

IMPACT OF INFORMATION QUALITY AND SYSTEM QUALITY ON TRAINING ENGAGEMENT TO IMPROVE CREATIVITY AMONG WORKFORCE OF PUBLIC SECTOR IN MINISTRY OF INTERIOR ABU DHABI, UAE

Ahmed Salem Saleh Sulaiman Alkaabi

College of Law, Government and International Studies, Universiti Utara Malaysia, 06010 UUM
Sintok, Kedah, Orcid: <https://orcid.org/0000-0002-7678-7802>

Abd. Rahim Bin Romle

College of Law, Government and International Studies, Universiti Utara Malaysia, 06010 UUM
Sintok, Kedah, Orcid: <https://orcid.org/0000-0001-8115-5212>

Abstract

Creativity is considered as a key to success now a days. Likewise, now a days with the advancement of information technology importance and usage of information is increasing and its importance and advantages depends upon the quality of information. Likewise with the technological advancement organizations are paying much attention towards training of the employees and training can only be beneficial if employees are properly engaged in it. Therefore, the purpose of the current study is to identify the impact of information quality and system quality on training engagement to improve creativity among workforce of public sector in Ministry of Interior Abu Dhabi, UAE. In order to understand the relationships structural equation modeling has been conducted over the primary data collected through simple random sampling from the employees working at Ministry of Interior Abu Dhabi, UAE. The instrument used for the collection of data was adopted questionnaire. The findings revealed that training engagement helps in developing employee creativity if information quality and system quality are supportive.

Information quality and system quality both have a direct positive impact over employee creativity and training engagement strengthen the relationship.

Keywords: Training engagement, Employee creativity, Information quality, System quality

Introduction

On-line learning or e learning and distance learning is actually education or training that takes place over the internet. On the web training is gaining popularity over the years (Milakovich & Wise, 2019). Individuals are getting busy, and because of innovations, the internet discovering is actually ending up being a far more eye-catching alternative when it pertains to qualified and private progression (Chary, 2016). Organizations can easily buy or established as numerous programs as they need for their employees, using transportable tools.

The training programs are actually at that point circulated to the decided-on staff members, that can then find out at their personal speed (Pacansky-Brock, 2013). Provided that they have access

to the web, students can access their training anywhere utilizing a computer system, phone, laptop pc or tablet computer (Asad, Ahmad, Haider, & Salman, 2018). Internet learning delivers excellent adaptability, to name a few benefits, and helps in making job of setting up development possibilities far simpler (Becker, Fleming, & Keijsers, 2012). Moreover, it is actually difficult to select a time that meets all workers when everyone possesses a different schedule and it is actually difficult to acquire all of them all in one area (Batalla-Busquets & Martínez-Argüelles, 2014). On the whole, it is much more advantageous and handier for businesses to invest in top quality web training courses (Becker, Fleming, & Keijsers, 2012). Likewise, organizations develop many programs including training to increase the power or their human capital. Training, in any form, has a main aim to develop abilities, knowledge, skills, and much more (Noe & Kodwani, 2018). Thus, in the modern competitive environment, increasing employees creativity and innovation is one of the main issues. Creativity in organizations is vital especially with the increase of competition and clients' awareness (Proctor, 2018). Moreover, the process of training and development is essential especially in long-term crisis (Asad, Altaf, Israr, & Khan, 2020). For organizations, training is important to keep the employees skillful and possess the updated knowledge to increase the employees' creative behavior (Ashton, Lloyd, & Warhurst, 2017; Kondratyuk, 2018). The creativity of the participants of group carrying out an organization is necessary for the results and performance of the organization. Lots of intellectuals examined and verify the significant relation in between creativity and company effectiveness (Lund, Byrge, & Nielsen, 2017). Furthermore, the Training engagement of on-line training supplies the possibilities for learners to utilize their newly obtained skills and knowledge in a genuine or simulated environment, able to enhance their understanding (Batalla-Busquets & Martínez-Argüelles, 2014). Training engagement to on the web training has actually been actually shown to offer learners and educators a sense of contentment especially when the innovation was simple to use, applicable and handy in their knowing (Sendawula, Kimuli, Bananuka, & Muganga, 2018). Training engagement is its ability to record interest, ensure importance by means of genuine jobs, strengthen peace of mind and boost fulfillment with discovering appears to possess the prospective to boost learner incentive (Chen, Liu, Tang, & Hogan, 2021). The adopting of technology in training is an intricate procedure with many factors figuring out the fostering fee, and these factors may differ in between scholastics and public sector (Asad, et al., 2021). In the circumstance of engagement of online training, it may be shared as the mental convenience of using the online system for getting brand new knowledge (Zhang & Bartol, 2010). Training engagement of internet training is actually vital for evaluating the diffusion of innovation it is actually likewise necessary to consider the process of consumer acceptance (Amir & Asad, 2018). Training in the UAE federal authorities is actually looked at among the methods of building individual funding that swears by to lift the degree of project efficiency for staff members. Training and growth in its modern principle is actually an integrated framework and a key selection in the system and advancement of personnel that the federal authorities seeks to achieve to always keep

pace with the obstacles of changing work needs. Due to the fact that, the training leads to the move of technological and efficient knowledge in a manner that enables the public employee and the government company to experience any challenges presented by cognitive velocity within the job atmosphere (Organization, 2016).

