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# Determinants of Millenial's Intention to Participate in Digital Training

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***Abstract---*** *This paper seeks to identify the determinants of millenial's intention to participate in digital training. The determinants were measured as entertainment gamification, motivational gamification, perceived usefulness and perceived ease of use. A self-administered questionnaire was utilized for data collection and data from 127 millenials was used. The results of PLS-SEM suggest entertainment gamification, motivational gamification, perceived usefulness and perceived ease of use are significantly related to intention to participate in digital training. In fact, perceived ease of use was found to have the strongest linkage with the intention, followed by perceived usefulness and motivational gamification. The findings suggest organizations should pay attention in digital training investment and future research to focus on the digital training design.*

***Keywords---*** *Information technology and human resource development, digital training, millennial research, gamification, Technology Acceptance Model (TAM)*

## I. INTRODUCTION

Digital technology is everywhere and people have become dependent on them (Goncalves et al., 2018). From digital banking (Suhamini & Hassan, 2018) to digital games (Aziz et al, 2019), digital entrepreneurs (Chakraborty, Ganguly & Natarajan, 2019) and digital purchase (Nawi et al., 2019), the technology is assisting in human daily interactions and activities and influencing human behaviour. In organizations, use of digital technologies has become common. This is evident with the larger IT investment for strategic alignment (Sabherwal et al., 2019). Much of the investment are spend on Internet of Things (Côrte-Real, Ruivo & Oliveira, 2019), information processing and operational agility (Akhtar et al., 2018). The technological advancement has also allowed learning and training to occur on-demand and virtually anywhere and at any time (Bell et al., 2017). This is referred as digital training.

Digital training is gaining attention. It is a platform where people learn by computers and evolved as today's learners are growing up immersed in digital technology (Prensky, 2003). Many attempts have been made to understand how technology could be used to develop employees' skills and improve their job knowledge. To illustrate, Ong and Jambulingam (2016) studied the use of massive open online course (MOOC) in reducing costs related to employee training and development. In addition, Dodson, Kitburi and Berge (2015) discussed on the potential uses for MOOCs in the corporate world, whereby the usage of the platform could be expanded to corporate training options, offer new recruiting techniques and provide innovative marketing and branding channels. While the

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technology and accessibility are important, the design and contents are equally imperative (Prensky, 2003). To promote a higher use of digital training, motivations and entertainment features must be embedded. This is to reduce the boredom and maintain the focus (Prensky, 2003). Therefore, digital training posts some challenge to the design, features and acceptance.

Born in the digital era, millennials are techno-savvy who have "short attention span" and they prefer to learn differently (Prensky, 2003). For them, the formal learning is not much contributed to substantial retention and they expect more resources, learning informal and timely to acquire and assimilate knowledge. They believe that the context is more important than substance. Although many researches have been conducted in assessing the digital training, for examples comparisons across European countries and education level (Bach, Miloloža & Zoroja, 2018), development of psychological treatments (Faiburn et al. 2017) and digital training design (Gorecky, Khamis & Mura, 2017), much have not been discussed on the acceptance of the digital training among millennials. Thus, the gap between the motivational dimension and the perception towards the intention to accept still exists. As such, building from the gamification theory and technology acceptance model (TAM), this study is purported to identify the relationship between motivational gamification, entertainment gamification, perceived usefulness and training intention among milennials.

## II. LITERATURE REVIEW

A substantial number of researches in acceptance of technology builds the foundation from the lens of Technology Acceptance Model (TAM) (Davis, 1989). Even though perceived usefulness has been consistently found to predict information system and digital application acceptance (Sabherwal, Jeyaraj and Chowa, 2006), relating the millennials to digital training from the aspect of entertainment and motivation is equally important. This is because digital training must be injected with some element of fun for better effectiveness. Training with some elements of fun gives better stimulation to learning engagement through higher motivation to learn (Gené, Núñez & Blanco, 2014). Besides, the success of digital games in commercial attention has drawn the attention of educators and training providers to embed the features in the learning environment (Seaborn and Fels, 2015). Seaborn and Fels (2015) further added while no standard yet exists, most sources agree that gamification is generally defined as the use of game elements and mechanics in non-game contexts.

