



The role of personal dexterity and incentive gamification to enhance employee learning experience and performance

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Abstract

This paper aims to develop a concept of incentive gamification for organizations in the digital era. Incentive gamification is an incentive-based policy using the game pattern. This policy aims to improve performance of employee who works in the marketing department of such e-commerce as an online marketer. This study involves 104 female employees. Data were collected using questionnaire and analysed using regression analysis. The results show that there was a significant positive effect between personal dexterity on learning experience and individual performance. Furthermore, incentive gamification was also proven to moderate the relationship between personal dexterity, learning experience and also employee performance. Theoretical and managerial implication, as well as future research directions are also discussed.

Keywords Personal dexterity · Incentive gamification · Learning experience · Individual performance

1 Introduction

At present, we are entering a new era, that is, the fourth Industrial Revolution or often referred to Industrial Revolution 4.0. The fourth wave of the industrial revolution continued to support the third Industrial Revolution. However, the industrial revolution 4.0 began to be marked by the unification of several technologies, so that we saw and felt a new era consisting of three independent fields of science, namely physics, digital, and biology. With such composition, the industrial revolution 4.0 has the potential to empower individuals and society, as this phase of the industrial revolution can create new opportunities for the economy, social, and personal development. It is very important for companies to have workers with the ability to use technology, because they have to compete and also collaborate with other companies to produce the best performance.

The expertise that must be possessed by workers in this current industrial revolution 4.0 era is individual fluency in using digital devices (Eisingerich et al. 2019; HR Vision 2019). This digital expertise is expected to be a provision for employees to be able to compete and collaborate within the digital workforce. Employees who are able to collaborate well with the digital workforce will have good abilities and performance. An employee will gain learning experience when they feel challenged to be able to outperform their co-workers. Krueger and Dickson (1994) also note that individuals who receive positive performance feedback experiences higher self-efficacy and see new challenges as opportunities even though there are risks. This challenge makes the employees feel competed to get better results from their opponents. Individuals assume a job becomes a challenge that will encourage experiential learning strategies to support individual understanding of theoretical concepts and lead to superior performance achievement (Leal-Rodríguez and Albort-Morant 2018). However, the extant literature has discussed forms of conventional or traditional incentives which may not result in effective outcomes for digital native workforce. Hence, incentive gamification is another way to motivate employee to perform more innovative.

In addition, an organization should motivate their employees to achieve learning experiences, for example by giving incentives. Providing incentives to employees will increase their enthusiasm in achieving company goals (Höllig et al.

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2018). This incentive will become a driver that can stimulate the creation of individual empathy, feel the attention and recognition of achievements, which are used to strengthen organizational values (Milne 2007). In this millennial era, organizations need to design incentive policies that are in accordance with the time condition (Toda et al. 2019). A job that makes employees motivated to complete their tasks with the aim of getting an award for achievement. The elements embedded in gamification are a sense of sharing goals, challenges, and awards that make them interesting. Qualitative experimental analysis shows that gamification has a large emotional and social impact on employees, because the reward system and competitive social mechanisms seem to motivate them (Koivisto and Hamari 2019). Gift systems are considered as innovative, fun and encouraging ways to represent progress in educational experiences. Hence, people who work tightly in an online environment or we refer to as digital workers need another form of incentive such as incentive gamification, which is an incentive policy using a game pattern (Eisingerich et al. 2019).

Rewards and incentive gamification constitutes of points, badges and leaderboards (Pierce 2019). Points are incentive gamification based on scores, feedbacks, dan progress individuals can achieve. Badges are useful to show appreciation on what has been achieved, usually notified in social media or communities to grow a sense of pride and as a result stimulate employee engagement. Leaderboards are a form of feedback with a ranking system providing a healthy competition accessible to members of the gamification (Sarangi and Shah 2015). Some examples of organizations who promote HRM practice based on gamification are Deloitte, through leadership training program provides rewards and incentive gamification called Badgeville with leaderboards, badges and status symbols to measure rankings of staff presence in following through the program (Raccoon Gang 2019), Starbucks with their program gamification named “My Starbucks rewards” through their mobile application provides points and rankings based on customer purchases, for example, green status to gain a reward of a free cup of coffee, to 30 gold stars to be rewarded a gold-membership status (Conaway and Garay 2016).

Implications of gamification in an organisations’ marketing strategies includes an increase in sales as a result of customer engagement (Eisingerich et al. 2019). Incentive gamification strategy provides a positive impact on the workers and motivates them to increase their productivity (Lithoxidou et al. 2019). Incentive gamification impacts on the increase of creativity, employee commitment, collaboration, effective communication in organization, development skills and growth in company reputation (Maan 2013; Meske et al. 2016). These studies and research reiterate the positive impact of incentive gamification towards the increase in organizational performance. However, most of the existing

research discusses incentive gamification as a reward for the customers. This research is an attempt to discuss incentive gamification for employees.