Training engagement more and more reconfigures learners ability to know and learn something new and get some work done so you can take use of new technology while combining it with your current methods (Haider, Asad, & Aziz, 2015). Training engagement of on the web training offers the opportunities for learners to use their newly obtained skills and knowledge in a simulated or genuine environment, capable to strengthen their discovering (Batalla-Busquets & Martínez-Argüelles, 2014). Training engagement to internet training has actually been shown to offer learners and teachers a sense of contentment specifically when the innovation was actually quick and easy to utilize, useful and relevant in their understanding (EÉk, et al., 2020). Training engagement is its capacity to grab focus, advertise importance by means of genuine jobs, improve confidence and rise contentment along with discovering seems to have the possible to enhance student incentive (Chen, Liu, Tang, & Hogan, 2021). Training engagement of internet training is actually vital for evaluating the diffusion of technology it is actually also vital to look at the method of consumer affirmation (Batalla-Busquets & Martínez-Argüelles, 2014).

In line with keeping pace with the rapid changes and developments, and developing the performance of its human resources, and in line with the precautionary measures that have been taken to reduce the outbreak of the new Corona virus, the UAE has launched smart platforms to train employees in several quarters (Al Ain News newspaper 2020). For example, "Emirates Transport launched for its employees a smart platform for distance training through its smart learning program" My Platform ", while the Ministry of Economy launched a training academy in the insurance sector for distance education for free. There is also a central training platform available for public sector employees through the Federal Authority for Government Human Resources via Al-Mawred platform (Anwar & Abdullah, 2021).

Therefore, considering the importance of employee creativity which can be developed through engaging the employees in training information quality and system quality may play a vital role, thus, the purpose of the study is to identify the impact of information quality and system quality on training engagement to improve creativity among workforce of public sector in Ministry of Interior Abu Dhabi, UAE.

Literature Review

Innovativeness or creativity refers to staff members' generation of novel and helpful tips regarding products, techniques, and processes at work (Asad, Shabbir, Salman, Haider, & Ahmad, 2018). These positionings can be actually an outcome of interior factors in which individuals are actually affected through their own personal need to do the same in such a technique (Jaiswal & Dhar, 2017). Note that external factors may be portioned in to easy and active strategies: those that seek to achieve beneficial opinions, and those who stay clear of unfavorable judgments, respectively.

A major obstacle faced by supervisor in the 21st century is actually using the prospective abilities of workers to improve and speed up organizational technology (Shao, Nijstad, & Täuber, 2017).

To attain this goal, workers may utilize their mental functionalities to trigger positive company changes by utilizing their knowledge and creativity to inspire such adjustments (Duan, Liu, & Che, 2018). Creativity study possesses a long past history in psychological science, paying attention to personal variations in character, cognitive capabilities, and analytical styles (Younas, et al., 2018). Latest theoretical and empirical work has appeared at creativity as something the brain does normally (Hong, Hou, Zhu, & Marinova, 2018). That is, creativity is an adaptive attribute of ordinary intellectual working that advanced to assist complication fixing under problems of unpredictability. Under such circumstances, novel strategies and creation are actually strongly favorable (Wang, Liu, & Cai, 2019). Creativity is originated from an individual's accumulated creative skills and expertise based on their past adventures and professional learnings (Peng & Wei, 2018).

Depending on to regular wisdom, creativity is actually one thing that imaginative people have or do (Jaiswal & Dhar, 2017). There are a lot of characteristics that set creative people apart from their less imaginative colleagues. For example, creative people tend to be more self-reliant, unconventional, and risk-taking, and they have a wider range of interests and are more receptive to new forms of knowledge and expertise (Rego, Cunha, Júnior, Anastácio, & Savagnago, 2018). A lot of research have pinpointed creativity as an outcome that pays attention to new and helpful ideas (Wang, Liu, & Shalley, 2018).

According to Asad, Shabbir, Salman, Haider, and Ahmad (2018) individual creativity is actually classified through three components: expertise, creative-thinking skills, and incentive. Supervisors can easily influence these parts for better and worse-through office strategies and disorders (Zhou, Zhao, Tian, Zhang, & Chen, 2018). Skills and creativity skills are actually even more hard and time consuming to obtain than motivation. Inherent inspiration stimulates high level of tenacity and artistic attempt in work contexts where creativity is accurately valued (De Clercq, Mohammad Rahman, & Belausteguigoitia, 2017). Among the many characteristics that set innovative people apart from their less creative contemporaries is an abundance of domain-relevant information and refined abilities. They have massive passions and are more receptive to new knowledge, and they find their work intrinsically rewarding. They are also more likely to be unique, autonomous, and risk-takers (Knippenberg & Hirst, 2020).

Similarly, employee engagement in training is actually commonly deprioritized; however, a little bit of engagement is actually verified to produce fantastic enhancements. Business along with taken on workers continually surpass those without the locations of client productivity, devotion, and success (Asad, Haider, & Fatima, 2018). For managers, the large concern is actually how to strengthen engagement of employees in training and developing motivation at the ground level. Just like many factors, the solution is actually gazing all of them in the face. The biggest tool against employee apathy is the training program and same selects training engagement, hence, additional engagement means a much better training and end results (Ebersöhn, 2019).

For a bunch of services, training is just one of the couples of interaction tools they have. Other than providing the workers the knowledge they need to perform their work; training is very closely linked to performance (Armstrong, Walker, Feld, & Weidner, 2019). In most cases, customer reviews are actually the only option that employees and managers need to discuss their opinions regarding the workplace in an organized means (Jaiswal & Dhar, 2017). When it involves taking on employees, communication is actually critical and the training system is actually, by-and-large, an underutilized interactions resource (Anwar & Abdullah, 2021).

Similarly, training engagement is the level of how workers are enthusiastic about the training plan and experience fastened to it (Asad, Haider, & Fatima, 2018; Armstrong, Walker, Feld, &

Weidner, 2019). While Creativity pertains to employees' creation of unique and useful tips regarding items, procedures, and methods at work (Lund, Byrge, & Nielsen, 2017). It should be noted that creativity is actually reviewed with goal positioning (Zaitouni & Ouakouak, 2018). These positionings may be an end result of internal factors in which individuals are actually influenced through their own private wish to do in such a way.