### *Entertainment Gamification*

Entertainment is one of the preferred features that explains the cognitive acceptance of students' learning (Yannakakis, Maragoudakis & Hallam, 2009). As described by Prensky (2013), successful learning depends on mitivation. The study by Yannakakis et al., (2009) provided the evidence the construction of effective preference learning model, built from the philosophy of fun and entertaining reflects the the learners' preference. In another setting, Rosyid, Palmerlee & Chen (2018) applied the concept of entertainment in facilitating learning which the approach was to minimise the efforts of eduavtion experts in mapping learning to content space. It was found learners placed a high preference towards the gaming method and increase their intention to learn. The entertainment features of gaming in promoting intention to learn is also the interest of Lameras et al., (2017). By consolidating the evidence and materials from a range of disciplinary fields, they concluded how learning attributes and game

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mechanics should be embedded, but carefully planned, designed and implemented as a strategy to motivate learners to engage in digital-based learning. Thus, from the discussion, we offer the following hypothesis:

$H_1$: There is a relationship between entertainment gamification and intention to participate in digital training among millennials.

***Motivational Gamification***

Gamification potentially provides motivational benefits in e-learning and digital training as the collaboration, discovery and achievement provide a greater impact to learning effectiveness (Shi & Cristea, 2016). Building from the self-motivation theory, Shi and Cristea (2016) explains individual behaviors are self-determined, hence motivation is important. Deci and Ryan (2002) discussed in detail about relating self-determination and self-motivation towards human behaviors, whereby higher self-determination and self-motivation increases when the three basic innate needs are fulfilled. The needs are 1) Autonomy: a sense of internal assent of one's own behaviours; 2) Competence: controlling the outcome and experience mastery; and 3) Relatedness: a sense of connection and interaction with others within a community. The study conducted by Shi and Cristea (2016) that used the design of the motivation gamification strategies that aimed to foster learners' basic needs and motivation concluded motivation plays a role in encouraging learners in the context of digital learning. Thus, based on the discussion, the following hypothesis is offered:

$H_2$: There is a relationship between motivational gamification and intention to participate in digital training among millennials.

***Perceived Ease of Use (PEOU)***

As one of the main component in TAM model, PEOU is usually been use in the research as one elements to the determine user acceptance to a technology. According to Davis, Bagozzi and Warshaw, (1989) PEOU indicates the degree to which the prospective user expects the achievement of their goal to be simple and effortless. Therefore, for this study PEOU is used to measure on millennial believes of using digital training through the operation, understandable, interactive of the system. Cerretani, Iturrioz, and Garay, (2016) have explored the effects of using technology on millennial on their academic activities, their performance and their psychosocial adjustment and the result shows that using of technology is associated with academic performance and psychological beliefs. Thus, PEOU is suitable determine that will be used for this study in order to identify the influencing millennia intention to use digital training.

$H_3$: There is a relationship between perceived usefulness and intention to participate in digital training among millennials.

***Perceived Usefulness***

Perceived Usefulness (PU) is defined as the degree to which a user believes that using a particular system would enhance his or her job performance, which also positively impacts on the user's intention (Ajzen,1991). Based on TAM model, perceive usefulness is a main belief that explains the intention of user using the technology. TAM theory can also explain differences in perceived usefulness by type of generation, as different generation can lead to different perceived usefulness. In the context of this research perceives usefulness been including as one factor that trigger the millennia in using digital training as their sources of learning. There are many evidences has

proved that PU have a strong determinant of behavioural intention (Abdullah, Ward & Ahmed, 2016) in using technology. As been reported by Chatzoglou, Sarigiannidis, Vraimaki, ans Diamantid (2009), PU had a direct and positive effect on intention to use web-based training. Therefore, this study postulates that PU plays a significant role of influencing millennia intention to use digital training.

$H_4$: There is a relationship between perceived ease of use and intention to participate in digital training among millennials.

