# Theory of Planned Behavior (TPB) and Technology Acceptance in Employee Development During COVID-19 Crisis

**Benić, Jelena**

# Theory of Planned Behavior (TPB) and Technology Acceptance in Employee Development During COVID-19 Crisis

Jelena Benić

Rochester Institute of Technology Croatia

HSPT.490.700-702 – Senior Capstone Project

Dr.sc. Besim Agušaj

Professor Rebecca Charry

May 3, 2021

## Abstract

Employee development, as an important practice in any businesses, experienced a disruption due to COVID-19 crisis. In-person training being the most common way of employee training, HR professionals had to adapt the usual training and development practices by using technology. This paper investigated the employees' level of technology acceptance using the Theory of Planned Behavior model, which tests their attitude, subjective norm, perceived behavioral control and behavioral intention. In order to get the results, a questionnaire was distributed to 95 employees in an online format. The questionnaire measured the four variables from the TPB model. The results confirmed that employees' attitude, subjective norm and perceived behavioral control are in positive relationship with behavioral intention. However, the behavioral intention showed the lowest results suggesting employees are hesitant were deciding to engage in an online training and development if they are given another option available, such as in-person training. Implications for HR professionals involve designing an online training program which will be positively embraced by employees in their further career development.

*Keywords:* employee development, technology acceptance, TPB model, attitude towards technology, subjective norm, perceived behavioral control, behavioral intention

## Theory of Planned Behavior (TPB) and Technology Acceptance in Employee Development During COVID-19 Crisis

Employee development is a proactive strategy, in which companies try to improve and enhance employee skills, knowledge and competencies which will benefit both the organization and the employee (Hosmer, 2015). Successful companies consider this as a vital aspect because employees, according to many studies, confirmed they are a key competitive differentiator (Jassim, 1998; Aşçı, 2017; Pease& Lai, 2015). Employees are the ones that drive the growth and market success in the long run. Therefore, investing in their development should be one of the primary goals of every company. There are various modes of training and development delivery with in-person training and development being most common (Herold, 2005; Hofmann and Miner, 2009). Today, HR professionals are facing a major challenge since they need to either cancel or postpone training and development activities due to COVID-19 pandemic. The level of crisis is unprecedented and HR departments never faced this type of disruption before. One of the options available to organizations to overcome this challenge is to drive technology into their practice of employee training and development.

HR departments' role, among other responsibilities, is to expand employees' knowledge and skills through various training methods; workshops, group discussions, one on one training different incentives initiatives etc. But now things have changed. Due to COVID-19, employees are not able to have face-to-face meetings and trainings. Therefore, they need to move T&D practice online by using technology. The question is whether employees are willing to embrace online training and development and what is their experience so far? Hence the purpose of our research project; we will try to examine the level of technology

acceptance by HR departments and delivering employee training and development in the context of the COVID-19 crisis.

**Online Employee Development**

The following literature review is concentrated on the terminology associated with the technology usage in employee development in the context of COVID-19 crisis. The first part of the literature review will focus on explaining technology acceptance in corporations for the purpose of employee development. The benefits and risks associated with the application of technology will be further discussed, as well as the additional factors influencing employees´ acceptance. Additionally, we will explain the Theory of Planned Behavior Model, along with the three variables *attitude towards using technology, subjective norm and perceived behavioral control.*

Adopting new technologies will improve the company's competitiveness, especially in the market where change is constant and stable (Giovanni Mariani, 2013; Zeuch, 2016). Ong (2016) has studied the importance of training and development opportunities in a company for further growth. The study found that many talented employees will leave the company due to the lack of those opportunities. Nevertheless, past experiences in training and development will influence the intention to engage in online training and development (Brown, 2013).

In recent years, with the technology development, there has been an increasing amount of literature regarding online (virtual) employee training and development and their acceptance of technology. The current crisis with COVID-19 has forced companies to move the business online using technology. The companies responded to COVID-19 pandemic in 2020 by providing remote work for their employees. A recent study done by Cheng-Jui and Tzu-Chia

(2020) has proven how employee development is one of the operations carried online in the service industries. The aim of that study was to evaluate the three types of virtual teaching methods: video tutorial, computer-aided teaching and web-based teaching. The last one significantly upgraded the employee performance learning, which is connected to their learning motivation. Web-based teaching helped instructors deliver the training online the same as they would do it in-person, but with no time or space limitations.