In addition, with regards to ambidextreous organization, although theoretically compelling, research on dynamic capabilities and ambidexterity is still at an early stage (O’Reilly and Tushman 2013). Conceptually, the need for organizations to both explore and exploit is convincing, but how do managers and firms actually do this? At the operational level, how do the challenges of ambidexterity present themselves? This research is an attempt to contribute to the ambidexterity research from the individual level as a form of the more successful attempts at organizational ambidexterity.

To the best of our knowledge, few researches has tested the effectivity of gamification on increase in learning experience and performance from an employees’ perspective. We argue that incentive gamification with rewards such as badges, rating from fellow co-worker or fun voucher will motivate employees to perform better. This personal care will bring in different situation. Therefore, this study also aims to examine the role of incentive gamification in improving the learning experience and employee performance.

This study aims to prove that incentive gamification as an employee incentive game can strengthen employee dexterity abilities which ultimately increase learning experience and individual performance. The theoretical contribution expected in this study, is the novel and recent concept, incentive gamification will enrich the compensation management practices. This concept is still rarely tested in the context of employee incentives in the human resource management literature, hence, it needs to be further developed. The novelty of this research can be seen from the incentive gamification as moderating variable which is used to test the effects of personal dexterity on learning experience and performance. In addition, personal dexterity in the form of employee abilities needs to be further discussed and tested to contribute to organizational behavior. Literature review, method, measurement, future research and limitation are also discussed in this study.

2 Literature review

2.1 Personal dexterity and learning experience

Ambidexterity is the relation between exploration and exploitation and how organizations face conflict expectations from present to upcoming business management (O’Reilly and Tushman 2013). Ambidexterity can occur at any organizational level, this involves at an individual level as well. Individual ambidexterity can be defined as “individual cognitive abilities to flexibly adapt in the dynamic

context with the right shift between exploitation and exploration” (Brikshaw and Gibson 2004). Individual ambidexterity involves how individuals balance exploitative and explorative work in their everyday life.

In addition, personal dexterity is their motoric skills abilities or human hand performance to assembly task in large variety of activities, with balance and the right control abilities (Chan 2000). Outcomes from individual/personal dexterity includes increase in hand performance to complete tasks which involves object manipulation, quick movements for an object, rank of movement between objects, etc. Personal dexterity can be divided into two; manual dexterity dan finger dexterity. Manual dexterity refers to individual efforts in carrying out certain activities. Work activities of manual capabilities require fast and skilled hand coordination. Manual dexterity requires speed and accuracy, eye coordination, high-level hands, and hand control to move one or both hands quickly and skillfully (Wang et al. 2018). Such abilities greatly affect performance in daily work, so manual dexterity is needed by individuals to improve their performance. On the other hand, digital workers also need finger dexterity to do their jobs. Jobs that use digital devices usually require finger dexterity to operate digital devices. Finger dexterity is defined as skilled and controlled manipulation of a tool or object through the fingers (Chan 2000). Manipulation is an act of skillfully working on something with your hands or digital tools. A digital worker must be able to operate their digital devices properly and must have the skills to coordinate their fingers in using digital devices. The faster and more skillful the individual in coordinating his fingers, the faster the work will be completed (Brychta et al. 2016).

Skills in using digital devices needs to be improved through a learning experience. Experiential learning is a process where knowledge is created through a transformation of experience (Chiu 2019); (McCarthy 2016). The development of knowledge and skills acquired in the past will be reflected by individuals in future activities (Moody 2012). An individual will improve their abilities and skills through a learning process that they have experienced before, so that experience plays an important role. According to (Kolb 1984); (Kolb and Kolb 2005), experiential learning is an experience that provides an important role in human learning and development. New experiences make individuals more motivated to develop their abilities so that they will achieve a level of job satisfaction.

O’Reilly and Tushman (2013) stated that organization dexterity is the ability of an organization to accomplish two critical tasks (exploitation and exploration) at one single time period. First, they must be able to accurately *sense* changes in their competitive environment, including potential shifts in technology, competition, customers, and regulation. Second, they must be able to act on these opportunities

and threats; to be able to seize them by reconfiguring both tangible and intangible assets to meet new challenges. As a dynamic capability, ambidexterity embodies a complex set of routines including decentralization, differentiation, targeted integration, and the ability of senior leadership to orchestrate the complex trade-offs that the simultaneous pursuit of exploration and exploitation requires. Developing these dynamic capabilities is a central task of executive leadership.

