actions (Operscu *et al.*, 2014). In whatever way gamification is described, the fact remains that it facilitates workplace effectiveness and client's allegiance (Hamari, *et al.*, 2014).

Computerization of games has become the backbone of mainstream entertainment industries and even in the workplace environment, and perceived as a form of consumer ethos (Morschheuser *et al.*, 2017). Consequently, the mechanics of gamification in a non-gaming environment has been moving in a fast spade and has become a practice in some organizations.

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Recently, many organizations are employing gamification as an approach to improve work performance. There are many advantages an organization stand to benefit from its usage of gamification. Important among these benefits are its tendency to boost employee output, motivate brand commitment, increase client allegiance, and total organizational relationship. According to Conertti (2016), many organizations has embarked on the use of gamification in some of their business processes such as in the aspect of client engagement, knowledge acquisition and growth, sales drilling, and worker's socialization. The author added that, the whole essence of organizational gamification is that it engages clients and workers via the usage of instigators exciting to them.

The advantages inherent in the use of gamification in organizational setting notwithstanding, studies still suggest that some factors hinders its actual capabilities. Among these studies are the study of Yoo *et al.* (2017) where the authors studied the factors jeopardizing the acceptance of a Gamified Smart tourism application. The study identified hedonic motivation, perceived enjoyment and network effect as the key factors affecting gamified smart tourism applications. Similarly, Denden *et al.* (2017) investigated the factors affecting the perception of gamification and elements. It was realized from the study that gaming frequency and gender indeed affect the perception of game element usage, but not gamification itself. In another study by Armstrong and Landers (2018), the authors assessed the role of gamification in employee training and development, giving a vivid description of necessary steps to be followed to achieve a web-based gamified training platform for employee training and development. Likewise, Singhsomransukh & Heo (2017) in their study, "gamification of knowledge sharing practices: A proposed conceptual framework for organizational learning", exposed the concept of gamification from the context of knowledge sharing. They also proposed a theoretical framework targeted at boosting employees motivation.

Several empirical studies has investigated the use of gamification in an organization (Rivers, 2015; Saha & Pandita, 2017; Lund *et al.*, 2017). However, studies on graduate business students who are prospective managers (PMs) on the use of gamification is still limited in the literature. Hence, it is essential to investigate the concern of these students. Therefore, this study aims to investigate the factors affecting PMs' intention to use gamification in an organization.

In this study, we use factors such as perceived engagement of gamification (the beliefs that engagement in gamification will enhance right conduct; Alsawaier, 2018), perceived immersion for using gamification (the belief of various presence in a game environment; Goethe, 2019), perceived challenges for using gamification (the belief that certain issues are associated with using gamification; Harviainen, & Meriläinen, 2019), perceived skills to use gamification (the belief that certain skills are required to utilize gamification; Leinonen *et al.*, 2018) and perceived intention to use gamification (one's conviction to use gamification; Vanduhe *et al.*, 2020) to investigate graduate business student's intention to use gamification in an organization.

The study present an empirical view of graduate business student's intention and the degree to which gamification is appropriate for organizational needs and wants. The findings from this study indicated that gamification in an organization might engage managers and other employees in performance at work, and help stakeholders in business schools as well as directors of organizations on how best to organize in-service trainings for prospective managers that would address the challenges associated with the use of gamification in an organization.

This study will contribute to the body of knowledge in that it is expected to provide graduate business students the opportunity to express their willingness and intention regarding the use of gamification in an organization.

MATERIALS AND METHODS

Research Design

The present study employed a cross-sectional survey research design with both quantitative and qualitative approaches. This method includes the collection of responded data from a population at a particular time by administering a survey questionnaire to assess an individual or group of similar characteristics (Fraenkel & Wallem, 2000).

Study Area

Students in the faculty of Administrative Sciences were the target population. The students are all pursuing a degree in Business Administration, Accounting and Finance, Digital Media and Marketing and International Relation in one of the universities in North Cyprus. North Cyprus has a variable educational system via the integration of the Ottoman-Turkey educational system (Ufuk & Çağanağa, 2019). The faculty has a population of two thousand, three hundred and ninety-two (2,392) students: in which, two hundred and seventy-one (271) offers Accounting and Finance, one thousand, four hundred and sixty-five (1,465) offers Business Administration, ten students (10), offers Digital Media and marketing and six hundred and forty-six (646) offers International Relation respectively.