However, the phenomenon of technology transforming corporate training and has been growing exponentially even before COVID-19 (Torrent-Sellens et al., 2016). Rand (1996) concluded how 20 percent of the corporations´ budget was used for the delivery of online training. Back then, he warned HR professionals that the technology will shape the corporate employee training and development. Furthermore, Zeuch (2016) explained how a company introduced virtual seminars, which proved to be effective, in order to cut costs due to the 2009 world crisis.

**Technology Acceptance in Employee Development**

With the rapid development of technology in the Industry 4.0, companies will have to adapt their business model to new changes, employee training and development being one of them. Many well-developed companies have adjusted their employee development by introducing online learning and online training is part of the online learning (e-learning) (Titan, 2014).

A recent study by Molino et al. (2020) has analyzed the impact of employees´ personal and organizational antecedents on the technology acceptance among employees. According to the study, the implementation of technology should be a strategic decision. HR professionals should first introduce the usage of new technology to the employees by raising awareness. Secondly, training should be offered to all employees to improve their skills and knowledge.

And lastly, courses aimed at teaching the employees how to use the new technologies should be developed.

For the virtual training to be effective employees need to feel engaged and their attention should be captured by the instructors (McBride, 2020). Employees are more likely to accept technology if they perceive the provided online training is easy-to-use and if they feel comfortable while using it (Hashim, 2008).

Several studies have revealed factors which affect the employees´ overall experience with technology usage. One of the most common is the peer influence (Development and Learning in Organisations, 2017). This social norm plays an important role when examining if employees have embraced the online training. More recently, Ghanem (2020) has examined the relationship between employees' satisfaction with the Information Systems (IS) qualities and their intention to use this type of technology. Based on the results, trust has a direct influence on the employees´ intention to use this type of technology system. Another characteristic that most companies need to poses in order to be willing to accept online training is learning agility and resilience (Bennett, 2021). Therefore, companies need to adopt these characteristics into their corporate culture, with their management team which influences employees´ overall satisfaction with online practices (Istrate, 2017).

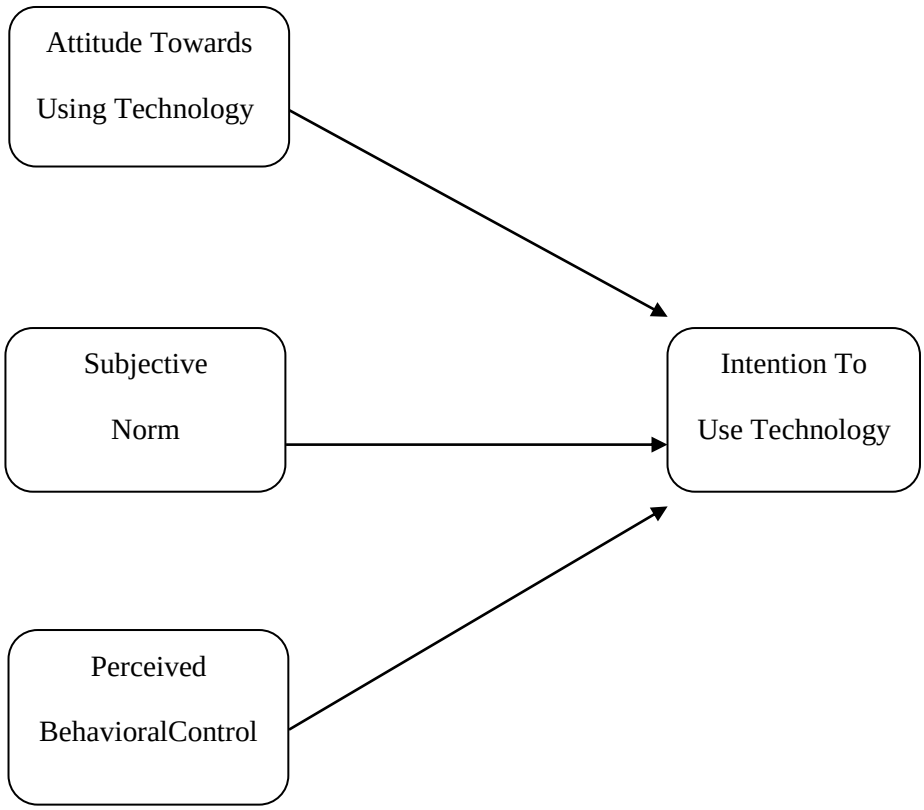
Considering the age and gender as factors for accepting technology, online training is mostly accepted by young female employees with high job ambition (Torrent-Sellens et al., 2016). The intention to use web-based training has been investigated by Chatzoglou et al. (2009). The results showed that work enjoyment, perceived usefulness and perceived ease of use have a direct impact on the employees´ intention to use web-based training. This is consistent with the study of Marler et al. (2006), which concluded employee resources are essential in the intention to use technology when is becomes mandatory and not optional.