Organizations with high level of ambidexterity will demand their workforce to support this strategy. In this digital transformation era, workforce is required to have digital dexterity. Digital dexterity is the sustained organizational capability to fluidly and dynamically reconfigure and deploy both human and digital resources at the speed of rapidly changing technological and market conditions. Digital dexterity comes not just from technology, but from people using digital technologies to think, act, and organize themselves in new and productive ways. People with digital mindsets aspire to innovate with technology, believe their aspirations are attainable, and actively experiment with digital solutions. As they experience and publicize success with these solutions, favorable attitudes start to cascade through the larger organization. New mindsets inform subsequent decisions and practices. As routine and well-bounded tasks become automated, the remaining roles for the workforce become more creative, open-ended and non-routine. A survey by O’Reilly and Tushman (2013) found that key success characteristics of this workforce include technology experience, and digital skills, but particularly high engagement. Engagement is evident in competence, motivation and self-direction. Hence, in this research, we argue that manual dexterity and individual dexterity as part of digital dexterity combined with incentive gamification as one form of high employee engagement are determinant of employee performance.

Therefore, employees (especially who work in digital environments) must be able to balance exploitation and exploration in which one of the simple techniques is by coordinating their two hands skillfully in using IT application devices. Manual dexterity requires hand and eye coordination to play an important role in acquiring and developing psychomotor skills needed for individual performance. Psychomotor is related to skills or the ability to act after someone receives a certain learning experience. Thus, individual satisfaction is based on reasons for learning experiences from the environment that will provide freedom to integrate learning and improve dexterity (Bryden and Roy 2005; Houwen et al. 2009).

Digital workers or people who work in online situation with the help of IT applications daily also need to have their finger skills to improve their learning experience. Finger dexterity is needed by the digital workers to operate digital work devices.

Individuals who are able to coordinate their fingers quickly and skillfully will affect their performance. These finger skills can be formed or trained through learning experiences so that learning experience plays an antecedent of ambidexterity because it summarizes the various effects on behavior that drives cognitive processes, skills, and motivation (Sturman 2003). Through learning experience, individuals can develop a set of competencies and become broader about their organization as a whole (Datta et al. Wright 2005). The level of individual agility can also be influenced by other types of learning experiences such as previous experience in other organizations and industries where a collection of cognitions, skills, and habits may have been obtained (Mom et al. 2015).

2.2 Hypothesis 1: personal dexterity significantly affects learning experience

Manual dexterity can increase global task performance, i.e. time taken to complete task through competence in balancing sensorimotor and cognitive control involving attention, planning and prediction (Carment et al. 2018; Kobayashi-Cuya et al. 2018). A study by (Comrey 1953), found that the level of manual dexterity an individual has can increase performance in planning, organizing and performing (assembly task). Finger dexterity impacts individual performance through competence in handling practical daily task with fingers, for example: cutting, folding, stretching rubber bands between fingers and hands etc. (Brychta et al. 2016).

Furthermore, ambidexterity significantly affects performance (Jansen et al. 2012). Ambidexterity as a comprehensive phenomenon at the organizational level, individual characteristics and individual work contexts encourage and shape the relationship between ambidextrous behavior and performance (Smith and Tushman 2005). Other studies suggest that exploration and exploitation activities need to be integrated at a lower hierarchical level in the organization, namely individuals' ambidexterity. Thus, lower level managers may also need to act ambidextrous to improve individual performance (Brikinshaw and Gibson 2004). Therefore, we argue that individual dexterity affects individual performance. In this study, we divided personal dexterity into two; manual dexterity and finger dexterity as mentioned in the previous section.

2.3 Hypothesis 2: personal dexterity significantly affects individual performance

2.3.1 Learning experience and individual performance

In the existing literature, it can be summarized that learning experience formed through gamified service will stimulate self-development experience to increase organizational performance through individual achievements (Wolf et al. 2019). Learning experience from tutorial sections, develops competence in problem-solving task and impacts on

students' performance (Chiu 2019). Study on teaching hospital by Reagans et al. (2005), found that learning experience provides employee to become more engaged with their job through individual knowledge experience i.e. learning-by doing, to contribute more to increase in performance. Research on 80 college students of the Spanish Business School found a positive impact between learning experience and innovative teaching which shows an increase in students' academic performance (Leal-Rodríguez and Albort-Morant 2018).

Moreover, workplace experience is necessary for individuals to improve their soft and hard skills. The application of company professionalism which is formed through learning experience will create individuals who are more innovative, learn to creatively find new ideas, ability to solve problems and collaborate with other individuals (Burke 2013). Krueger and Dickson (1994) also note that individual who receives positive performance feedback experiences higher self-efficacy, see new challenges as opportunities even though there are risks. Individuals assume a job becomes a challenge that will encourage experiential learning strategies which can support individual understanding of theoretical concepts and lead to superior performance achievement and the effectiveness of managerial learning can improve individual competency (Leal-Rodríguez and Albort-Morant 2018). Kayes (2002) stated, at the managerial level, the theory of learning experience is focused on how managers are truly able to absorb and transform new experiences into critical knowledge assets, and how such experiences increase their level of satisfaction, motivation, or performance. Hence, we argue that learning experience is believed to improve employee performance.

