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SOCIOLOGICAL CHARACTERISTICS OF EMPLOYEES AS A DETERMINANT OF DISTANCE LEARNING: AN EMPIRICAL ANALYSIS

Abstract: Distance learning is an approach which is not new but is gaining on its actuality in occasion of pandemic of Covid-19 virus and for surely is becoming the part of "the new normal". Companies has oriented themselves toward this approach in order to provide new knowledge and competencies to their employees and to ensure that employees are "in trend" with changes happening on the market. Still, distance learning as approach hasn't been accepted by all employees in the same way and this fact depends on different determinants, among which the social one is important. The subject of the research in this paper is distance learning, respectively the influence of social determinants on application of this approach to learning. The aim of the research is to identify which social characteristics of the employees and at what level are determining acceptance and application of distance learning in organizations. For the needs of this paper has been conducted empirical analyzes in domestic and multinational companies operating in Serbia. The results of research in this paper represent the initial analyzes of distance learning determinants and can be used as the basis for the creation of plan and strategy of distance learning approach application.

Key words: distance learning, online courses, social characteristics, human resource management, Covid-19

1. INTRODUCTION

The Covid-19 virus pandemic affected all spheres of life, creating a "new normality." This pandemic, which began as a health crisis, soon began to have tragic and negative consequences for both the economy and education (Kaffenberger, 2021). In such a situation, it was necessary for organizations to find answers in order to maintain and ensure the smooth functioning of the business. One of the answers that have been imposed is distance learning, an approach that is not new, but gained in its relevance in a pandemic situation. Companies have turned to this learning because it safely enables employees to acquire new knowledge and skills, and thus improve business because employees are up to date with the changes taking place in the market. These changes are so fast that learning must never stop, and that is a fact that companies recognize. Constant learning has become a way of life due to the dynamic nature of modern society (Jacobs, 2013). It is also an opportunity that companies must take advantage of if they want to be competitive in the market. The use of digital and virtual learning programs was on the rise even before the advent of the COVID-19 virus, especially in the younger generations (McKinsey & Company, 2020). The pandemic has only increased and accelerated the use of distance learning.

Taking into account all the above, the subject of this paper is distance learning, ie the influence of social characteristics on the acceptance of this approach to learning. The aim of the research is to identify the sociological characteristics of employees that can determine whether distance learning will be accepted and applied. For the purpose of the work, an empirical research was conducted in companies operating in the Republic of Serbia. The comparative method yielded

results that represent an initial analysis of the determinants of distance learning and should serve to create and set a plan and strategy for distance learning approaches in companies in Serbia.

2. DISTANCE LEARNING

Distance learning is not new and has been present in society and business for years. It is certain that the pandemic of the COVID-19 virus encouraged and accelerated the spread of this type of learning. It can be said that distance learning is a formal and non-formal education, training and courses that take place, in groups or individually, through processes that use various information and communication technologies (Vasilj, Zovko & Vukobratović, 2017). This type of learning often seems like a simple process of "delivering" materials for learning and testing knowledge electronically, but the development and flexibility of information technology allows much more than that, different approaches, new methods and creativity, supported by technology that continues to develop (Saadat & Saadat, 2016). In fact, the use of distance learning in many companies has made a key difference in the way they organize training and development activities for their employees (Zornada & Pereira, 2005). This type of learning builds a competitive advantage in the market especially because business changes and innovation looking for solutions such as online learning. Traditional training often cannot be linked to new ways of doing business (Wrhambrecht & Co., 2020), but distance learning can. Not only that, but it also meets the current demand for rapid creation of learning resources related to business events, competitive development, product or other business needs (Čonková, 2013).

However, distance learning is not an approach that is accepted by all employees in the same way, because there is still a connection with the traditional approach. However, classroom training for most companies, especially international ones, becomes very expensive and difficult to organize (Wrhambrecht & Co., 2020). Consequently, it is very important to ensure the continuous implementation of distance learning systems, which means understanding the determinants that may have an impact on the acceptance of this type of learning. Therefore, the question arises whether distance learning, among other things, depends on sociological characteristics, such as gender, education, age and the like. Given the importance of distance learning and for sure, the increasing use of this type of learning, it is important to understand and determine which determinants affect its acceptance and application. Social characteristics of employees, such as gender, age and education, are imposed as a starting point that could be important for better understanding. They could also provide answers on how to enhance the organizational culture of distance learning in the company.

