Ljubica Janjetović[1]
Technical Faculty, University of Business Engineering
and Management Banja Luka, Bosnia and Herzegovina
Mihaela Popa
Department of Electrical Engineering and Industrial
Informatics Politehnica University of Timișoara, Romania
Simonida Vilić
Faculty of Philosophy, University of Business Engineering
and Management Banja Luka, Bosnia and Herzegovina
Darjana Sredić
Faculty of Philosophy, University of Business Engineering and Management Banja Luka, Bosnia and Herzegovina
Anna Staszewska
Akademia Górnośląska, Katowice Business University, Poland
Amalia Dascal
Department of Engineering and Management
Politehnica University of Timișoara, Romania

ATTITUDES OF PARTICIPANTS IN DIGITAL COMMUNICATION IN HIGHER EDUCATION ON THE IMPORTANCE OF SOCIAL SKILLS AND INNOVATIVE TEACHING METHODS IN THE TEACHING PROCESS[2]

Abstract

In today's educational environment, it has become essential for both educators and students to acquire digital communication skills and competencies. This is driven by the growing incorporation of digital information technologies into teaching and learning methods. Primarily, these skills and competencies center around the capability to utilize diverse technologies and digital tools for the purpose of sharing information and facilitating knowledge transfer between educators and students. Conversely, communicative and social skills,

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[1] ljubica.janjetovic@univerzitetpim.edu.ba

[2] The study was carried out in cooperation with the University of Business Engineering and Management in Banja Luka (Bosnia and Herzegovina), the Polytechnic University in Timisoara (Romania), and Akademia Górnośląska in Katowice (Poland) and is part of a larger, comprehensive study of digital communicative competencies and skills in the educational process, some of the results of which were presented at the International Conference ICAS 2023 in Hunedoara, but not published.

as well as teaching methods, tend to receive less attention in recent studies. The goal of this research was to explore the opinions of teachers and students in digital communication in higher education about the importance of social skills and innovative teaching methods that are recognized in earlier literature (see Stronge, 2007) as the basis of an effective teaching process. A collaborative effort involving three international universities led to the creation and distribution of two online questionnaires. Each university administered two separate questionnaires, one targeting teaching staff (n = 70) and the other aimed at undergraduate students (n = 237). Data analysis using the SPSS software enabled the generation of a meaningful depiction of the data. The study revealed numerous findings. For instance, students from all three countries showed a highly positive attitude towards social skills and innovative teaching methods in digital communication during the teaching process, while teachers did not. This discrepancy is particularly evident between students and teachers in Bosnia and Herzegovina. Also, the age of students significantly affects the importance they attach to these aspects of the educational process, while gender does not.

Keywords: digital communication, social skills, teaching methods, higher education, teaching process.

Introduction

The evolution of digital technology and its incorporation into the educational realm, particularly in communication within educational institutions, has brought about a fundamental transformation in the educational environment. This shift became particularly evident during the COVID pandemic, but even before its outbreak, many institutions had already switched to these teaching methods thanks to the advancement of technology and digital devices.

The impact of digital technologies on education is multi-faceted, affecting various levels of the educational system. For example, Siddiq and Scherer highlight changes related to "the availability of ICT resources at schools, internet accessibility, and the shift from traditional paper-and-pencil exams to computer-based assessments" (Siddiq & Scherer, 2016). Additionally, they note that many researchers emphasize the significance of "teacher computer self-efficacy" as a key factor driving the integration of digital communication into teaching and learning practices (Siddiq & Scherer, 2016).

The term digital communication in this research refers to the use of various technologies and digital equipment, devices, and channels (such as computers, phones, virtual platforms, e-mail services, internet resources, mobile chat applications, social networks and the like) for the purpose of information exchange and knowledge transfer between teachers and students. On the other side, there are terms like effective teaching and innovative teaching methods that require a more detailed theoretical definition.