2.4 Hypothesis 3: learning experience significantly affects employee performance

2.4.1 Moderating role of incentive gamification

Incentives as drivers that can stimulate the creation of individual care, feel the attention and recognition of achievements, are believed to strengthen organizational values (Milne 2007). Incentives are also referred to as rewards that are offered to individuals to do work according to or higher than the standards set. Gamification helps in triggering and maintaining connections with individuals. When a job is made smart and innovative, it can help instill interest and incentivize for learning (Shah 2015). According to De-Marcos et al. (2014), gamification uses game design and fun design in a non-game context, as a motivational tool to involve individuals in performing their duties. According to some experts, it can be concluded that incentive gamification is an incentive policy by using a game pattern.

An organization tries to find new ways in order to keep individuals comfortable while working (Shah 2015). The element that is embedded in gamification is a sense of shared goals, challenges, and awards that make it more attractive. Jobs that are designed like a level in a game will make work more enjoyable (Vogel and Rodell 2016). Gamification also introduces individuals to pleasant learning experiences. Learning can also be more interesting if you learn from experience, because learning experience is a combination of challenges and pleasures gained from playing a game (Vasileva 2008). This game sensation makes gamification work in the context of learning experiences. This is supported by research of Simões et al. (2013) which states that gamification allows the development of digital literacy skills, problem-solving skills and improving manual dexterity, visual acuity, eye, and hand coordination. Besides gamification can improve manual agility, it can also improve finger dexterity when starting a game requires fast and skilled finger speed skills. Increasing finger agility is usually the result of a learning experience from a game. According to De Sousa Borges et al. (2014), the use of game-based elements such as mechanics, aesthetics, and game pattern in non-game contexts aims to involve people, motivate action, improve learning, and solve problems. Gamification can be regarded as a process of improving service with the ability to have a pleasant experience to support the overall value creation of users (Huotari and Hamari 2017).

Gamification was first applied by companies such as L'Oreal, Deloitte, and Starbucks. They have found applications in recruiting individuals by instilling enthusiasm, making individuals dedicated to their work (Schaufeli and Bakker 2004). This method can help in instilling ownership of individual performance and achievements. Other studies believed that the reward system considers innovative, fun and encouraging ways to represent progress in educational experiences. The form of motivation is comparing the progress of oneself with others, by comparing the results of his work with individual partners, it makes the individual's performance better (Chapman et al. 2016). Individuals who try to be better at this job need agility in work. Some individuals do not feel happy to compete with their co-workers, because to get ranked within an organization they must compete to get it. Mollick (2014) states that rule-based game elements are a framework for encouraging individual involvement. The performance will be better when individuals are involved in their work, so it is necessary to design the work to be as attractive as possible so that the individual works optimally. Besides gamification, ambidexterity can also improve individual performance (Lavie et al. 2010).

2.5 Hypothesis 4a: incentive gamification significantly moderates the relationship between personal dexterity and learning experience

2.5.1 Hypothesis 4b: incentive gamification significantly moderates the relationship between personal dexterity and individual performance

The proposed representation of research hypotheses can be pictorially shown as a research model in Fig. 1.

3 Method

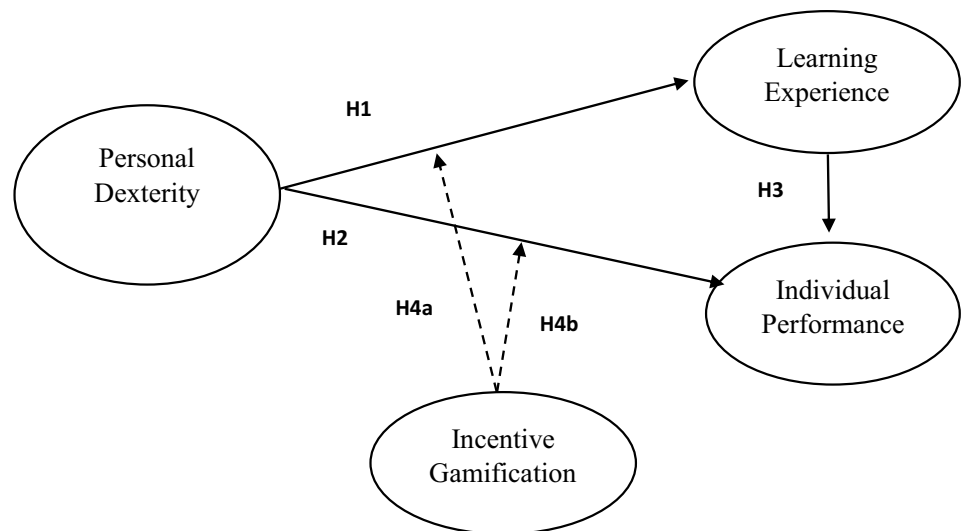
3.1 Population, sample, and data collection

A survey methodology is used in this study to collect primary data for empirical analysis. The population of this study includes female employees who work in marketing department (especially doing service in online selling) from four e-commerce innovative industries in Indonesian which focus on women products such as fashion, skin care and baby product. The exact population used is 329 female online sellers from four e-commerce platform. Sampling used in this study is a non-probability sampling with a judgmental sampling method, where we used the assessment of certain criteria in the research (Rahi 2017). The criteria used are the length of work at least 2 years and have experience in gaining incentives obtained with the game pattern policy.