On the contrary, people might likewise be determined through external factors including taking on others, recognition, or even steering clear of criticism (Amabile, 1998). Based on that the researcher is expecting a significant relationship between Training Engagement and Employee Creativity (Hanaysha & Tahir, 2016; Haider, Asad, & Aziz, 2015; Haider, Asad, Fatima, & Abidin, 2017; Asad, et al., 2021).

Given the substantial and rapidly improving volume of service that firms and consumers are conducting online (Li & Sandino, 2018), relevant information is becoming a necessary requirement for putting together an energetic partnership between vendors and customers (Shelley Xin Li, 2018). Involved websites are making the interaction of information a key aspect of sites (Kondratyuk, 2018). In the context of e-commerce, information quality dramatically influences the success of on the internet organizations (Ogueyungbo, Chinonye, & Igbinoba, 2019).

Latest investigation has confirmed that information quality influences customer depend on and commitment; particularly, the website material and design impact consumer rely on and loyalty (Asad, Ahmad, Haider, & Salman, 2018). Due to the fact that it influences individual choices relating to on the internet buying, consisting of layout, assortment and information (Fileri & Willison, 2016). Content recommends to the details, components, or even companies used in web sites, while design is actually the way in which the content exists to consumers (Sharma & Sharma, 2019). On the web relevant information search strategies feature using an universal online search engine to indicate several vast hunt terms ("wide 1st"), defining key qualities on internet search engine ("search engine shortening"), utilizing "to-the-point" key phrases on online search engine that are going to steer details outcomes, or getting through straight to a web site ("well-known handle") (Zhang & Bartol, 2010).

Information quality is the high quality of the content of information in websites and devices etc. (Tate, 2018). It is frequently pragmatically defined as: "The exercise for use the info provided" (Senaratne, Mobasheri, Ali, Capineri, & Haklay, 2017). While Engaged employees engage

proactively in the training, do it willingly, do certainly not be sorry for that they need to commit effort and time to it (Chaubey, Sahoo, & Das, 2021). In short, they possess an interior incentive to take part in the instruction (Hanaysha & Tahir, 2016). Involved employees efficiently finish their tasks, they take part in dialogues and make wonderful end results (Hanaysha & Tahir, 2016). Accordingly, the study's author anticipates that information quality will have a favourable and direct influence on trainees' willingness to participate in training. However, Creativity refers to staff members' production of unique and practical ideas regarding items, techniques, and processes at the office (Li & Sandino, 2018) . It needs to be actually kept in mind that creative thinking is actually taken a look at with target positioning (Li & Sandino, 2018). Thus, information quality has a positive direct effect over training engagement and Employee Creativity (Hong, Hou, Zhu, & Marinova, 2018; Sendawula, Kimuli, Bananuka, & Muganga, 2018).

System quality additionally has actually been actually thought about some of the absolute most important dimensions in the previous research studies. The system quality may contain schedule, effectiveness, safety and security, and reliability (Russo, Ciancarini, Falasconi, & Tomasi, 2017). 'Availability' implies whether a web site is obtainable and available in 24 hours a day and 365 times a year. When it is inevitable for a site to turn off for routine maintenance or even development, the web site should make substantial initiatives to decrease the closing time and notify users earlier (Jun & Palacios, 2016). Frequent disturbances of website companies can easily ruin the credibility of a business in relation to its clients (Senaratne, Mobasher, Ali, Capineri, & Haklay, 2017).

To obtain higher productivity of a site, certainly not just ought to sufficient equipment capability or system transmission capacity be actually secured, but likewise graphic components with ideal dimension requirement to be used (Filiari & Willison, 2016). A site needs to be without any type of inaccuracies which may reveal its own susceptibility to exterior attackers and also create users dissatisfied (Widiyanto, Sandhyaduhita, Hidayanto, & Munajat, 2016). 'Reliability' suggests the degree to which a site can do as desired the right way and continually without any type of error or failure (Tate, 2018). An internet site ought to be scalable so that it may support unexpected massive traffic (Widiyanto, Sandhyaduhita, Hidayanto, & Munajat, 2016).

In Web 2.0 environment, it is actually essential for site administrators to become much more careful versus possible details leakage as a result of to XSS (Cross-Site Scripting) attacks versus Ajax-established websites (Ritchie, 2013), social networking solution, wikis, RSS (Really Simple Syndication), etc. (Asad, Ahmad, Haider, & Salman, 2018). 'Security' implies the level to which a site could be sturdy versus all achievable spells or even threats coming from outside and always keep exclusive and private relevant information securely. Batalla-Busquets and Martínez-Argüelles (2014) revealed that customers were fretted about giving private relevant information online since it could likely fall right into the wrong palms or even be actually overused (Senaratne, Mobasher, Ali, Capineri, & Haklay, 2017). As a result, the top quality of an internet site is actually intertwined with the website's potential to secure and safeguard information provided to it.

System quality is the preferable attributes of the details in websites or applications or devices systems. System quality is a measure of an IS from the technical and design perspectives. Thus, perceived system quality can be defined as the users' evaluation of an IS from the technical and design perspectives (Filieri & Willison, 2016). Alleviate of making use of is actually the level to which the users perceived that by utilizing IS they need to have much less attempt to make use of the system (Shelley Xin Li, 2018). For example, simplicity of use, system versatility, unit reliability, convenience of learning, intuitiveness, class, response opportunity (Budiardjo, Pamenan, Hidayanto, & Cofriyanti, 2017).