According to Stronge (2007) teaching effectiveness stems from integrating elements across various categories. Stronge recognizes six overarching categories for

teaching effectiveness: prerequisites and class conditions; the teacher as a person; communication and classroom management and organization; planning and organizing for instruction including time allocation; implementing instruction; monitoring student progress and potential (Stronge, 2007, p.103) which can be manifested in the behavior in the classroom, knowledge transfer including appropriate teaching strategies, and interpersonal relationships between students and teachers. The effectiveness of the teaching process, according to Stronge (2007) can be achieved with the approaches like: active listening, fairness and respect, recognition, dedication and enthusiasm, interactions with students, responsiveness to situations and students' needs, finding the win-win solution in conflict situations, structured, yet flexible and spontaneous knowledge transfer, using personal experiences to provide real-world examples in teaching, thinking about and reflects on practice (Stronge, 2007, p.116), engaging students in higher-order thinking activities, such as problem-solving techniques, analytical thinking skills, and creativity (Stronge, 2007, p.69), using a variety of instructional strategies (Stronge, 2007, p.128), leadership (Stronge, 2007, p.170), and so on. Also, one of the important factors of effective teaching is the assessment of students' initial knowledge and understanding, as well as achievements, which the teacher should do based on feedback, before, during, and after the teaching process in order to adequately respond to the needs of the students, to form the instructions and chose effective teaching methods (Stronge, 2007). Some of the listed innovative teaching strategies and social skills described by Stronge (2007), were used in the design of the measuring instrument in this research. Here we emphasize that in our research we are dealing with social skills and teaching approaches, and not with personality traits of teacher.

Numerous other studies and research projects have also explored the role of digital communication in the educational process (see Park, & Yang, 2013; Khan et al., 2017; Makhzoum et al., 2021, Scheuermann & Pedró, 2009; Griffin & McGraw, 2012). Some scholars, like Rodríguez-García et al. (2022) and Johanson et al. (2023), investigated the relationship between communication procedures and student achievement. They observed a direct connection between student achievement and effective teacher communication. Conversely, other researchers, such as Hattie (2003) and Korthagen (2004), examined how teachers can influence students' development and success. Additionally, as evidenced by study by Poulou (2007), several studies have looked into teachers' views of their own efficacy beliefs and confidence as factors to educational advancement. Poulou (2007) also highlighted that "student teachers' personality traits, capabilities, and motivation" (p.213) could serve as potential contributors to personal teaching efficacy. Also, McCrae and Costa have conducted extensive research on personality traits in the context of education applying the five-factor theory of personality and even developed different instruments with regard to the age of the respondents (see McCrae & Costa, 2002; McCrae, Costa, & Martin, 2005). Nevertheless, most of these studies have consistently underscored the pivotal role of teachers and their personal qualities as significant factors in effective educational communication.

Due to the fast evolution of the educational environment, with a shift from traditional in-person teaching to online and digital formats, it becomes crucial to assess the relevance of these study results in this transformed setting, considering the perspectives of both students and educators. In order to get an insight into the problem in a broader higher educational context, a collaborative research effort involving three international universities was initiated. The goal of the research was to explore the opinion of teachers and students on the importance of social skills and innovative teaching methods for the teaching process in higher education.

To evaluate whether participants in the educational process attribute importance to teachers' social skills and innovative teaching methods, as well as whether teachers reciprocate in terms of effective communication achievement, the initial hypothesis was formulated as follows:

There is no statistically significant difference in the importance assigned to social skills, as well as innovative teaching methods by teachers and students in the context of effective teaching when considering factors such as gender, age, or nationality.

Research design and process

The research instrument included two 29-item online questionnaires as the primary data collection tool. In each questionnaire 3 items were used to collect demographic data on respondents, 15 checked respondents' attitudes about digital tools and channels in the educational process,[3] while 11 items (labeled as ASC scale) aimed to check the attitudes of teachers and students toward the importance of social skills and innovative teaching methods in the teaching process. The development of these ASC scale items drew inspiration from the attributes of proficient educators, as elaborated by Cruickshank and Haefele (2001), and Stronge (2007). These attributes were then created to fit the context of digital communication in education. The ASC scale consisted of the aspects such as: attention to detail and reliability of data; the ability to illustrate problems with examples; effective management of teaching time by using feedback and evaluations; active and adaptive learning strategies; creativity, originality, and the use of dialogue in teaching; controlling of emotions and emotional intelligence; analytical thinking and innovation (proposing new strategies to choose the most appropriate); critical thinking and analysis (the process of thinking about the meaning of statements, examining and reasoning about evidence and judging facts); complex problem-solving; leadership, and social influence. Items are answered on a 5-point Likert scale ranging from not important to very important. The Cronbach's alpha coefficient of $\alpha = .92$ for the ASC scale demonstrates strong internal consistency

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[3] This research was part of a larger study that was undertaken to assess the significance of digital communication competencies, social skills, and teaching methods in the higher educational process. The data related to the use of digital tools and channels for digital communication in the educational process in higher education were processed and presented in another article.

(according to Pallant 2009), suggesting that the scale's items are reliably measuring the intended constructs.