As a female who work as online seller, they face with high usage of technology and gadgets daily. Moreover, they also face issue of balancing work and family which need both attention in the same time (Rahman et al. 2017). Digital technology helps them to communicate intensely with customers, bosses, peers and even with family (Fritze et al. 2019). Moreover, the dynamic change of business environment requires them to always learn quickly and independently. Since the work situation disposed to be sensitive to the use of both exploration and exploitation practices such as using finger, eye, ear, cognitive and affective psychomotorics continuously, an innovation in incentive play a pivotal role in their strategies for reaching learning experience and individual performance. In addition, a different management support from this kind of female employee is required by organizations from online-intensive marketing strategies, and the leadership role and game pattern processes should manage HR distinctively and supportively (Arshi and Rao 2019).

There are some data collection processes. They are composing company data and also collecting interest information (e.g., the e-commerce platform, work tenure, products that they sell, and secondary data) into an ad hoc database

Fig. 1 Research model



specifically for this research project. To compiling primary data, we distribute online questionnaire to the target respondents under their seller account in e-commerce firm platform they belong to. The questionnaire contains of detail literature review on measurement scales and some questions that address manual and finger dexterity, incentive gamification, learning experience and individual performance. The questionnaire is also completed with letter that requests to the respondents to complete the questionnaire.

Before doing the survey, we do personal interviews rigorously to sales supervisors from the four e-commerce platform. The questionnaire is also validated first by discuss it with them. These interviews aim to improve the quality of items and correct wording issues. Finally, after 4 months (August–December 2018), the yielded 104 usable questionnaires represent 31.6% response rate. From the 104 female respondents, 68 of them have 2 years working experience and 36 of them has been working for more than 2 years. With regard to education level, 65 respondents have high school educational background, 9 respondents hold Diploma, and 30 respondents has Bachelor degree.

Systematic measurement error and bias in the estimation of the true relationship among theoretical constructs may be caused since all single self-report questionnaire data with a cross-sectional research design, common method variance—variance arising from the measurement method rather than the constructs of interest (Podsakoff and Organ 1986). The existence of this problem is checked by the Harman one-factor test (through exploratory factor analysis). This test provides substantial amount of common method variance, such as (a) a single factor arises from the factor analysis or (b) the majority of the covariance among the variables accounted by one general factor (Podsakoff and Organ 1986).

3.2 Measure

3.2.1 Personal dexterity

We defined personal dexterity as the ability to make skilled hand movements in manipulating large objects using speed control and make quick and skillful movements of small objects using their fingers. We used eight items adopted from (O'Reilly and Tushman 2013) to measure this variable. They are: (1) completing work simultaneously, (2) using digital applications simultaneously, (3) coordinating several digital application devices simultaneously, and (4) the ability to collaborate, are (5) the ability to coordinate the ten fingers, (6) the ability to coordinate both hands, (7) the ability to coordinate the application device simultaneously, and (8) the ability to coordinate all five senses.

3.2.2 Incentive gamification

Incentive gamification is defined as an incentive policy by using a game pattern. This variable is measured using items that has developed by Conaway and Garay (2016) Blohm and Leimeister (2013 and Gibson and Jakl (2015) which are (1) progress paths, (2) feedback, (3) rewards, (4) social connections, and (5) challenges.

3.2.3 Learning experience

Learning experience is defined as a process of knowledge skills created through development, understanding and personal skills. We measured this variable by adopting items from James (2011), which are (1) participation that is

cognitively responsible (participate cognitively), (2) effective (participate effectively), (3) participate behaviourally, (4) knowledge process, (5) skills improvement and (6) attitude improvement.

3.2.4 Employee performance

Employee performance is defined as the ability of individuals to do certain skills to achieve company goals. We used a measurement developed by Comrey (1953); Rosing and Zacher (2017), which are (1) achievement of work quality as required, (2) achievement of work quantity as required, (3) timeliness and (4) ability to cooperate with co-workers. All items are measured with scale responses ranging from 1 = strongly disagree to 5 = strongly agree.

3.3 Finding

The data are analyzed using SPSS 22 software program. The use of this software makes us easier to analyze the data and find out whether the hypothesis proposed are supported or unsupported. Data analysis techniques used included descriptive statistics, Pearson product-moment correlations, multiple regression and absolute difference in reliability and moderation.

3.4 Validity and reliability test

Before testing the hypothesis, it is necessary to test the validity and reliability to test the validity of the data. Validity and reliability testing of the data is presented in Table 1 below.

Based on Table 1. Validity testing shows the R-count value for all research variables > R-Table (0.1927) and the Cronbach alpha value > 0.70 so that the data becomes valid and reliable. Moreover, Table 2 describes descriptive statistics and discriminant validity.