***Intention to Participate in Digital Training***

Thus, based on the discussion, the following hypotheses and framework (Figure 1) will be used in the study:

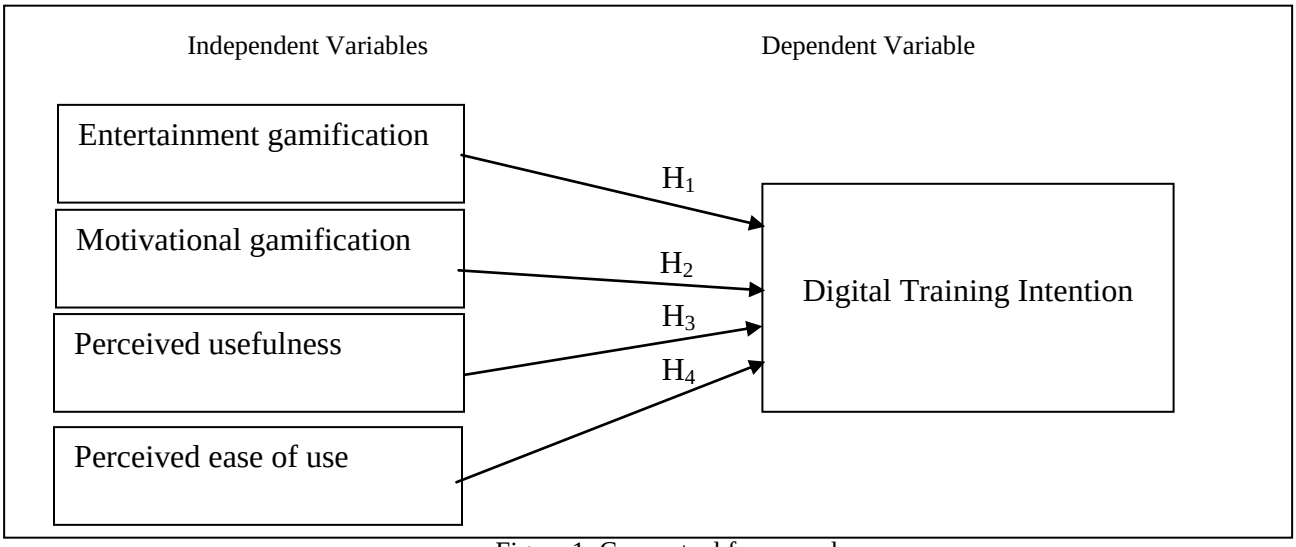


Figure 1: Conceptual framework

## III. METHOD

***Population, Sample size and Instrumentation***

The population of this study was millennials in Klang Velley, Malaysia. In determining the minimum sample size for this study, G*Power software was employed. Based on the effect size set at 0.15, alpha level of 0.05, and 4 predictors, a sample of 74 millennia was considered appropriate. However, taking the suggestions of Hair, Black, Babin and Anderson (2014) that larger sample improves precision and reliability of PLS-SEM results, the questionnaires were distributed to more than 100 milennia.

Five constructs were measured in this study: entertainment gamification, motivational gamification, perceived usefulness, perceived ease of use and digital training intention. The constructs were measured using a five-point Likert scale ranging from 1 of strongly disagree to 5 of strongly agree, drawn from measures in information system studies. Items for entertainment gamification and motivational gamification were adopted from Chen, Yu and Li (2016), Lim and Ting (2012) respectively. Meanwhile, perceived usefulness, perceived ease of use and digital training intention items were adopted from Venkatesh and Davis (2000). Where appropriate item modification was performed to fit the context of the study, and validated by experts in the information management study. A reliability test was conducted prior to the actual data collection for ensuring the consistency of measure.

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Based on the pilot test to 30 respondents, the internal consistency value for all constructs met the minimum requirement of 0.700.