Sample size determination and techniques

Yamane (1967) proposed sample size calculation was employed to calculate the sample size. This sample size is represented as:

$$\text{Sample size}(n) = \frac{N}{1+N(e)^2} \quad \text{equation 1}$$

Where:

n = the sample size,

N= the size of the population

e = is the error margin.

The present study assumes 95% confidence level and an error margin (e) =0.05. In substituting N=2,392 and other parameters in the sample size calculation formula, minimum sample size (n) of 343 is to be selected for the survey.

However, a population of 352 students in the faculty of Business Administrative Sciences were purposefully selected for the present study to investigate the factors affecting PM's use of gamification in an organization. In this study, the purposive sampling also known as selective sampling is used because of the peculiar needs of the study, and thoughtful selection of participants who can offer the required information based on knowledge or experience (Etikan & Bala, 2017).

Data collection and analysis

The questionnaire used in this study was adopted from the studies of Kissi, *et al.*(2017) and Hamari *et al.*(2016) with confirmed validity and reliability. The questionnaire items consist of 15 closed-ended items on engagement, immersion, challenges, skills and intentions to use gamification with additional one closed-ended item on the general adoption of gamification in an organization. A seven-point Likert scale ranging from "Strongly disagree" to "Strongly agree" was used to measure the items. Out of 380 questionnaires distributed, 368 were received with 12 incomplete responses. Three hundred and fifty-two (352) of the respondent's data

(92.63%) were employed for the study. Statistical Package for the Social Science (SPSS) version 24 was used to analyze the respondent's survey questionnaire items.

The Cronbach's Alpha was used to test for the reliability of the survey instrument. Fraenkel & Wallem (2000) recommended that the Cronbach's Alpha (α) should exceed 0.7 for proper internal consistency among the variables or items. As reported in Table 1, the Cronbach's Alpha (α) of the constructs of this study ranges from 0.732 to 0.802. Hence, the constructs used in this study are considered reliable. Furthermore, the indices for skewness and kurtosis were tested to determine the normality of the responded survey questionnaire. The index of skewness and kurtosis is recommended to exceed $|2.3|$ to confirm the normality of the data. In Table 1, the skewness index and kurtosis index for all the constructs used fall in the recommended acceptable range. Therefore, the collected data is considered adequate for the study.

Table 1: Constructs reliability

Constructs	Number of Items	Cronbach's Alpha	Skewness	Kurtosis
Engagement of gamification	4	0.732	-0.988	-0.415
Perceived immersion for using gamification	4	0.745	-1.212	0.335
Perceived challenges for using gamification	2	0.784	-1.310	0.935
Perceived skills to use gamification	3	0.802	-1.206	0.619
Perceived intention to use gamification	3	0.764	-0.829	-0.445

RESULTS AND DISCUSSION

As could be seen in Table 2, out of the 352 PMs who participated in the study, 51.9% (n = 183) were male and 48.0% (n = 169) were female. The majority 61.3%(n=216) of the PMs were found in Business Administration. This was followed by International Relation 26.4%(n=93) and Accounting and Finance 11.3%(n=40). Only 0.85% (n=3) of the PMs were in Digital Media and Marketing.

Table 2: Demographic distribution of participants (n=352)

Demographic category	Frequency	Percentage
Gender		
Male	183	51.9
Female	169	48.0
Departments		
Accounting and Finance	40	11.3
Business Administration	216	61.3
Digital Media and Marketing	3	0.85
International Relation	93	26.4

As indicated earlier, seven Point Likert Scale was used to measure items in the questionnaire with 3.5 as the midpoint. Table 3 reports the number (N), mean (M) and standard deviation (SD) scores on the constructs. First in the table is the M and SD of engagement of gamification. The mean score on all the items ranged from 5.03 to 5.09 which is more than the midpoint of 3.5. This shows that the PMs agreed with all the items. The PMs strongly agreed they would concentrate on their work when using gamification (M=5.03, SD=2.09), provides content that focuses on their attention (M=5.06, SD=1.97) and provides interaction which is entertaining (M=5.07, SD=1.95). Furthermore, the PMs agreed that they would not feel bored when using gamification (M=5.09, SD=1, 94).