The role of managers, as leaders in the technological change has increased, as well. The support from the top management in organization plays an important role in employees´ intention to accept technology (Scholl and Baldus, 2015). Wang (2018) supported these claims where a company´s environment can influence the adoption of technology. He explained if the employees have the desired autonomy in job duties, the e-learning will be most likely perceived as useful.

**The Theory of Planned Behavior**

The model used in this senior project is the Theory of Planned Behavior (Ajzen, 1991). The TPB model investigates the effects of *attitude towards using technology, subjective norm and perceived behavioral control* on the *intention to use technology*. To better meet the needs of our study Ajzen's TPB model will be adjusted. By using the modified TPB model, we will test the level of employee acceptance of technology utilization in an online employee development context forced by COVID-19 crisis.

The following model and hypothesis will be tested:




Hypotheses:

According to Ajzen, *attitude toward using technology* represents "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991). It is used to evaluate the amount of a like or dislike for a specific action. When testing the technology acceptance in employee development during COVID-19, the attitude toward using technology depends on the subjective employee´s assessment of the outcomes of using technology, as well as the subjective employee´s assessment of the importance of those outcomes. Following the facts, the paper proposes the first hypothesis:

H1: Attitude toward using technology is positively related to employees´ intention to use technology.

The second determinant of the TPB model is the *subjective norm*, which Ajzen describes as "the perceived social pressure to perform or not to perform the behavior" (Ajzen 1991). Subjective norm stresses the importance of others´ opinions when trying to evaluate the intention to act in a particular behavior. Other groups can influence the individual´s intention to use technology based on their beliefs and established social norms. Therefore, the second hypothesis will be tested:

H2: Subjective norm is positively related to employee intention to use technology.

Lastly, the third determinant of the intention to use technology among employees is the *perceived behavioral control*, which "refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles (Ajzen, 1991). In the paper, the TPB model connects the intention to use technology with the employee´s confidence in their proficiency and capability to use technology. The paper establishes the third hypothesis as bellow:

H3: Perceived behavioral control is positively related to employee intention to use technology in employee development.

## METHOD

The method used in this research to collect data is a questionnaire. Although it is considered to be an easy and prompt instrument and one of the most used data collection tool, the design of a questionnaire is a complex process which takes many factors into consideration. The respondents need to be willing to participate in the process with precisely written questions in an understandable language and logical order (Wilson, 2013).

Consistency is ensured in the data collection process while using questionnaires, especially since it contains the same set of carefully written questions (Hague, 2013). During this research each respondent was provided with the same questions. Among three different types of questionnaires, this research used the structured type. The benefit of this type of questionnaire is its large sample size, without the time and space limitation (Hague, 2013). The quantitative approach is used and the data is collected in person or via e-mail. This research uses closed questions which were distributed to all respondents. To be precise, each question is presented with possible answers among which respondents can choose the appropriate one. Furthermore, the structured questionnaire is simple to fulfil and the given answers can be easily generated (Ekinci, 2015).

As mentioned, one of the major limitations of the questionnaires is the design complexity. There is a threat that the questions might be uncertain or too general. Nevertheless, when designing questionnaires, the answers should not be suggested implicitly. The questions should not be "leading". The respondents need to be comfortable when answering the questionnaire in order to get the most reliable results (Rowley, 2014).

In order to ensure the research reliability and consistency, an existing questionnaire from the Theory of Planned Behavior model was used (White Baker et al., 2007). The existing framework was adjusted focusing on the TPB objectives. In this research, following the quantitative method, the greatest results are achieved using the distributed questionnaire because of the large sample area. In this study, there were four variables measured by the questionnaire: *attitude, subjective norm, perceived behavioral control* and *behavioral intention*. Respondents had to answer 15 questions which are measured on a seven-point Likert scale.