***Respondents' Demographic Profile***

A total of 127 useful data was used in this study. The respondents participated in the study were asked about their gender, age, ICT literacy and use of the smart phone to get an information. Pertaining to the gender of the respondents, 22 are male and 105 are female. Most of them are in age of 21 years (67 respondents), followed by those who have 22 years of age (24 respondents). Regarding ICT literacy most of respondent have basic literary on ICT (90 respondents), Yes (34 respondents) and cannot use computer 3 respondents. Meanwhile, by looking at the use of the smart phone to get an information 100% of the respondents agreed in applying the technique. The respondents' profiles are depicted in Table 1.

Table 1: Demographic Profiles of the Respondents

| Variable | Frequency | % | Variable | Frequency | |
|---|---|---|---|---|---|
| Gender | | | ICT Literacy? | | |
| *Male* | 22 | 17.3 | *Yes* | 34 | 26.8 |
| *Female* | 105 | 82.7 | *No* | 3 | 2.4 |
| Age | | | *Basic* | 90 | 70.9 |
| *18* | 1 | 0.8 | | | |
| *20* | 10 | 7.9 | Use of smartphone to get information? | | |
| *21* | 67 | 52.8 | *Yes* | 127 | 100 |
| *22* | 24 | 18.9 | | | |
| *23* | 7 | 5.5 | | | |
| *24* | 1 | 0.8 | | | |
| *25* | 2 | 1.6 | | | |
| *26* | 1 | 0.8 | | | |
| *30* | 7 | 5.5 | | | |
| *33* | 3 | 2.4 | | | |
| *34* | 4 | 3.1 | | | |

## IV. RESULTS AND FINDINGS

***Measurement Model***

The conceptual model was empirically analysed using SmartPLS version 3 for confirming on the validity and reliability. The examination of a PLS-SEM model typically involved two stages – measurement model and structural model (Hair et al., 2014). The measurement model was first analysed prior to the assessment of the structural model. The assessment of the measurement model is critical to confirm the validity and reliability in the data of the study. According to Gefen, Straub, and Boudreau (2000) and Nunally (1978), the value of Cronbach's

Alpha and composite reliability (CR) should be more than 0.70 to achieve internal consistency reliability. Moreover, the outer loadings exceeds the minimum recommendation value of 0.6, which is required for the exploratory study (Ramayah, Cheah, Chua, Ting, & Memon, 2016) and all constructs meet the minimum value of the threshold requirement of CR> 0.7 and AVEs are greater than 0.5 (Hair, Black, Babin, & Anderson, 2014). The following Table 2 indicates the results pertaining to the internal consistency reliability, indicator reliability, and convergent validity which were all above the suggested values. Thus, no item was removed from each of the construct.

Table 2: Internal Consistency and Convergent Validity

| Construct | Loading | Cronbach Alpha | A VE | CR |
|---|---|---|---|---|
| Entertainment Gaming | | 0.911 | 0.74 | 0.934 |
| *I find it entertaining to learn by using digital training.* | 0.793 | | | |
| *I find that digital training will be fun to use* | 0.861 | | | |
| *I will feel excited when I participate in digital training.* | 0.887 | | | |
| *I will have fun when interacting with digital training.* | 0.917 | | | |
| *It will be an interesting activity for participating in digital training.* | 0.839 | | | |
| *I find it entertaining to learn by using digital training.* | 0.793 | | | |
| Motivational Gamification | | 0.868 | 0.655 | 0.905 |
| *It is important that digital training is able to give me information that are of interest to me.* | 0.829 | | | |
| *I think that digital training can offer me useful information.* | 0.793 | | | |
| *I think that digital trainings are good sources for obtaining information.* | 0.836 | | | |
| *I can acquire useful information from digital training anytime.* | 0.846 | | | |
| *I think that the latest information can be collected from digital training.* | 0.739 | | | |
| Perceived Ease of Use | | 0.796 | 0.647 | 0.876 |
| *Using the digital training will improve my career performance [in my job].* | 0.891 | | | |
| *Using the digital training will increase my career productivity.* | 0.540 | | | |
| *Using the digital training will enhance my career effectiveness* | 0.890 | | | |
| *I find the digital training to be useful in my career.* | 0.842 | | | |
| Perceived Usefulness | | 0.924 | 0 | 0.9 |