In addition, a quality of IS demands to become pliable good enough so as for the customer to make use of the system (Budiardjo, Pamenan, Hidayanto, & Cofriyanti, 2017). While in general Everyone that has been associated with corporate trainings has discovered that so as for the training to become successful, it needs to be interesting (Budiardjo, Pamenan, Hidayanto, & Cofriyanti, 2017). People are more inclined to put in and focus time when they enjoy what they do and find the inner motivation to accomplish it (Sobolev, Kurakin, Pakhomov, & Trotsuk, 2018). Accordingly, the study's author anticipates a favourable and direct impact of system quality on trainees' willingness to participate in training. In contrast, originality has been defined as a subjective assessment of an object's usefulness and distinctiveness (Randel & Jaussi, 2017). The ability to draw novel conclusions, approach familiar problems from different angles, and generate novel ideas from preexisting information is one definition of creativity (Budiardjo, Pamenan, Hidayanto, & Cofriyanti, 2017; Sobolev, Kurakin, Pakhomov, & Trotsuk, 2018). Thus, system quality has a positive direct effect of training engagement as well as on Employee Creativity (Tang, Yu, Cooke, & Chen, 2017; Ismail, Iqbal, & Nasr, 2019; Vila-Vázquez, Castro-Casal, & Álvarez-Pérez, 2020).

The research framework has been developed with the help of three theories. The main model that has been followed is new website quality assessment model which is strengthen and enriched by adding engagement theory and investment theory of creativity. The argument of the study is based on the fact that the business investment in new website development for developing creativity among employees by engaging them gives strong positive results. Thus, the proposed framework for testing through the primary research is shown in figure 1.

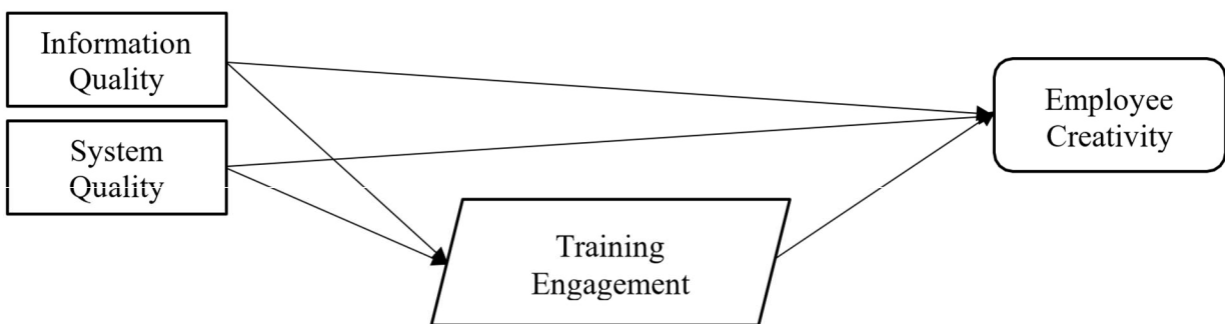


Figure 1 Research Framework

Methodology

The methodology shows that the study is based on primary research for which the data has been collected through questionnaires. For the purpose of reaching a reasonably specific-target sample of employees working for the Ministry of Interior in Abu Dhabi, the research makes use of the direct collect survey approach. For the purpose of testing the framework 400 employees were contacted. The survey instruments were adopted from the prior studies. The items for employee creativity have been adopted from (Tang, Yu, Cooke, & Chen, 2017), the items for training engagement have been adapted from (Haider, Asad, Fatima, & Abidin, 2017), and the items for information quality and system quality have been adopted from (Ramayah, Ahmad, & Lo, 2010). The study followed simple random sampling over the list provided by the interior ministry in Abu Dhabi. The model has been testing using Structural Equation Modeling after ensuring the reliability and validity of the instruments used.

Analysis and Discussions

This study starts by looking at all the factors and how they relate to each other. It finds that training engagement has a strong, positive effect on the quality of information, the quality of operations, and employee creativity. All of the variables, including employee inventiveness, information quality, system quality, and training participation, have had their mean, standard deviation, minimum, and maximum values calculated. As shown in Table 1, the outcomes of the descriptive analysis are presented.

Table 1 Descriptive Analysis of Variables

Variable	Mean	SD	Minimum	Maximum
Employee Creativity	3.70	0.94	1	5
Information Quality	3.55	0.86	1	5
System Quality	3.84	0.75	1	5
Training Engagement	3.88	0.91	1	5

Multicollinearity testing is complete if all descriptive analysis variables have been certified to have a substantial positive association. The VIF and tolerance values are found in the multicollinearity test, which also determines the information quality, system quality, and training engagement. In table 2 you can see the calculated values.

Table 2 Multicollinearity Test

Variables	VIF	Tolerance
Information Quality	2.15	0.41
System Quality	1.06	0.52
Training Engagement	1.21	0.69

The item loadings for the multicollinearity test have been computed. The purpose of this research is to determine how training involvement mediates the relationship between data quality, system quality, and staff innovation. The item loadings show that there is a strong positive association between all the elements in the model. We retained items with loading values above 0.7 and removed those with values below 0.7 from the model (Hair, Ringle, & Sarstedt, 2013). The findings of item loadings are revealed in table 3.