3. EMPIRICAL RESEARCH

Starting from the review of the literature in the field of distance learning, an empirical research was conducted which aims to determine the perception of employees about the possibility of applying this type of learning. The research was conducted through an anonymous questionnaire during the month of March 2021 among employees in domestic, state and multinational companies that operate in the territory of the Republic of Serbia and have online learning. Respondents expressed a degree of agreement with the findings using a five-point Likert scale (1- I do not agree at all, 5- I completely agree), followed by questions related to general data about the respondents. For data processing, statistical software SPSS and comparative method using t-test and ANOVA test were used. Table 1 shows the structure of the sample from the aspect of general characteristics of the respondents, which also represent the sociological characteristics that were taken into consideration for empirical analysis.

Reliability analysis was applied in the research, in order to determine whether the statements through which certain factors are measured are internally consistent. The Cronbach's alpha coefficient was applied to the set of statements examined in this paper. The value of the Cronbach's alpha coefficient is 0.878 and it is significantly higher than the minimum acceptable value at the level of 0.7, which indicates good internal consistency of the applied statements.

Table 1: Sample structure

Gender	**Frequency**	**Percentage**
Male	68	54,8
Female	56	45,2
Age	**Frequency**	**Percentage**
Until 30	23	18,5
31-40	68	54,8
41-50	24	19,4
More than 50	9	7,3
Level of education	**Frequency**	**Percentage**

High school	9	7,3
Vacational school	14	11,3
Faculty	49	39,5
Master studies	48	38,7
Phd	4	3,2

Source: Author's research

In order to understand the application of distance learning in companies in the Republic of Serbia, an empirical analysis was conducted. Given that the focus is on the social characteristics of the respondents, it was necessary to determine whether there is a difference in the perceptions of employees depending on gender, age and education.

Table 2: Items and t-test results: gender of respondents

Items	Gender	Mean	St. dev.	Levene's Test - Sig.	p
The company provided me with the necessary conditions for online training.	Male	3.82	1.078	0.449	0.095*
	Female	4.14	1.017		
Online learning is based on the use of interactive technologies (Zoom, Skype, Meet, etc.).	Male	4.25	0.799	0.203	0.063*
	Female	4.50	0.661		
I have the knowledge and skills I need for online learning.	Male	4.13	0.809	0.466	0.761
	Female	4.18	0.876		
There is a strong link between theories and practices of online training.	Male	3.18	1.092	0.043	0.001***
	Female	3.79	0.825		
The online training instructor is competent.	Male	3.85	0.868	0.985	0.175
	Female	4.07	0.912		
The online training instructor is well prepared.	Male	3.91	0.893	0.796	0.265
	Female	4.09	0.859		
During the online training, I gained new skills in the use of information and communication technologies	Male	3.46	0.999	0.307	0.041**
	Female	3.82	0.956		
Online training provides enough practical opportunities.	Male	3.22	0.928	0.007	0.000***
	Female	3.98	0.726		
Online training is more effective than traditional training.	Male	2.43	0.967	0.025	0.000***
	Female	3.04	0.914		
The content of the online training meets my needs.	Male	3.40	0.831	0.102	0.006***
	Female	3.79	0.706		
The organizational climate and culture in my company encourage employees to learn online.	Male	3.59	1.096	0.004	0.019**
	Female	4.00	0.831		
I enjoy online training.	Male	3.07	0.886	0.262	0.001***
	Female	3.61	0.908		
Notes: p<0,01***; p<0,05**; p<0,1*					

Source: Author's research

To identify potential differences in the respondents' answers regarding gender, the t-test and results were applied, in the form of descriptive statistics - arithmetic mean and standard deviation, as well as Leven's test and p values are given in Table 2.