3.5 Hypothesis test result

Tables 3 and 4 show the summary of hypothesis testing result. H1 states that manual dexterity has a positive and significant effect on the learning experience. In Table 3, *t* test value for personal dexterity variable is 4.567. The comparison result of the *t* test and *t* table is 4.567 greater than 1659, so it can be concluded that individuals with high personal dexterity will have a high learning experience. The test result of hypothesis 1 in this study shows that there is a positive and significant effect between manual dexterity and learning experience. Personal dexterity is able to increase learning experience through their experience in using IT devices. So that the personal dexterity of employees continues to grow well and the individual learning experience will increase.

Table 1 Validity and Reliability Test

Variabel	Mesurement	R test	Cronbach Alfa	Conclusion
Personal dexterity	Completing work simultaneously	0,634	0.729	Valid and reliable
	Using digital applications simultaneously	0,805		
	Coordinating several digital application devices simultaneously	0,798		
	The ability to collaborate	0,730		
	The ability to coordinate the ten fingers	0,784		
	The ability to coordinate both hands	0,664		
	The ability to coordinate the application device simultaneously	0,748		
	The ability to coordinate all five senses	0,774		
Incentive gamification	Path of progress	0.779	0.821	Valid and reliable
	Feedback	0.831		
	Rewards	0.860		
	Social connection	0.700		
	Challenge	0.658		
Learning experience	Participante cognitively	0.569	0.789	Valid and reliable
	Participante effectively	0.742		
	Participante behaviourally	0.647		
	Processes knowledge	0.749		
	Skills improvements	0.750		
	Attitude improvements	0.740		
Individual performance	Achievement of work quality as required	0.818	0.827	Valid and reliable
	Achievement of work quantity as required	0.883		
	Timeliness	0.762		
	Ability to cooperate with co-workers	0.782		

Table 2 Descriptive Statistics and Discriminant Validity

Variable	Means	SD	PD	IG	LE	IP
Personal dexterity (PD)	3.84	0.542	1			
Incentive gamification (IG)	4.27	0.477	0.261*	1		
Learning experience (LE)	4.26	0.412	0.388*	0.551*	1	
Individual performance (IP)	3.96	0.624	0.480*	0.408*	0.609*	1

**Significant p value > 0.05

Table 3 Summary of Hypothesis Test

Hyp	Dependent variabel	Independent variabel	Constant	T test	F test	Conclusion	Adj R^2
H1	Learning experience	Personal dexterity	2.801	4.567**	20.861**	Supported	0.162
H2	Individual performance	Personal dexterity	1.402	5.471**	29.926**	Supported	0.219
H3	Individual performance	Learning experience	0.138	7.407**	54.859**	Supported	0.343

**Significant p value < 0.05

Table 4 Moderation of Incentive Gamification

Hyp	Dependent variable	Independent variable	Constant	T test	F test	Conclusion	Adj R^2
H4a	Learning experience	Personal dexterity	5.516	2.392***	22.320***	Supported	0.383
H4b	Employee performance	Personal dexterity	11.445	2.518***	18.082***	Supported	0.332

***Significant p value < 0.05

Additionally, hypothesis 2 shows that personal dexterity has a positive and significant effect on individual performance. In Table 3, t test value for personal dexterity variable is $2.694 > 1.659$. The test result of hypothesis 2 in this study shows that there is a significant effect between personal dexterity and individual performance.

Meanwhile, the test result of Hypothesis 3 shows that personal dexterity has a positive and significant effect on individual performance. Table 3 shows that t test value for the personal dexterity variable is $7.407 > 1.659$. This shows that personal dexterity statistically affects individual performance. The test result of hypothesis 3 in this study shows that there is a positive and significant effect between personal dexterity and individual performance.

The comparison of the value of Adj R square on Tables 3 and 4 assumes that after moderation between personal dexterity and learning experience, the value increases so that the incentive gamification variable is proven to strengthen the relationship between personal dexterity and learning experience (16.2–38.3%). Likewise, the Adj R square value on moderation of incentive gamification which strengthens the relationship between personal dexterity and individual performance (21.9–33.2%). Based on the significance value, incentive gamification is Quasi-Moderation. Quasi-moderation is a variable that moderates the relationship between the independent variable and the dependent variable which simultaneously becomes an independent variable.

Hence, incentive gamification can be said as variable that can moderate the effect of personal dexterity on learning

experience but can be also as a variable that directly affects learning experience. And then, incentive gamification also moderates the relationship between personal dexterity and individual performance. The test result of the hypothesis 4b in this study indicates that statistically, incentive gamification moderates the relationship between personal dexterity on individual performance but can be also as a variable that directly affects individual performance.

F test used to know the estimation model whether it is fit or not. The word fit is to explain the independent variable to the dependent. Tables 3 and 4 show that F count is greater than F table (F count > 2.30), so that all regression models can be used for independent variables and the model used in this study is fit.