The first five questions, which measure the attitude towards a specific behaviour, are evaluated by the same sentence: “For me to attend online employee training and development on a regular basis is.“ To answer these questions different adjectives were used on a seven-point Likert scale, at whose extreme poles are opposite adjectives (*extremely difficult-extremely easy, extremely bad-extremely good* etc.). Each degree signifies a step closer to an adjective or adverb of one meaning or another.

In order to measure *subjective norm, perceived behavioral control* and *behavioral intention*, the next nine questions, three questions for each variable, were evaluated using a seven-point Likert scale, ranging from *Extremely disagree – Extremely agree.*

In the three questions associated with measuring subjective norm, respondents had to focus on the highlighted words. Each of the three questions had three different verbs highlighted and they were connected with the opinions others have for us. For example, one question states: “Most people who are important to me **think** I should participate in online employee training and development“, whereas the next question follows. “Most people who are important to me **want** me to participate in online employee training and development.“

The last question, the fifteenth question does not measure any given variable, but it describes if the respondents had participated in an online employee training and development during COVID-19 crisis.

Lastly, in order to gain the demographic data about the sample, four questions were requested in the end of the questionnaire. Respondents had to answer about their age group, gender, their education level and the industry they are currently working for.

To collect data more effectively, the questionnaire was constructed in an online format and distributed via e-mail and social media platforms.

## SAMPLE

Once we closed the questionnaire internet link, a total of 95 respondents were counted. Respondents were employees who are familiar with online employee training and development. Looking at the gender category, most of the respondents were females (72.63%). In other demographic categories, the sample is fairly well distributed, this includes the number of respondents across generations with younger generation category being more represented compared to other generational categories. To be precise, 40 out of 95 respondents are in the age category 18-24 years. When looking at the education level, the most common answer was “graduate“ with the score of 58.95%. Finally, the respondents were asked to indicate which industry they are employed in. In this category there were eight options with the ninth option being “others“. Considering the sample of 95 respondents, most were employed in the hospitality (27.37%). The second choice was the education sector (17.89%), and then the health care (13.68%). In the end, finance and insurance was the employment industry of 12.63% of respondents.

Table 1

*Demographic Profile of Respondents*

| | N | % |
|---|---|---|
| **Gender** | | |
| Male | 26 | 27,37% |
| Female | 69 | 72,63% |
| **Age** | | |
| 18-24 | 40 | 42,11% |
| 25-34 | 25 | 26,32% |
| 35-44 | 10 | 10,53% |
| 45-54 | 15 | 15,79% |
| 55-64 | 5 | 5,26% |
| 65+ | 0 | 0,00% |
| **Education** | | |
| Less than HS | 0 | 0,00% |
| High School | 20 | 21,05% |
| Graduate | 56 | 58,95% |
| Higher studies | 19 | 20,00% |
| **Industry** | | |
| Hospitality | 26 | 27,37% |
| Telecommunications | 1 | 1,05% |
| Finance and Insurance | 12 | 12,63% |
| College, University and Adult Education | 17 | 17,89% |

| | | |
|---|---|---|
| Health Care | 13 | 13,68% |
| Arts, Entertainment, and Recreation | 4 | 4,21% |
| Government and Public Administration | 4 | 4,21% |
| Scientific or Technical Services | 6 | 6,32% |
| Other | 12 | 12,63% |
| **Participation** | | |
| Yes | 58 | 61,05% |
| No | 37 | 38,95% |

**Source: Author**

## RESULTS

The respondents' attitude towards using technology in an online employee training and development was leaning toward favourable (M=4.87, SD=1.56). They tend to self-report positively about online employee training and development usage .When it comes to the second variable, subjective norm, the results show the same outcome. Even though the next three variables are evaluated based on the level of agreement or disagreement, most respondents reported they are impartial when looking at the influence others have on them (M=4.6, SD=1.58). However, the highest results have been reported by the third variable, perceived behavioural control (M=5.13, SD=1.96). Most of the 95 respondents would agree and argue that they are capable of participating in an online employee training and development. To be precise, these results suggest the respondents believe they have the right resources, knowledge and ability to participate in such training. Lastly, when it comes to the behavioural intention, specifically the action of engaging in online training, the majority of

respondents were indicating a more neutral position, if they had the option to choose from another training and development method available (M=3.79, SD=1.88).It was not required of the respondents to have a past experience in online training and development. However, the last question revealed if they participated before in this type of employee training. According to the 95 responses, more than half respondents, to be precise 61.05% responded positively, which means they actually have participated in online training and development.