Table 2 contains the results of the arithmetic mean (M) and standard deviation (SD) for each item depending on whether it is male or female. From these results, it can be noticed that the highest and the lowest arithmetic mean are in the same statements. Both male and female respondents expressed the most favorable attitude regarding the statement *Online learning is based on the use of interactive technologies (Zoom, Skype, Meet, etc.)*, and amounts to male respondents M = 4.25, and female M = 4.50. The most unfavorable attitude is related to the statement *Online training is more effective than traditional training*, and it amounts to M = 2.43 for male respondents, ie. M = 3.04 in females. It can be noticed that women in both cases have statistically more favorable attitudes. In terms of homogeneity, the lowest standard deviation is the same for both groups of respondents, and it is the attitude *Online learning is based on the use of interactive technologies (Zoom, Skype, Meet, etc.)* and is SD = 0.799 (male respondents) and SD = 0.661 (female). The

attitude *Organizational climate and culture in my company encourages employees to online learning*, SD = 1,096, and SD = 1,017, and they are the most heterogeneous in male respondents, have the lowest level of compliance in relation to gender.

By analyzing the results of the t-test it was found to have 7 results out of 12 that are below 0.05, indicating that there is a significant difference between the two groups. These are the statements *There is a strong connection between theories and practices of online training* (0.001), *During online training I gained new skills in the use of information and communication technologies* (0.041), *Online training provides enough practical opportunitie* (0.000), *Online training is more effective than traditional training* (0.000), *The content of online training meets my needs* (0.006), *Organizational climate and culture in my company encourage employees to learn online* (0.019) and *I enjoy online training* (0.001). The largest statistically significant difference was identified in the statement *Online training provides enough practical opportunitie* (0.000) and *Online training is more effective than traditional training* (0.000), where based on the obtained mean values it can be concluded that women better perceive distance learning opportunities than men and that they are therefore more willing to support companies' efforts in applying this approach. On the other hand, high values of standard deviation in these statements indicate high heterogeneity of attitudes in both women and men.

Such results, which indicate a difference in the perception of male and female respondents, can be explained in several ways. The statements for which the difference was determined by empirical analysis refer to the motivation for distance learning as well as to the outcomes of this type of training. Attitudes for which women respondents give more favorable attitudes mainly focus on the relationship between theory and practice, ie. they are related to the perception of the relationship between theory and practice, as well as to the satisfaction related to this type of learning, which is certainly directly related. Male respondents expressed a less favorable attitude regarding the relationship between theory and practice, as well as satisfaction with distance learning. This value is logical if we take into account that men are traditionally more oriented towards practical work, which is further encouraged by the fact that most respondents work in manufacturing, and accordingly, practical learning is their sphere and what they apply in everyday work. Also, men are thought to learn better with an instructor who is an expert (Kulturel-Konak, D'Allegro & Dickinson, 2011). This attitude can also be related to the practical part in traditional trainings because then the instructor is an expert in the given field and certainly most of such training, especially in the production activity, is of a practical nature. Certainly, this item is often not related to gender, as shown by research in which participants in distance learning find it interesting and effective, but still prefer the traditional system of learning in the classroom (Čonková, 2013).

On the other hand, it is noticeable that female respondents have a more favorable attitude in all differences, and this result can be interpreted by the fact that women are more oriented towards change and that they adapt to it easier and faster. It is believed that there is a significant tendency for women to adapt more easily to cultural changes than men (The Ohio Society of Certified Public Accountants). Distance learning certainly represents a major change in organizational culture to which, according to empirical analysis, females respond and respond more quickly. In fact, in this case, it can be related to the attitude that men are more often traditionalists than women and, accordingly, are less prone to change.

From the above, it can be concluded that in one part of the empirical analysis there is a significant difference between the perceptions of male and female respondents and that it is mainly related to attitudes regarding the relationship between theory and practice in distance learning and providing opportunities for practical work in this kind of online learning.