Table 3 Item Loadings

Items	Employee Creativity	Information Quality	System Quality	Training Engagement
EC1	0.958			
EC2	0.960			
EC3	0.970			
EC4	0.935			
EC5	0.897			
EC6	0.782			
EC7	0.955			
EC8	0.940			
EC9	0.955			
IQ1		0.988		
IQ2		0.993		

IQ3	0.986	
SSQ1	0.989	
SSQ2	0.953	
SSQ3	0.908	
SSQ4	0.992	
TE1		0.802
TE4		0.873
TE5		0.872
TE6		0.958
TE7		0.947
TE8		0.902

The model's validity and dependability are validated by using Cronbach's Alpha after it has been established that every item retained in the model has significant positive item loadings. Composite reliability and average variance extracted (Sarstedt, M.Ringle, Smith, Reams, & F.HairJr, 2014). Furthermore, discriminant validity has been also examined. The results of the measured values of (information quality, system quality, training engagement, and employee creativity) are shown in table 4.

Table 4 Reliability and Validity

Variables	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Information Quality	0.989	0.992	0.978
System Quality	0.972	0.980	0.924
Training Engagement	0.949	0.960	0.799
Employee Creativity	0.980	0.983	0.864

Afterwards, analyzing the reliability and validity of the variables then discriminant validity has been tested of the employee creativity, information quality, system quality and training engagement are shown in table 5.

Table 5 Discriminant Validity

Variables	Employee Creativity	Information Quality	System Quality	Training Engagement
Employee Creativity	0.930			
Information Quality	0.547	0.989		
System Quality	0.368	0.517	0.961	
Training Engagement	0.516	0.741	0.427	0.894

Table 6 Path Coefficients Direct Effects

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
Information Quality-> Employee Creativity	0.343	0.338	0.145	2.356	0.002
System Quality-> Employee Creativity	0.454	0.448	0.947	0.479	0.003

Based on the findings of the PLS direct effect the findings revealed that information quality has a significant positive direct relationship with employee creativity ($\beta = 0.343$, $t = 2.356$, $P = 0.002$).

It revealed that e-learning with information quality skills is more affective concerning the development of creative employee as well as the values that effectively address the issues that learning workforce in developing the individual and team creativity among employees. They develop appreciation as inspires their employees to learn from information quality which affects creativity to achieve the objectives of the interior ministry. Furthermore, information quality is vital as well as an indispensable component in analyzing the success of e-learning systems directly to the essential role of information in achieving creative goals of employees as well as the critical issues resulting from the lack of quality information. The capability of quality in information achieves additional strength along with creativity amongst employees in employees of the interior ministry in Abu-Dhabi UAE. Moreover, Information quality was thought to be a key factor in assisting employee creativity where the empirical evidence assures that information quality has a significant direct positive relationship with employee creativity.

Secondly, direct effects illustrated that system quality has a significant positive direct relationship with employee creativity ($\beta = 0.454$, $t = 0.479$, $P = 0.003$). Furthermore, the efficiency of system

quality for employee creativity might be a crucial factor for the higher creativity in employees which results to attain the quality in systems towards employee creativity in employees of the interior ministry in Abu-Dhabi UAE. Shelley Xin Li (2018) suggested that e-learning rely on system quality to boost employee creativity to meet the desires of objectives. It recognizes the effect of system quality based on the perceived perception of creativity among employees in employees of the interior ministry in Abu-Dhabi UAE. Likewise, the findings statistically prove that there is a highly significantly direct positive relationship between system quality as well as the creativity among employees of the interior ministry in Abu-Dhabi UAE. The findings in this study are in line with previous studies therefore, it is suggested or supported that the system quality of e-learning has a significant positive direct effect on employee creativity.

After ensuring that information quality and system quality have a strong direct effect over employee creativity mediating variable has been introduced. After introducing the mediating variable before conducting mediation analysis the direct effect of information quality and system quality over training engagement and the direct effect of training engagement over employee creativity has been analyzed. The results of the direct impact regarding the mediating variable are mentioned in table 7 below

Table 7 Path Coefficients Mediating Variable Direct Effects

	Original	Sample	Standard	T Statistics	P
	Sample	Mean	Deviation	(O/ STDEV)	Values
	(O)	(M)	(STDEV)		
Information Quality-> Training Engagement	0.533	0.529	0.108	4.929	0.000
System Quality-> Training Engagement	0.450	0.446	0.172	2.610	0.002
Training Engagement-> Employee Creativity	0.514	0.509	0.103	4.945	0.000

When the meditating variable is introduced, the findings endorsed by a sample of 400 respondents from the ministry of interior in Abu-Dhabi UAE have shown that information quality has a significant positive relationship with training engagement ($\beta = 0.533$, $t = 4.929$, $P = 0.000$). Furthermore, information quality presented by the e-learning system which expected to consider a major element for enhancing the skills of employees' training engagement. Song, Qiao, and Law (2020) suggested that the observed values which play a crucial significant effect of information

quality on employees performance which is related to training engagement. Likewise, if the employees face a lack of quality information then they hardly engage towards training (Ogueyungbo, Chinonye, & Igbinoba, 2019).

Likewise, the importance of system quality over attaining training engagement has been shown system quality to have a positive relationship with training engagement ($\beta = 0.450$, $t = 2.610$, $P = 0.002$). Furthermore, the system quality offered by the e-learning system which is a crucial dimension in developing the interest of the employees towards training engagement. Guan and Frenkel (2018) suggested that engaging employees towards training, enhances the quality of the work in the organization. Likewise, quality of system necessitates to become well liable and employees are capable to use the system easily for which they need to get involved in training. Finally, when the significance of training engagement has been seen on employee creativity the results have shown that training engagement has a significant relationship with employee creativity ($\beta = 0.514$, $t = 4.945$, $P = 0.000$). The current study revealed that training engagement are significant predictor of employee creativity. Those organizations who make workshops for training of employees they will perform more creativity in their field as well as they are able to gain more goals and objectives in the organization. According to Zhang and Bartol (2010), training has the potential to boost employee creativity by encouraging active participation in the learning process. According to Chaubey, Sahoo, and Das (2021), training helps workers gain more information and develop their innovative abilities, which in turn allows them to do their duties in a more creative manner. Training allows employees to handle complaints in a creative way and deal with them effectively, according to Sendawula, Kimuli, Bananuka, and Muganga (2018).