Table 3: Mean and Standard Deviation of Constructs

Prospective managers perceived engagement of gamification	N	Mean (M)	Standard Deviation (SD)
I will concentrate on my work when using gamification	352	5.03	2.09
It provided content that focused my attention	352	5.06	1.97
Interacting with gamification will be entertaining	352	5.07	1.95
I do not feel bored with gamification	352	5.09	1.94
Prospective managers perceived immersion of using gamification			
I will lose track of time while using gamification	352	5.23	1.79
I will become very involve in the game forgetting about other things using gamification	352	5.17	1.75
I will be immersed of using gamification	352	5.30	1.71
Prospective managers perceived challenges of using gamification			
The use of gamification is challenging	352	5.42	1.68
The use of gamification will stretch my capabilities to the limit	352	5.35	1.59
Prospective managers perceived skill of using gamification			
I am not very good at using gamification	352	5.20	1.67
I have less skill using gamification	352	5.11	1.68
I do not have more skills to use gamification	352	5.15	1.65
Prospective manager's intention to use gamification in an organization			
I would recommend others to use gamification	250	4.92	1.84
I intend to use gamification in my organization	250	4.90	1.81
Given the opportunity, I would use gamification in my future organization	250	4.97	1.68

Second on the table (3) is the M and SD scores of PMs perceived immersion associated with the use of gamification. Its findings revealed that all the mean score of the items ranged from 5.17(SD=1.75) to 5.30 (SD=1.79), suggesting that the mean scores of all items are higher than the midpoint of 3.5. That is, on the average, the PMs agreed with all the items. As a result, the immersion reported: loss of track, more involvement in the game, and thereby, forgetting other things as well as, more immersion using gamification were more prevalent on the average.

Similarly, the M and SD scores of all the items on the perceived challenges of using gamification are also shown in the table (3). The M scores of all items ranged from 5.35 to 5.42 indicating that, all exceeded the midpoint of 3.5. This signifies that PMs agreed with all the items. Averagely, the PMs strongly agreed that the use of gamification is challenging (M=5.42, SD=1.68) and could stretch their capabilities (M=5.35, SD=1.59).

Furthermore, the (Table 3) indicates the M and SD scores of all items on the perceived skills of using gamification. The M score of all the items ranged from 5.11 to 5.20 revealing that all the items are greater than the midpoint of 3.5. This shows that PMs agreed with all the items. The PMs strongly agreed that they are not very good at using gamification (M=5.20, SD=1.67), have fewer skills in using gamification (M=5.11, SD=1.68), and lastly, do not have more skills to use gamification (M=5.15, SD=1.65).

Finally, the table (3) report the M and SD scores of all the items on the PMs intention to use gamification in an organization. The M score of all the items ranged from 4.90 to 4.97 which are more than the midpoint of 3.5. This means that all participants agreed to all the items used and therefore, they would recommend others to use gamification (M=4.92, SD=1.84),

they intend to use gamification in their organization (M=4.90, SD=1.81) and if given the opportunity, they would use gamification in their future organization (M= 4.97, SD=1.68).

Multiple linear regression analysis used in this study investigated the linear combination of PMs Perceived Engagement, Perceived Immersion, Perceived challenges and skills to use gamification. The study also examined the degree to which these factors affect PMs to use gamification.

For the open-ended questions, some PMs suggested the following reasons why they will not use gamification in their organization: "I think is a waste of time" another person stressed that the game aspect would distract my attention." However, most of the PMs stated the following reasons why they will employ gamification in their organization. Some "the game features will motivate me to perform my task" another person reported that "it engages me and very interesting to use."

Testing Significance of Combined Factors

The questionnaire was measured using seven-point Likert scale on the construct: Perceived Engagement, Perceived Immersion, Perceived challenges and skills to use gamification were computed to find their overall M and SD as reported in Table 4. Perceived engagement in the use of gamification has the M of 5.06 (SD=1.84); indicating that engagement in gamification is relatively high. The M for Perceived immersion of using gamification is 5.22 (SD=1.64); signifying a relatively high rate of Perceived immersion of using gamification. Likewise, Perceived challenges in using gamification is seen to be 5.38 (SD=1.56) and Skills to use gamification M = 5.15 (SD = 1.58). Furthermore, it was realized that PMs has the M = 4.93 (SD=1.72) intention to use gamification.