The analysis of the respondents' perception, depending on age and education, was conducted using the ANOVA test. Since both categories were more numerous than 3, which is a condition for using this test, the recoding of the existing categories was carried out. When it comes to age, respondents up to 30 years of age make up category 1, from 31 to 40 years of age category 2. Groups from 41 to 50 and over 50 years of age are grouped into one category. Table 3 shows the results of the ANOVA test in which the categorical variable age with three categories.

Table 3: Items and ANOVA test results: age of respondents

Items	Category 1 *vs.* Category 2		Category 1 *vs.* Category 3		Category 2 *vs.* Category 3	
	Mean difference	p	Mean difference	p	Mean difference	p
The company provided me with the necessary conditions for online training.	-.188	.744	-.308	.536	-.120	.855
Online learning is based on the use of interactive technologies (Zoom, Skype, Meet, etc.).	.038	.976	.028	.990	-.011	.998
I have the knowledge and skills I need for online learning.	.026	.991	.352	.267	.326	.157

There is a strong link between theories and practices of online training.	.008	.999	.084	.951	.077	.935
The online training instructor is competent.	.001	1.000	.017	.997	.016	.996
The online training instructor is well prepared.	-.203	.606	-.204	.671	-.001	1.000
During the online training, I gained new skills in the use of information and communication technologies	-.066	.959	-.236	.660	-.169	.703
Online training provides enough practical opportunities.	.166	.738	.315	.423	.149	.727
Online training is more effective than traditional training.	-.068	.957	-.209	.718	-.142	.780
The content of the online training meets my needs.	.210	.525	.194	.647	-.016	.995
The organizational climate and culture in my company encourage employees to learn online.	-.113	.888	-.062	.972	.051	.969
I enjoy online training.	-.077	.938	-.207	.696	-.130	.790
Notes: p<0,01***; p<0,05**; p<0,1*						

Source: Author's research

As there are no values in Table 3 that are less than or equal to 0.05, it is concluded that there are no statistically significant differences between the mean values of the dependent variable. This result can be unexpected if it starts from the position that members of the younger generations grew up with technology, so online learning is closer to them compared to the older ones. Nevertheless, it is favorable that the respondents of all age categories included in this research understand the importance of distance learning and apply it. This fact is a very important basis for creating an online learning strategy.

Recoding of categories was also performed when it comes to education. The group of high school and vacational school became category 1. The faculty is category 2, while category 3 is master's and doctoral studies. Table 5 shows the results of the ANOVA test in which the categorical variable is education with three categories.

For 10 out of 12 statements (Table 4), there are no statistically significant differences between the mean values of the dependent variable. Therefore, the results of subsequent tests are approached, it is a Tukey HSD test. For the item *Online training provides sufficient practical opportunities*, the p value is less than 0.1 and means that there is no statistically significant difference. However, for the statement *Online training is more effective than traditional training* p is .047, ie. is less than 0.05 and accordingly, it is concluded that there is a difference that is statistically significant, ie that group 1 and group 3 differ significantly statistically according to the perception related to this statement.

Group 1, ie. respondents with high school or vocational education have a more favorable attitude than group 3, which categorizes respondents who have completed master's or doctoral studies. This result may come as a surprise, especially if one considers research that concludes that the less educated have a less favorable attitude (Mohd, 2002). However, the result in which respondents with a lower level of education are "more favorable" in terms of the effectiveness of training can be related to the fact that respondents who have completed master's or doctoral studies have a longer period of learning and education behind them. Accordingly, they are mostly accustomed to the traditional school system, which involves learning in a group and in the classroom, ie. traditional form of training.