After ensuring that all the direct relationships are significant the mediation analysis was done using Preacher and Hays method.

Table 8 Path Coefficients Indirect Effects

	Original Sample	Standard	T Statistics	P	
	Sample Mean	Deviation	(O/ STDEV)	Values	
	(O)	(M)			
Information Quality -> Training	0.274	0.268	0.011	24.37	0.000
Engagement-> Employee Creativity					
System Quality-> Training	0.231	0.225	0.017	12.90	0.001
Engagement-> Employee Creativity					

The mediating role of training engagement has shown a significant mediating effect between information quality and employee creativity ($\beta = 0.274$, $t = 24.37$, $P = 0.000$). The findings of this research while taking training engagement as a mediating variable, revealed that the relationship

between information quality and employee creativity has been positively confirmed. Employees engage towards training with the better quality of information enhance the creativity of the employees. If the employees engage in training, employees will perform better because of creative information among them. Likewise, if the employees have more creative information their employees should be trained accordingly.

The second mediation also confirms that training engagement has a significant mediation effect in the relationship between system quality and employee creativity ($\beta = 0.231$, $t = 12.90$, $P = 0.001$). Moreover, the findings reveal that training engagement will enhance creativity by implementing system quality. System quality is a valuable characteristic of an e-learning which affects the creativity among employees which requires engagement of employees towards training. System quality reveals the ability to modify the systems which rely on the creative capabilities of the employees which can be developed through training for which employees' engagement in training is mandatory. Training engagement has significant purpose of strengthening one's system quality capabilities and employees' creativity.

Conclusions

The findings of the tested model emphasized a significant relationship among information qualities, system qualities, and employee creativity. Likewise, the mediating role of training engagement between information qualities, system qualities and employee creativity has also proven as significant based on the data collected from the employees of interior ministry in Abu Dhabi-UAE. Which confirms the significance of training engagement and e-learning system qualities for development of employee creativity. Similarly, as training engagement as a mediator is also significant. The findings provide various essential practical implications to trainers and learners.

Additionally, this study has found constraints for both online learners and instructors in relation to the learning sector and the most recent innovations in online learning technology. Ignoring the underlying problems, the present study's future directions give the groundwork for comprehending the efficacy of e-learning and training engagement with respect to employee creativity.

References

- Amabile, T. M. (1998). *How to kill creativity* (Vol. 87). Boston, MA: Harvard Business School Publishing.
- Amir, A., & Asad, M. (2018). Consumer's Purchase Intentions towards automobiles in Pakistan. *Open Journal of Business and Management*, 6, 202-213. doi:10.4236/ojbm.2018.61014
- Anwar, G., & Abdullah, N. N. (2021). The impact of Human resource management practice on organizational performance. *International journal of Engineering, Business and Management*, 5(1).
- Armstrong, K. J., Walker, S. E., Feld, S. D., & Weidner, T. G. (2019). Athletic training students' engagement in interprofessional education in the classroom and during clinical education. *Journal of Interprofessional Care*, 1-6.

- Asad, M., Ahmad, I., Haider, S. H., & Salman, R. (2018). A critical review of Islamic and conventional banking in digital era: A case of Pakistan. *International Journal of Engineering & Technology*, 7(4.7), 57-59.
- Asad, M., Altaf, N., Israr, A., & Khan, G. u. (2020). Data analytics and SME performance: A bibliometric analysis. 2020 International Conference on Data Analytics for Business and Industry: Way Towards a Sustainable Economy (ICDABI) (pp. 1-7). Sakhir: IEEE. doi:10.1109/ICDABI51230.2020.9325661
- Asad, M., Haider, S. H., & Fatima, M. (2018). Corporate social responsibility, business ethics, and labor laws: A qualitative analysis on SMEs in Sialkot. *Journal of Legal, Ethical and Regulatory Issues*, 21(3), 1-7.
- Asad, M., Kashif, M., Sheikh, U. A., Asif, M. U., George, S., & Khan, G. u. (2021). Synergetic effect of safety culture and safety climate on safety performance in SMEs: Does transformation leadership have a moderating role. *International Journal of Occupational Safety and Ergonomics*, 1-7. doi:10.1080/10803548.2021.1942657
- Asad, M., Shabbir, M. S., Salman, R., Haider, S. H., & Ahmad, I. (2018). "Do entrepreneurial orientation and size of enterprise influence the performance of micro and small enterprises? A study on mediating role of innovation. *Management Science Letters*, 8 (10), 1015-1026. doi:10.5267/j.msl.2018.7.008
- Ashton, D., Lloyd, C., & Warhurst, C. (2017). Business strategies and skills. *The Oxford Handbook of Skills and Training*.
- Batalla-Busquets, J. M., & Martínez-Argüelles, M. J. (2014). Determining factors in online training in companies. *International Journal of Management Education*, 12(2), 68-79. doi:https://doi.org/10.1016/j.ijme.2014.01.002
- Becker, K., Fleming, J., & Keijsers, W. (2012). E-learning: ageing workforce versus technology-savvy generation. *Education & Training*, 54(5), 385-400. doi:https://doi.org/10.1108/00400911211244687
- Budiardjo, E. K., Pamenan, G., Hidayanto, A. N., & Cofriyanti, E. (2017). The impact of knowledge management system quality on the usage continuity and recommendation intention. *Knowledge Management & E-Learning: An International Journal*, 9(2), 200- 224.
- Chary, K. G. (2016). Essentiality of E-Learning to The Developing Countries. *E-Learning*. 12(3).
- Chaubey, A., Sahoo, C. K., & Das, K. C. (2021). Examining the effect of training and employee creativity on organizational innovation: A moderated mediation analysis. *International Journal of Organizational Analysis*. doi:https://doi.org/10.1108/IJOA-06-2020-2271
- Chen, Y., Liu, D., Tang, G., & Hogan, T. M. (2021). Workplace events and employee creativity: A multistudy field investigation. *Personnel Psychology*, 74(2), 211-236.
- De Clercq, D., Mohammad Rahman, Z., & Belausteguigoitia, I. (2017). Task conflict and employee creativity: The critical roles of learning orientation and goal congruence. , 56(1). *Human Resource Management*, 56(1), 93-109.
- Duan, S., Liu, Z., & Che, H. (2018). Mediating influences of ethical leadership on employee creativity. *Social Behavior and Personality: An International Journal*, 46(2), 323-337.