Table 4: Descriptive statistics for constructs

Construct	Mean (M)	Standard Deviation (SD)	Variance (V)
Perceived engagement of using gamification	5.06	1.84	3.39
Perceived immersion of using gamification	5.22	1.64	2.67
Perceived challenges in using gamification	5.38	1.56	2.45
Skills to use gamification	5.15	1.58	2.48
Intention to use gamification	4.93	1.72	2.97

Table 5 reports the Analysis of Variance (ANOVA) and test of significance of regression model and the summary of the standard regression model. In Table 5(ANOVA), F =54.02 and Significance (Sig) p = .000(< .05) which suggest that the test is statistically significant. This means that, the linear combination of engagement, immersion, challenges and skill factors significantly relates to PMs intention to use gamification. The summary of the standard regression model (Table 6) shows the multiple correlations value (R = 0.619), signifying the relationship between the combination of engagement, immersion, challenges and skill factors to PMs intention to use gamification. Moreover, the Adjusted R²= 0.317, indicates that all the combination of perceived engagement, immersion, challenges and skill factors contributes 31.7% of the variances in PMs intention to use gamification in an organization.

Table 5: ANOVA test

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	399.72	4	99.93	54.02	.000 ^b
	Residual	641.91	347	1.850		
	Total	1041.63	351			

a. Dependent Variable: Intention

b. Predictors: (Constant), Engagement, Immersion, challenges and skills

Table 6: Standard regression model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Durbin - Watson	
					R Square Change	F Change	df1	df2		Sig. F Change
1	.619 ^a	.384	.377	1.36010	.384	54.020	4	347	.000	2.085

a. Predictors: (Constant), E, C, S, IM

b. Dependent Variable: I

Test of Significance of the Individual Factors

Regression coefficient (Beta) is employed to test the significance of the individual factors displayed in Table 7. The independent factors Perceived engagement (PE)(B = 0.341, t = 6.047, p = 0.000 < 0.05), Perceived immersion (PIM)(B = 0.244, t = 4.363, p = 0.000 < 0.05) and Perceived challenges (PC) (B = 0.104, t = 2.089, p = 0.037 < 0.05) relates significantly positive to intention to use gamification in an organization. However, skill factor (SF) (B = 0.066, t = 1.377, p = 0.169 > 0.05) was relatively low, as such, is seen to be negative to the intention to use gamification in an organization. It could be realized from the study that, among the factors: PE and PIM have a strong relationship with PMs intention to use gamification.

Table 7: Regression coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error				Beta	Tolerance
1	(Constant)	.987	.321		3.080	.002		
	PIM	.257	.059	.244	4.363	.000	.569	1.757
	PC	.114	.055	.104	2.089	.037	.717	1.394
	SF	.072	.052	.066	1.377	.169	.777	1.288
	PE	.319	.053	.341	6.047	.000	.558	1.792

Overall, this study investigated how determinants such as, PE, PIM, PC and SF affects the intention of PMs to use gamification. The study shows that, PE(B = 0.341, t = 6.047, p = 0.000 < 0.05), PIM (B = 0.244, t = 4.363, p = 0.000 < 0.05) and PC (B = 0.104, t = 2.089, p = 0.037 < 0.05) relates significantly positively to PMs intention to use gamification in an organization. The findings of the study suggest that PMs have good intention to use gamification in organizations. This finding is in agreement with the studies of (Negruşa *et al.*, 2015; Simpson & Jenkins, 2015; Paul, 2016) where they suggested many employees and managers have expressed interest to use gamification in their organization. However, there are perceived challenges associated with the use of gamification which includes limitation of capability at work. The result is consistent with the findings of (Rivers, 2015; Saha & Pandita, 2017) which they stated that even though gamification would improve work performance, there are however, other challenges associated with it.

The results of this study also indicates that PMs lacks the necessary skills required to use gamification in an organization, as could be seen from the evaluation of the relationship between SF to use gamification(B = 0.066, t = 1.377, p = 0.169 > 0.05) and intention to use gamification. This negative effect could be as a result of inadequate knowledge on the use of Information and Communication Technologies (ICT) and other related devices.

CONCLUSION

The study aims to investigate the factors affecting PMs intention to use gamification in organizations. This study which was conducted at a university in Northern Cyprus employed variables such as PE, PIM, PC, and SF of using gamification in the determination of graduate business student's intention to use gamification in organizations. The study further investigated the degree to which these variables affect the intention to use gamification in an organizational setting meeting its needs and wants.

The study findings signify that PE, PIM and PC significantly influence graduate business student's intention to use gamification. It further indicates that gamification in organizations might engage and motivate managers and employees in performance at work. On the contrary, there are clues some graduate business students are not knowledgeable with the necessary skills for the successful utilization of gamification in organizations. Hence, it is crucial stakeholders, both in the department of a business school and directors of organizations organize in-service training for managers, and PMs that would address the challenges associated with the use of gamified platforms.

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