Table 4: Items and ANOVA test results: level of education

Items	Category 1 *vs.* Category 2		Category 1 *vs.* Category 3		Category 2 *vs.* Category 3	
	Mean difference	p	Mean difference	p	Mean difference	p
The company provided me with the necessary conditions for online training.	.296	.513	.212	.705	-.084	.917
Online learning is based on the use of interactive technologies (Zoom, Skype, Meet, etc.).	.065	.938	.007	.999	-.058	.921

I have the knowledge and skills I need for online learning.	.008	.999	-.062	.954	-.070	.909
There is a strong link between theories and practices of online training.	-.137	.858	.089	.937	.225	.514
The online training instructor is competent.	-.051	.972	-.251	.502	-.199	.502
The online training instructor is well prepared.	.122	.847	-.096	.901	-.219	.428
During the online training, I gained new skills in the use of information and communication technologies	-.152	.820	-.094	.926	.058	.954
Online training provides enough practical opportunities.	.068	.952	.456	.115	.387	.085*
Online training is more effective than traditional training.	.248	.572	.582*	.047**	.334	.198
The content of the online training meets my needs.	-.065	.945	.147	.743	.212	.380
The organizational climate and culture in my company encourage employees to learn online.	.071	.958	.057	.973	-.014	.997
I enjoy online training.	.088	.927	.204	.660	.116	.808
Notes: p<0,01***; p<0,05**; p<0,1*						

Source: Author's research

4. CONCLUSION

Technology has changed the way we live, work, think and learn (Wrhambrecht & Co., 2020). The COVID-19 virus pandemic has accelerated and stimulated the application of digital technologies in response to many organizational questions, including learning. Empirical analysis conducted in companies in the Republic of Serbia shows that the sociological characteristics of respondents, such as gender, can determine the perception of distance learning. This perception mainly refers to the inclusion of the practical part of training during online learning and it is certain that this item should be the focus when improving the distance learning process, because it is very important that employees recognize the possibility of practical application of this type of learning. Recognizing that distance learning is indeed a methodology, one can recognize the positive outcomes that this learning can offer both now and in the future (Shaikh, 2013). Sociological characteristics such as age and education generally do not have a statistically significant influence on employees' perception of distance learning. The contribution of this research is in laying the foundations for understanding and building a culture of distance learning in companies in Serbia. Future research should focus on identifying and identifying positive outcomes and outcomes of distance learning.

REFERENCES

Čonková, M. (2013). Analysis of Perceptions of Conventional and E-Learning Education in Corporate Training. *Journal of Competitiveness, 5* (4), 73-97.

Jacobs, P. (2013). The challenges of online courses for the instructor. *Research In Higher Education Journal 21*(1), 1-18.

Kaffenberger, M. (2021). Modelling the long-run learning impact of the Covid-19 learning shock: Actions to (more than) mitigate loss. *International Journal of Educational Development*, *81*, 102326.

Kulturel-Konak, S., D'Allegro, M. L., & Dickinson, S. (2011). Review of gender differences in learning styles: Suggestions for STEM education. *Contemporary Issues in Education Research (CIER)*, *4*(3), 9-18.

McKinsey & Company (2020). *Adapting workplace learning in the time of coronavirus*, accessed 18.04.2021. to https://www.mckinsey.com/business-functions/mckinsey-accelerate/our-insights/adapting-workplace-learning-in-the-time-of-coronavirus

Mohd. H. (2001). Integrating e-learning into the workplace. *The Internet and higher education*, *4*(3-4), 301-310.

Saadat, V., & Saadat, Z. (2016). Organizational learning as a key role of organizational success. *Procedia-Social and Behavioral Sciences*, *230*, 219-225.

Shaikh, F. F. (2013). E-learning trends issues and challenges. *International Journal of Economics. Commerce and Research*, *3*(2), 1-10.

The Ohio Society of Certified Public Accountants, *Women adapt to new tech faster than men*, accessed 19.4.2021. to https://ohiocpa.com/for-the-public/news/2018/09/04/women-adapt-to-new-tech-faster-than-men

Vasilj, M., Zovko, A., & Vukobratović, J. (2017). Potencijali e-učenja za unapređenje modela poučavanja odraslih. *Inovacije u nastavi-časopis za savremenu nastavu*, *30*(2), 82-97.

Wrhambrecht & Co. (2020). *Corporate e-learning: exploring a new frontier*, accessed 18.04.2021. to http://papers.cumincad.org/data/works/att/2c7d.content.pdf

Zornada, M. (2005). E-learning and the changing face of corporate training and development. *Managing global transitions*, *3*(1), 5.