Table 2

*Descriptive Statistics*

| | Min | Max | Average | SD |
|---|---|---|---|---|
| Attitude | 5 | 35 | 4,87 | 1,56 |
| Subjective Norm | 3 | 21 | 4,60 | 1,58 |
| Perceived Behavioural Control | 6 | 21 | 5,13 | 1,96 |
| Behavioural Intention | 3 | 21 | 3,79 | 1,88 |

Source: Author

Furthermore, in this study the four variables were tested for the correlation coefficient to see if they are connected and to test whether the proposed research hypotheses are valid. The Microsoft Excel software package was used as a tool to establish the correlation.

The following hypotheses were tested:

*H1: Attitude toward using technology is positively related to employees' intention to use technology.*

In order to examine our first hypothesis, we employed the correlation coefficient analysis for the variables; attitude towards technology and behavioral intention. The results showed

correlation coefficient of high statistical significance of 0.65 ($p<0.01$), meaning that these two variables are in positive relationship. Therefore, our first hypothesis is confirmed.

*H2: Subjective norm is positively related to employee intention to use technology.*

When testing the hypothesis connected with the subjective norm and behavioral intention, the correlation coefficient also showed high statistical significance of 0.53 ($p<0.01$).Therefore, we can conclude that the second hypothesis was confirmed as well.

*H3: Perceived behavioral control is positively related to employee intention to use technology in employee development.*

The third hypothesis concerning the positive relationship between perceived behavioral control and the behavioral intention turned out to have the highest correlation coefficient ($r=0.74$, $p<0.01$). Thus, expected positive relation between these two variables [H3] was detected and found to be significant, and confirmed our third hypothesis.

In table 3, relationships between variables are presented.

Table 3

*Correlation between variables*

| | ATT | SN | PBC | BI |
|---|---|---|---|---|
| Attitude | - | 0,52** | 0,51** | 0,65** |
| SubjectiveNorm | | - | 0,5 | 0,53** |
| PerceivedBehavioralControl | | | - | 0,74** |
| BehavioralIntention | | | | - |

Source: Author

** p < 0.01

## DISCUSSION

The aim of this study was to evaluate the acceptance of technology by the employees through online training and development practices in the context of COVID-19 crisis. This paper used the Theory of Planned Behavior model as a framework for investigating the employees' past experience in online training and development by focusing on their attitude towards technology, subjective norm, perceived behavioural control and eventually the behavioural intention. Therefore, the primary goal was to examine if employees are willing to participate in online training. The findings of this study can help HR professionals in developing future online training and development programs to accommodate the employees' best interests. The importance of the study rises in the fact that employees are the companies' most valuable asset. Their career development and job satisfaction depends on the provided opportunity for training and development (Ong, 2016). To clarify which has the greatest influence on the employees' intention to participate, attitude, subjective norm and perceived behavioural control have been tested for the correlation significance with the behavioural intention. Overall, within this research, these three variables are found to be significant, positive determinants of the intention to participate in an online training and development.

Similar findings have confirmed to be consistent with our results, especially when it comes to the variable of perceived behavioural control, which has the highest result. Consistent with findings by Brown (2013) and Hashim (2008) we have verified how past experience with technology has the greatest influence on the future intention to participate in such activity involving technology usage. It is apparent that many people will choose to participate in an online employee training if they feel confident with technology and if they have positive past experiences. When it comes to the age of the respondents, we have found some variations among younger and older generations when asked about their willingness to participate in

online training. This result agrees relatively well with Torrent-Sellens et al. (2016), who claims younger generations are more likely to accept technology.

The most noticeable observation emerged from the data comparison was the fact that employees are slightly neutral, meaning hesitant, when deciding to engage in online training and development. The reason why this is the case is that they were also offered another option available, which is in-person training in regular classrooms. Although, all three variables, attitude, subjective norm and perceived behavioral control have shown high results, our findings highlight that employees still feel indecisive when asked to choose between online and in-person training. One interpretation of these results is that employees have a favorable attitude towards online training and development. Their family and friends, as well as other peers, provide support and encouragement. The past experiences have shown them they possess the right set of skills, knowledge and ability to participate in online training and development. Taken together, it would be expected for employees to show higher results when it comes to the intention to participate in such activity. However, the provided alternative of having traditional in-person training has made the employees question their decision.