- Ebersöhn, L. (2019). Training educational psychology professionals for work engagement in a context of inequality and trauma in South Africa. *South African Journal of Education*, 39(1).
- EÉk, N., Romberg, K., Siljeholm, O., Johansson, M., Andreasson, S., Lundgren, T., . . .
- Hammarberg, A. (2020). Efficacy of an internet-based community reinforcement and family training program to increase treatment engagement for AUD and to improve psychiatric health for CSOs: A randomized controlled trial. *Alcohol and Alcoholism*, 55(2), 187-195.
- Filieri, R., & Willison, R. (2016). Antecedents of knowledge sourcing and reuse from a knowledge repository in the virtual product prototyping: The role of knowledge and system quality dimensions. *Knowledge and Process Management*, 23(2), 147-160.
- Guan, X., & Frenkel, S. (2018). How perceptions of training impact employee performance: Evidence from two Chinese manufacturing firms. *Personnel Review*, 48(1), 163-183. doi:<https://doi.org/10.1108/PR-05-2017-0141>
- Haider, S. H., Asad, M., & Aziz, A. (2015). A survey on the determinants of entrepreneurial training effectiveness among micro finance institutions of Malaysia. *Mediterranean Journal of Social Sciences*, 6(6 S4), 396-403. doi:[10.5901/mjss.2015.v6n6s4p396](https://doi.org/10.5901/mjss.2015.v6n6s4p396)
- Haider, S. H., Asad, M., Fatima, M., & Abidin, R. Z. (2017). Microfinance and performance of micro and small enterprises: Does training have an impact. *Journal of Entrepreneurship and Business Innovation*, 4(1), 1-13. doi:<https://doi.org/10.5296/jebi.v4i1.10566>
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Editorial-partial least squares structural equation modeling: Rigorous applications, better results and higher acceptance. *Long Range Planning*, 46(1), 1-12.
- Hanaysha, J., & Tahir, P. R. (2016). Examining the effects of employee empowerment, teamwork, and employee training on job satisfaction. *Procedia-Social and Behavioral Sciences*, 219, 272-282. doi:<https://doi.org/10.1016/j.sbspro.2016.05.016>
- Hong, J., Hou, B., Zhu, K., & Marinova, D. (2018). Exploratory innovation, exploitative innovation and employee creativity: The moderation of collectivism in Chinese context. *Chinese Management Studies*, 12(2), 268-286. doi:<https://doi.org/10.1108/CMS-11-2016-0228>
- Ismail, H. N., Iqbal, A., & Nasr, L. (2019). Employee engagement and job performance in Lebanon: The mediating role of creativity. *International Journal of Productivity and Performance Management*, 68(3), 506-523. doi:<https://doi.org/10.1108/IJPPM-02-2018-0052>
- Jaiswal, D., & Dhar, R. L. (2017). Impact of human resources practices on employee creativity in the hotel industry: The impact of job autonomy. *Journal of Human Resources in Hospitality and Tourism*, 16(1), 1-21. doi:<https://doi.org/10.1080/15332845.2016.1202>
- Jun, M., & Palacios, S. (2016). Examining the key dimensions of mobile banking service quality: aAn exploratory study. *International Journal of Bank Marketing*, 34(3), 307–326. doi:<https://doi.org/10.1108/IJBM-01-2015-0015>