4 Discussion

Digital workplace and digital work style provide significant research needs in term to observe organizational factors to improve learning experience and to produce innovation performance. This research result will bring potential theoretical importance and practical relevance for firms. Among factors that established in the literature, incentive gamification an innovative way to establish direction between individual dexterity and learning experience while also resolve organizational tasks (Suh et al. 2017). This study shows that in digital-based organizations, a pattern of game to provide incentive among members should also be established in

order to create the conditions for adequate management of Human Resource Management (Arshi and Rao 2019).

Competitive advantages based on innovation, people oriented, learning experience and internet application are needed to improve new skills of employee that allow the firm to gain the competitive frontier (Eisingerich et al. 2019). It means that incentive is usually seen as a source of external motivation, by focusing on the situation where the marketing staff or selling staff has continuous reconfiguration through attachment toward incentive gamification (Leal-Rodríguez and Albort-Morant 2018).

The first objective of this paper has analyzed the broadening of a specific personal dexterity type—manual dexterity—that means an essential element to gain further innovation for e-commerce firms. The results ensure that the existence of this kind of dexterity—combining features of cognitive and psychomotoric in using digital devices along with element psychological attachment—is antecedent to the learning experience and individual performance. These initiatives mainly regard experimentation of hands and eyes coordination in finishing task in current technological trajectories (Koivisto and Hamari 2019).

Manual dexterity can increase learning experience through their ability to complete work simultaneously and use more than one information technology (IT) application that makes work faster and the habit of doing work simultaneously is what makes work faster and more efficient. Manual dexterity requires hands and eyes coordination to play an important role in acquiring and developing psychomotor skills for individual performance. Psychomotor is related to skills or the ability to act after someone receives a certain learning experience. Kolb (1984) explains that learning experience is a process of knowledge that is formed through the transformation of experience. Individual satisfaction is based on the reasons for learning experiences from the environment which will give freedom to integrate learning and improve dexterity (Bryden and Roy 2005).

In this case, a strong manual dexterity of employee constrains the firm to start the substantial investment and development initiatives to produce new knowledge from devices and IT application used. This dexterity ability type leads the firm's employees to believe that knowledge creation, via daily work experience, is basic for individual development and competitive advantage (Nonaka and Takeuchi 2011).

The results provide that individual dexterity in term of personal dexterity have significant relations toward individual learning experience. Finger dexterity brings work can be finish faster and more efficient when using IT devices. The more precise and fast they are in coordinating the fingers in using IT tools, the learning experience will increase. Individuals who are able to coordinate their fingers quickly and skillfully will affect their performance. These finger skills can be formed or trained through

learning experiences, so that learning experience plays an antecedent of individual ambidexterity, since it summarizes the various effects on behavior that drives cognitive processes, skills, and motivation (Sturman 2003). Hence, it can be concluded that, the mixture between finger dexterity and manual dexterity is an effective way of promoting learning experience via the exploitation of psychocognitive knowledge (Kim and Ployhart 2014).

Personal dexterity features of work behavior activities contribute to the development of learning experience. Therefore, a greater tendency of firms toward featuring IT device usage and business application in e-commerce, especially for women staff for organizational functioning and performance worthwhile likely to consider efforts devoted the development and support of the learning experience practices.

The second objective of this study has contributed to the digital workplace situation by showing that personal dexterity influence individual performance. Manual dexterity can improve individual performance through their ability to complete work simultaneously so that performance becomes faster and more efficient. Additionally, agility in using IT devices also has an important effect on the online seller performance. The ability to use well-versed and skilled IT devices can speed up work, so individuals are required to be able to coordinate many IT device applications simultaneously to complete the work faster. (Junni et al. 2013) explained that the combination of the two ambidexterity components would produce a better performance rather than the performance using only one component. The ability to harmonize the components of two hands simultaneously will improve performance better than just using one hand.

Employees who are able to use application devices quickly and precisely using his fingers, the work they are doing will be faster. The ability to use IT devices skillfully can speed up work, so individuals are required to be able to coordinate many IT device applications simultaneously using all of their fingers so that work is completed faster. These findings support the results of Jansen et al. (2012) which state that ambidexterity significantly affects performance. Ambidexterity as a holistic phenomenon at the organizational level, individual characteristics and individual work contexts encourage and shape the relationship between ambidextrous behavior and performance (Smith and Tushman 2005). Ambidexterity is the combination of the two components simultaneously to produce better work. The ability to coordinate the ten finger components simultaneously will improve performance better than just using one finger.

The third objective of this research is to analyse the influence of having learning experience to improve individual performance. The process of getting this experience is obtained from consumers and from this learning process

they can also learn to improve their performance better. The skills gained from previous learning experience will improve individual performance.