| Construct | Loading | Cronbach Alpha | AVE | CR |
|---|---|---|---|---|
| | | | .815 | 46 |
| *My interaction with digital training will be clear and understandable.* | 0.901 | | | |
| *Interacting with digital training does not require a lot of my mental effort.* | 0.912 | | | |
| *I find digital training to be easy to use.* | 0.923 | | | |
| *I find it easy to get the system to do what I want it to do.* | 0.874 | | | |
| Digital Training Intention | | 0.883 | 0<br>.859 | 0.9<br>48 |
| *Assuming I have access to digital training, I intend to use it.* | 0.924 | | | |
| *I have stronger intentions to start participating in digital training.* | 0.934 | | | |
| *Given that I have access to digital training, I predict that I would use it.* | 0.923 | | | |

Subsequently, a discriminant validity procedure was conducted to observe how a particular construct is different from the other construct in the study (Lowry & Gaskin, 2014). Using Fornell and Larcker's criterion and heterotrait-monotrait ratio (HTMT) techniques, the results as shown in Table 3 indicate all values fulfill the criterion of HTMT as suggested by Kline (2015) and Gold, Malhotra and Segars, (2001) which provide the evidence for the establishment of discriminant validity. Besides, the result of HTMT inference also reveals that the confidence interval does not show a value of 1 on any of the construct, which confirms for the discriminant validity (Henseler et al., 2015; Ramayah et al., 2016). Prior to the structural model development, a procedure for addressing the collinearity issue was conducted as the existence of multicollinearity does not contribute to a good regression model (Pallant, 2011). As illustrated in Table 3, all the constructs value meets the requirement of VIF which is below 5.00 (Hair, Hult, Ringle, & Sarstedt, 2016; Wong, 2013). Thus, it is sufficed to claim that discriminant validity was achieve and there is no issue of multicollinearity in this study where it can proceed with structural model. Moreover, the diagonals represent the square root of the AVE while the other entries represent the correlations.

Table 3: HTMT Criterion and Variance Inflation Factor (VIF)

| | G | MG | U | PE U | P ntent | I IF | V |
|---|---|---|---|---|---|---|---|
| Entertainment Gaming (EG) | .860 | | | | | 836 | 3. |
| Motivational Gamification (MG) | .720 | 9 | 0.80 | | | 059 | 4. |
| Perceived Ease of Use (PEU) | .704 | 8 | 0.72<br>4 | 0.80 | | 793 | 3. |
| Perceived Usefulness (PU) | .863 | 8 | 0.78<br>9 | 0.73<br>903 | 0. | 778 | 2. |
| Digital Training Intention (Intent) | .588 | 4 | 0.79<br>8 | 0.64<br>578 | 0.<br>927 | 0. | - |

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***Structural Model***

PLS algorithm was used to test the hypotheses. Additionally, bootstrapping resampling technique with 1000 sub-samples were employed to ensure the accuracy of the PLS estimates (Hair et al., 2014). Based on the results in Table 4, all path coefficients were found to be significant at 99% confidence interval (Entertainment Gaming -> Digital Training Intention, ß = 0.184, p < 0.005; Motivational Gamification -> Digital Training Intention, ß = 0.197, p < 0.005; Perceived Ease of Use -> Digital Training Intention, ß = 0.285, p < 0.005; Perceived Usefulness -> Digital Training Intention, ß = 0.228, p < 0.005). Thus, it can be concluded that the four hypothesized relationships in this study are supported.

Next, the values of coefficient of determination ($R^2$), predictive relevance ($Q^2$), and effect size ($f^2$) were revealed and presented in Table 4. The $R^2$ value of 0.646 suggests that the exogenous constructs explain 64.6% of variances in digital training intention, which is considered as moderate. Then, the blindfolding procedure was conducted to obtain the predictive capability of the model by using $Q^2$ (Hair et al., 2016). The result of 0.456 suggests the exogenous constructs possess predictive relevance as it is above zero as outlined by Hair et al., (2016). The $f^2$ values represent the effect size of a specific exogenous construct on the endogenous construct (Hair et al., 2016). The effect size of entertainment gaming, motivational gamification, perceived ease of use and perceived usefulness were 0.011 (small), 0.030 (small), 0.095 (small) and 0.053 (small) respectively based on the guidelines provided by Cohen (1988).