- Knippenberg, D. v., & Hirst, G. (2020). A motivational lens model of person× situation interactions in employee creativity. *Journal of Applied Psychology*, 105(10), 1129–1144. doi:<https://doi.org/10.1037/apl0000486>
- Kondratyuk, T. V. (2018). Fourth industrial revolution: What competences are necessary for employees? *Strategic Decisions and Risk Management*, 3, 66-79.
- Li, S. X., & Sandino, T. (2018). Effects of an information sharing system on employee creativity, engagement, and performance. *Journal of Accounting Research*, 56(2), 713-747.
- Lund, M., Byrge, C., & Nielsen, C. (2017). From creativity to new venture creation: A conceptual model of training for original and useful business modelling. *Innovation*, 3.
- Milakovich, M. E., & Wise, J.-M. (2019). Improving the quality of online programs. In *Digital Learning*. Edward Elgar Publishing.
- Noe, R. A., & Kodwani, A. D. (2018). *Employee Training and Development*. McGraw-Hill Education.
- Ogueyungbo, O. O., Chinonye, L. M., & Igbinoba, E. (2019). The relationship between information interpretation and employee affective engagement: A literature review. *5th International Conference on Advances in Education and Social Sciences*.
- Organization, W. H. (2016). *Global strategy on human resources for health: Workforce*. Pacansky-Brock, M. (2013). *Best practices for teaching with emerging technologies*. Routledge.
- Peng, H., & Wei, F. (2018). Trickle-down effects of perceived leader integrity on employee creativity: A moderated mediation model. *Journal of Business Ethics*, 150(3), 837–851.
- Proctor, T. (2018). *Creative problem solving for managers: developing skills for decision making and innovation*. . Routledge.
- Ramayah, T., Ahmad, N. H., & Lo, M.-C. (2010). The role of quality factors in intention to continue using an e-learning system in Malaysia. *Procedia Social and Behavioral Sciences*, 2, 5422-5426. doi:10.1016/j.sbspro.2010.03.885
- Randel, A. E., & Jaussi, K. S. (2017). The role of uniqueness in facilitating creativity in employees' self-concepts. *Academic Press*, 289-299.
- Rego, A., Cunha, M. P., Júnior, D. R., Anastácio, C., & Savagnago, M. (2018). The optimism-pessimism ratio as predictor of employee creativity: the promise of duality. *European Journal of Innovation Management*, 21(3), 423-442. doi:<https://doi.org/10.1108/EJIM-07-2017-0087>
- Ritchie, J. (2013). Creating a monster: Online media constructions of hillary clinton during the democratic primary campaign. *Feminist Media Studies* , 13(1), 102-119. doi:<https://doi.org/10.1080/14680777.2011.647973>
- Sarstedt, M., M.Ringle, C., Smith, D., Reams, R., & F.HairJr, J. (2014). Partial least squares structural equation modeling (PLS-SEM): A useful tool for family business researchers. *Journal of Family Business Strategy*, 5(1), 105-115. doi:<https://doi.org/10.1016/j.jfbs.2014.01.002>

- Senaratne, H., Mobasher, A., Ali, A. L., Capineri, C., & Haklay, M. (2017). A review of volunteered geographic information quality assessment methods. *International Journal of Geographical Information Science*, 31(1), 139-167.
- Sendawula, K., Kimuli, S. N., Bananuka, J., & Muganga, G. N. (2018). Training, employee engagement and employee performance: Evidence from Uganda's health sector. *Cogent Business & Management*, 5(1). doi:<https://doi.org/10.1080/23311975.2018.1470891>
- Shao, Y., Nijstad, B. A., & Täuber, S. (2017). Paradoxical leader behavior and creativity: The role of employee cognitive complexity. *Academy of Management Proceedings*.
- Sharma, S. K., & Sharma, M. (2019). Examining the role of trust and quality dimensions in the actual usage of mobile banking services: An empirical investigation. *International Journal of Information Management*, 44, 65-75.
- Shelley Xin Li, T. S. (2018). Effects of an information sharing system on employee creativity, engagement, and performance. *Journal of Accounting Research*, 56(2), 713-747. doi:<https://doi.org/10.1111/1475-679X.12202>
- Sobolev, A., Kurakin, A., Pakhomov, V., & Trotsuk, I. (2018). Cooperation in rural russia: Past, present and future. *Mir Rossii*, 27(1), 65-89.
- Song, M., Qiao, L., & Law, R. (2020). Formation path of customer engagement in virtual brand community based on back propagation neural network algorithm. *International Journal of Computational Science and Engineering*, 22(4), 454-465.
- Tang, G., Yu, B., Cooke, F. L., & Chen, Y. (2017). High-performance work system and employee creativity: The roles of perceived organisational support and devolved management. *Personnel Review*, 46(7), 1318-1334. doi:<https://doi.org/10.1108/PR-09-2016-0235>
- Tate, M. A. (2018). How to evaluate and create information quality on the web. Vila-Vázquez, G., Castro-Casal, C., & Álvarez-Pérez, D. (2020). From LMX to individual creativity: Interactive effect of engagement and job complexity. *International Journal of Environmental Research and Public Health*, 17(8). doi:<https://doi.org/10.3390/ijerph17082626>
- Wang, S., Liu, Y., & Shalley, C. E. (2018). Idiosyncratic deals and employee creativity: The mediating role of creative self-efficacy. *Human Resource Management*, 57(6), 1443-1453.
- Wang, Z., Liu, D., & Cai, S. (2019). Self-reflection and employee creativity: The mediating role of individual intellectual capital and the moderating role of concern for face. *Chinese Management Studies*, 13(4), 895-917. doi:<https://doi.org/10.1108/CMS-09-2018-0683>
- Widiyanto, N., Sandhyaduhita, P. I., Hidayanto, A. N., & Munajat, Q. (2016). Exploring information quality dimensions of government agency's information services through social media: A case of the Ministry of Education and Culture in Indonesia. *Electronic Government, an International Journal*, 12(3), 256-278.
- Younas, A., Wang, D., Javed, B., Rawwas, M. Y., Abdullah, I., & Zaffar, M. A. (2018). Positive psychological states and employee creativity: The role of ethical leadership. *The Journal of Creative Behavior*.

Zaitouni, M., & Ouakouak, M. L. (2018). The impacts of leadership support and coworker support on employee creative behavior. *International Journal of Productivity and Performance Management*.

Zhang, X., & Bartol, K. M. (2010). The influence of creative process engagement on employee creative performance and overall job performance: A curvilinear assessment. *Journal of Applied Psychology*, 95(5), 862–873. doi:<https://doi.org/10.1037/a0020173>

Zhou, L., Zhao, S., Tian, F., Zhang, X., & Chen, S. (2018). Visionary leadership and employee creativity in China. *International Journal of Manpower*, 39(1), 93-105. doi:<https://doi.org/10.1108/IJM-04-2016-0092>