The fifth objective of this research is to observe the role of incentive gamification to moderate the relationship between personal dexterity with learning experience and individual performance. As the hypotheses proposed, when a firm has a greater tendency toward incentive gamification and supports a larger volume of game and fun situation, will give positive effect to individual learning experience and performance. Gamification also introduces individuals to pleasant learning experiences. Learning can also be more interesting if individuals learn from experience, because it refers to a combination of challenges and pleasures gained from playing a game (Vassileva 2008). This game sensation makes gamification work on learning experiences.

5 Conclusion and future research directions

In conclusion, this paper shows that learning experience and individual performance can be increased by giving specific type of incentives as a strategy to improve their performance. However, the provision of modified incentives or what so called as incentive gamification to individuals greatly motivates them to perform better, because the work methods designed like a game to get incentives desired by individuals, this will be very interesting. Companies that implement incentive gamification require individuals to complete work with a predetermined time limit. If the individual is able to complete the work according to the specified time target, then he will get incentives in the form of rewards and promotions. This motivation will be very effective for improving individual performance.

Incentive gamification is one of work design that can help improve individual performance in the industrial revolution era 4.0, it can be seen that incentive gamification is able to moderate the relationship between personal dexterity on learning experiences and individual performance. The new concept of incentive gamification is proven to encourage an increase in individual performance and learning experience in digital workers.

An additional contribution of this paper is to investigate the relationship theories among gamification-based HRM, personal dexterity, learning experience and individual performance through an extensive literature review, and anticipate some effects among these constructs. Indeed, the call for additional research on how individual dexterity

can influence organizational level processes and performance such as incentive gamification is explained by this study (Lackes et al. 2019).

However, this research has the following aspects of limitations. First, research design of this study is cross-sectional, and the research design is incapable of ensuring that the causal relationships set out in the hypotheses; even the results are consistent with theoretical reasoning. Further researcher could solve this issue by applying a longitudinal design. Second, the study analyzes gamification HRM practice characteristics such as incentive, learning experience and personal dexterity capabilities. Nevertheless, approaches that are more specific may be needed to take full advantage of each process so as to obtain distinct results when firms find themselves in different contexts (e.g., other online environment and online business). Hence, when a firm requires creativity and experimentation to confront scenarios of radical change of technology, an incentive gamification is probably most fitting, whereas, in more stable situations, traditional incentive form may be more appropriate, as the firm essentially pursues stability.

In this regard, future studies could try to analyze another type of incentive in gamified HRM practices with different environmental or temporal settings. Third, self-report data are used by this study. It may suffer from the effects of general method variance. There are still issues that exist; even the Harman test implies this phenomenon in the current study. Future research could be useful from independently achieving and using objective measures of learning experience and individual performance. Fourth, the low response rate of respondents indicates potential limitations and the sample is all female. This is because the focus is on sample testing of most female who work online and must have a balance with their families. Future research may focus on the broader e-commerce industry to validate results and increase the study sample size, particularly by adding male respondents. Fifth, respondents are Indonesian e-commerce companies that have potential cultural limitations. Therefore, different cultural contexts—countries or geographic areas—may be subject to future research to validate results for a broader spectrum of cultures and geographies.

Appendix

See Table 5.

Table 5 Questionnaire List

No	Variables	Statements
1	Personal dexterity (the ability to make skilled hand movements in manipulating large objects using speed control and make quick and skillful movements of small objects using their fingers)	<p>I can complete some work projects either small or big project simultaneously</p> <p>I am able to use many business IT applications in my job to sell the product online</p> <p>I am able to coordinate many customer enquiries using different IT applications and devices</p> <p>I can collaborate with my co-workers in digital environment by using different devices gadgets</p> <p>I am able to coordinate using my ten fingers in using IT devices in my job</p> <p>I am able to coordinate my two hands skillfully while using IT devices at once to finish my job (typing, writing, calling and any other jobs)</p> <p>I am able to coordinate multiple business IT applications usage in my office simultaneously</p> <p>I am able to coordinate all my five senses in finishing my workload</p>
2	Incentive gamification (incentive policy by using a game pattern)	<p>I satisfy with career path direction provided by my company in online system</p> <p>I receive fun and functional feedback from my supervisor regarding my performance</p> <p>I receive leisure reward from my supervisor</p> <p>I am socially connected with my family and co-workers during working hours</p> <p>I satisfy with the next challenging tasks provided to finish</p>
3	Learning experience (a process of knowledge creation by participating cognitively, effectively and behaviorally)	<p>I participate cognitively in designing online marketing policies and strategies</p> <p>I participate effectively in designing online marketing policies and strategies</p> <p>I can adjust my work behavior in order to support online marketing policies and strategies that have been decided by my company</p> <p>I am involved in knowledge processing activities that derive from work experience</p> <p>My literacy about online selling skills has improved a lot</p> <p>My literacy about the attitude as an online marketer has improved a lot</p>
4	Employee performance (ability of individuals to do certain skills to achieve company goals)	<p>I can achieve the work quality as required by my company</p> <p>I can achieve the work quantity as required by my company</p> <p>I can finish my job responsibilities by the deadline</p> <p>I am able to work in a group</p>

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