Table 4: Path Coefficient Assessment and Determination of Coefficient ($R^2$), Predictive relevance ($Q^2$) and Effect Size($f^2$)

| Relationship | $R^2$ | $R^2$ | $f^2$ | Size of effect | Path Coefficient | Std error | T value | Decision |
|---|---|---|---|---|---|---|---|---|
| $H_1$: EG -> Intent | .646 | .456 | .011 | Small | 0.184 | .093 | 1.975* | Supported |
| $H_2$: MG -> Intent | | | .030 | Small | 0.197 | .099 | 1.981* | Supported |
| $H_3$: PEU -> Intent | | | .095 | Small | 0.285 | .144 | 1.982* | Supported |
| $H_4$: PU -> Intent | | | .053 | Small | 0.228 | .177 | 1.954* | Supported |

***p < 0.01, *p < 0.05*

## V. DISCUSSION AND CONCLUSION

The empirical findings of this study demonstrated the significant relationships between entertainment gaming, motivational gamification, perceived ease of use and perceived usefulness with digital training intention. The significant effect of entertainment gaming on digital training intention testifies that in offering an education entertainment gaming also play a role. The finding constant with Dignan, (2011); DomíNguez, Saenz-De-Navarrete, De-Marcos, FernáNdez-Sanz, PagéS, & MartíNez-HerráIz, (2013); Hamari, Koivisto, and Sarsa, (2014); Papastergiou, (2009) which reported about the increasing of gamification applied to non-game contexts, including

education, marketing, and more recently work. Meanwhile, Cardador (2017) mentioned that gamification borrows game features from digital games to make work and tasks more enjoyable by making them feel more game-like, and thus more fun. As for that it has been identified gamification as a determining factor for intentions or attitudes (Yang, Asaad, & Dwivedi, 2017). The finding also verified in studies, it is evident that the motivational and emotional involvement during playing can be immense. The basic idea of gamification is to use this motivational power of games for entertaining the user intention on digital training. According to Mucollari and Samokhin, (2017), gamification has the ability to influence its users first of all by prompting the motivation of the users. People by nature are more impressed with and interested in active interaction rather than passive interaction (Acar, 2007). In this case, gamification that been add in digital training with multimedia elements that have special characteristics of interactivity for users to explore and sensory immersion, will makes it livelier and closer to audiences compared to traditional digital training. With a strong interaction, gamification can enhance users to have sense of belonging and apply the all the knowledge that get from the training. Indirectly, gamification has the potential to boost people intention. In addition, games and gamification are both goal-directed systems with rewards like points, levels or badges, which can lead to changes in beliefs, or efforts to attain the rewards or bonus, illustrated in the expectancy value theory (Shepperd, 2001). Therefore, users are likely to change their behaviour or thoughts due to the reward systems in gamification process.

Furthermore, the findings also reveal the influence of perceived ease of use and perceived usefulness to intention. This is supported with some of studies which have found a significant effect of perceived usefulness on intentions (Davis et al., 1989; Pikkarainen, Pikkarainen, Karjaluoto, & Pahnila, 2004; Venkatesh, 2000). Furthermore, Sang, Valcke, Van Braak, Tondeur and Zhu (2011), also reveal the primary motivation for using technology is perceive usefulness. However, difference in this study that shows an interesting result where perceived ease of use plays an important role in digital training that perceive usefulness. Nevertheless, the result has been supported by Chuo, Tsai, Lan and Tsai, (2011) that mention perceive ease of use is more important than perceive usefulness on training.

In general, the findings open to the new opportunities and area of research on digital training. The findings of the study have theoretical implications on Technology Acceptance Model (TAM). It has contributed to TAM by way of revealing more variables which have effect on intention. Future studies shall enhance the model by incorporating more dimensions of user acceptance and information system success criteria or include the moderator and mediator that will give an impact to the result.

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