The results of this study provide supporting evidence for all three hypotheses tested. The first hypothesis shows the correlation between attitude and behavioral intention, which has proven to be positively correlated. The more favorable attitude employees express towards participating in online training and development, the more they will actually engage in that activity. When looking at the adjectives tested for the attitude, employees have shown the highest results in thinking online training and development is extremely good and valuable. Therefore, we can assume they believe using technology offers certain value and benefit. On the contrary, for the same variable, the lowest results were shown when asked whether participating is boring or interesting. This information might indicate employees prefer in-

person training because of the live interaction, which helps them concentrate more on the training.

Second hypothesis, which tested the relationship between subjective norm and behavioral intention, showed again positive results. To be precise, there is a significant correlation between these two variables, meaning if employees feel they have the support from other people they care about, they will consider participating in an online training and development. The result is in the lines of earlier literature (Development and Learning in Organisations, 2017) that found peer pressure has a strong influence in deciding to engage in the technology usage. Additionally, employees have the desire for social conformity, which can be successful for the implementation of online training and development. Most people believe it is expected to move the business online, especially since COVID-19 started. Therefore, they would recommend people who they care about to participate in such an activity.

Our last hypothesis assumed the positive relationship between perceived behavioural control and behavioral intention, which has yielded the highest correlation coefficient. In order to engage as many employees in online training and development as possible, HR professionals can use this significant relationship as an advantage. It is interesting how respondents have shown highest results, almost extremely agreeing with the statement they have the kills, knowledge and ability needed to participate. However, when it comes to the easiness of use, they slightly disagree about engaging in online training. We may conclude employees feel they lack the agility and resilience needed to adapt to new technology innovations, which is consistent with the findings of Bennett (2021). Behavioral intention showed the most surprising results, indicating that employees slightly prefer in-person training rather than online training. Despite the favourable attitude, positive peer pressure, learning ability and knowledge, employees would rather choose the traditional way of employee training and development.

## Limitations

Although the present results clearly support our hypotheses, it is appropriate to recognize several potential limitations. A first limitation concerns the time period of 15 weeks. To be precise, the questionnaire was open for 10 days for respondents to fill it out. Overall, the actual timeline for collecting and processing data was less than 15 weeks. Furthermore, a relative small sample of 95 respondents was examined. In order to get more generalizable results a bigger sample could be used, meaning a greater number of respondents.

## Further Research

Since the COVID-19 crisis is relatively new, business have not yet adopted to it. Certain businesses are trying to work under these conditions as before, but many are still confused with the whole situation. In terms of future research, it would be useful to extend the current findings by interviewing HR professionals to see whether they are trying to implement online training and development.

**REFERENCES:**

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(2), 179-211. https://doi.org/10.1016/0749-5978(91)90020-T

Aşçı, M. S. (2017). A strategic differentiator in global competition: Talent management. International Journal of Commerce and Finance, 3(1), 51-58.

Bennett, E. E., & McWhorter, R. R. (2021). Virtual HRD's role in crisis and the post covid-19 professional lifeworld: Accelerating skills for digital transformation. Advances in Developing Human Resources, 23(1), 5-25. https://doi.org/10.1177/1523422320973288

Brown, K. G., &Charlier, S. D. (2013). An integrative model of e-learning use: Leveraging theory to understand and increase usage. Human Resource Management Review, 23(1), 37-49. https://doi.org/10.1016/j.hrmr.2012.06.004

Chatzoglou, P. D., Sarigiannidis, L., Vraimaki, E., &Diamantidis, A. (2009). Investigating greek employees' intention to use web-based training. Computers and Education, 53(3), 877-889. https://doi.org/10.1016/j.compedu.2009.05.007

Ekinci, Y. (2015). Designing research questionnaires for business and management students (1st ed.). SAGE Publications.

Ghanem, M., Elshaer, I., & Shaker, A. (2020). The successful adoption of IS in the tourism public sector: The mediating effect of employees' trust. Sustainability (Basel, Switzerland), 12(9), 3877. https://doi.org/10.3390/su12093877

Giovanni Mariani, M., Curcuruto, M., & Gaetani, I. (2013). Training opportunities, technology acceptance and job satisfaction: A study of italian organizations. The Journal of Workplace Learning, 25(7), 455-475. https://doi.org/10.1108/JWL-12-2011-0071

Hague, P. N., Hague, N., & Morgan, C. (2013). Market research in practice: How to get greater insight from your market (Second ed.). Kogan Page.

Hashim, J. (2008). Factors influencing the acceptance of web-based training in malaysia: Applying the technology acceptance model. International Journal of Training and Development, 12(4), 253-264. https://doi.org/10.1111/j.1468-2419.2008.00307.x

Herold, R., Skillsoft Corporation, & Books24x7, I. (2005). Managing an information security and privacy awareness and training program. Auerbach Publications.

Hofmann, J., Miner, N., Skillsoft Corporation, & Books24x7, I. (2009). Tailored learning: Designing the blend that fits (1st ed.). ASTD Press.

Hosmer, D., & Skillsoft Corporation. (2015). The manager's guide to employee development. ATD Press.

Istrate, O. (2017). Lessons learned from developing online training for humanitarians. Knowledge Management & e-Learning, 9(4), 419-432. https://doi.org/10.34105/j.kmel.2017.09.026

Jassim, R. K. ,& Jaber, G. (1998). Competitive advantage through the employees. Research paper. Auckland, New Zealand:University of Auckland.

Lee, Y., Hsieh, Y., & Hsu, C. (2011). Adding innovation diffusion theory to the technology acceptance model: Supporting employees' intentions to use E-learning systems. Educational Technology & Society, 14(4), 124-137.

Marler, J. H., Liang, X., &Dulebohn, J. H. (2006). Training and effective employee information technology use. Journal of Management, 32(5), 721-743. https://doi.org/10.1177/0149206306292388

McBride, K. (2020, June 17). Training and development in a post-COVID-19 workplace. *Training Industry*. https://trainingindustry.com/blog/strategy-alignment-and-planning/training-and-development-in-a-post-covid-19-workplace-cptm/

Molino, M., Cortese, C. G., &Ghislieri, C. (2020). The promotion of technology acceptance and work engagement in industry 4.0: From personal resources to information and training. International Journal of Environmental Research and Public Health, 17(7), 2438. https://doi.org/10.3390/ijerph17072438

Ong, D., &Jambulingam, M. (2016). Reducing employee learning and development costs: The use of massive open online courses (MOOC). Development and Learning in Organizations, 30(5), 18-21. https://doi.org/10.1108/DLO-08-2015-0066

Older employees and technology use: Factors that influence e-learning adoption. (2017). Development and Learning in Organizations, 31(5), 36-38. https://doi.org/10.1108/DLO-07-2017-0062

Pease, G., & Lai, W. (2015). Optimize your greatest asset--your people: How to apply analytics to big data to improve your human capital investments (1st ed.). Wiley.

Rand, A. (1996). Technology transforms training. Institute of Management & Administration.

Rowley, J. (2014). Designing and using research questionnaires. Management Research Review, 37(3), 308-330. https://doi.org/10.1108/MRR-02-2013-0027

Scholl H., Baldus A. (2015) Training and Qualification: Essentials of New Learning. In: Zeuch M. (eds) Handbook of Human Resources Management. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-642-40933-2_28-1

Titan, Effendi, A., & Trivena. (2014). Online training effect on employee skills development. Paper presented at the 288-291. https://doi.org/10.1109/ICoICT.2014.6914081

Torrent-Sellens, J., Ficapal-Cusí, P., & Boada-Grau, J. (2016). Dispositional employability and online training purchase. evidence from employees' behavior in spain. Frontiers in Psychology, 7, 831-831. https://doi.org/10.3389/fpsyg.2016.00831

Tseng, C., & Chen, T. (2020). Impact of web-based teaching on the learning performance of education and training in the service industry during COVID-19. Contemporary Educational Technology, 12(2), ep277. https://doi.org/10.30935/cedtech/8581

Wang, M., & SpringerLink (Online service). (2018). E-learning in the workplace: A performance-oriented approach beyond technology. Springer International Publishing.

White Baker, E., Al-Gahtani, S. S., &Hubona, G. S. (2007). The effects of gender and age on new technology implementation in a developing country: Testing the theory of planned behavior (TPB). Information Technology & People (West Linn, Or.), 20(4), 352-375. https://doi.org/10.1108/09593840710839798

Wilson, C. (2013). Credible checklists and quality questionnaires: A user-centered design method. Morgan Kaufmann.

Zeuch, M., & SpringerLink (Online service). (2016). Handbook of human resources management. Springer Berlin Heidelberg.