Two harmonized and balanced questionnaires were used to get the insights from each group, namely students and teachers, and were administered at various universities between January and March 2023. The study analyzed respondent demographics through descriptive statistics, and data interpretation was carried out using the SPSS software.

The research involved a total of 307 participants, consisting of 237 students and 70 teachers. The gender distribution in the sample is balanced, with 55.4% of respondents being female and 44.6% male. Most respondents are from Poland (41.4%), while the fewest are from Bosnia and Herzegovina (23.8%).

Among students, the largest proportion falls within the 18–25 age category (65.4%), while among teachers, the most significant group is in the 41–45 age category (21.4%). In terms of academic titles (for teachers) and years of study (for students), the most common categories are assistants and assistant professors (40% and 35.7%), as well as first and second years of study (38.4% and 23.6%) for the group of students. Table 1 shows the descriptive indicators of the sample, where the data are presented in percentages and in absolute numbers for each of the categorical variables.

Table 1
Descriptive indicators of the sample.

Variables	Total sample	Students		Teachers	
Bosnia	23,8 % (73)	21,1 % (50)		32,9 % (23)	
Romania	34,9 % (107)	35,9 % (85)		31,4 % (22)	
Poland	41,4 % (127)	43,0 % (102)		35,7 % (25)	
Male	44,6 % (137)	44,7 % (106)		44,3 % (31)	
Female	55,4 % (170)	55,3 % (131)		55,7 % (39)	
Age group		18-25	65,4 % (155)	26-30	4,3 % (3)
		26-30	10,1 % (24)	31-35	12,9 % (9)
		31-35	6,8 % (16)	36-40	4,3 % (10)
		36-40	5,9 % (14)	41-45	21,4 % (15)
				46-50	20,0 % (14)
		over 40	11,8 % (28)	51-60	18,6 % (13)
				preko 60	8,6 % (6)

Academic title/year of study first year of study	First year of study	38,4 % (91)	Assistant professor	10,0 % (7)
	Second year of study	23,6 % (56)	Associate Professor	40,0 % (28)
	Third year of study	18,6 % (44)	Part time professor	35,7 % (25)
	Fourth year of study	19,4% (46)	Full time professor	11,4 % (8)
			Other	2,9 % (2)

Results

Table 2 presents descriptive statistics of data obtained from the ASC scale. The skewness and kurtosis coefficients suggest that the distribution of values is not entirely normal, indicating that non-parametric statistical techniques would be appropriate for analyzing this scale. Moreover, the calculated arithmetic mean indicates that respondents expressed a positive attitude towards the importance of social skills and innovative teaching methods in the educational process. Based on the arithmetic mean ($\approx$46), it is evident that the respondents achieved high scores on the ASC scale (the maximum score was 55, and the minimum was 26), which indicates a highly positive attitude regarding the importance of social skills and innovative teaching methods in the educational process.

Table 2
Statistical indicators of the ASC scale

	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
ASC scale	26	55	45.9902	7.17862	- .555	- .732

The questionnaire's variables were assessed for correlations using Spearman's rho correlation coefficient, an appropriate measure for analyzing relationships between variables in non-parametric data. The ASC scale exhibits a negative correlation to the country of study or teachers' workplace ($p \leq .01$) and a positive one with age ($p \leq .05$). Both of these correlations are characterized by weak strength (see Table 3).

Table 3
Correlations of sociodemographic variables with ASC scale

		Gender	Country	Age
ASC	Spearman's rho	.104	- .204**	.143*
	Sig.	.070	.000	.012

Note: *p < .05, **p < .01

To discern distinctions between groups, various non-parametric tests were conducted. Specifically, the Mann-Whitney U test was used to explore potential disparities in ASC scale scores concerning age, gender, and citizenship. The results revealed no statistically significant gender-based differences in ASC scale scores among both students and teachers.

Subsequently, correlations between ASC questionnaire items and the variables "country of study" (or "working institution" for teachers) and age were examined within two distinct groups: students and teachers. These correlations within the student respondents, could be observed in Table 4. Notably, age displayed the strongest positive correlation with the item "use of active learning strategies," suggesting that as age increases, students tend to place greater importance on various social skills and innovative teaching methods in the classroom. It's worth noting that this correlation, while statistically significant (rho = .253; p = .000), is of relatively small magnitude. Moreover, the age category exhibited statistically significant positive correlations with nearly all survey items, with the exception of the "leadership and social influence" item.

Conversely, the "country of study" variable exhibited the most pronounced correlations with the items "creativity in teaching and learning" and "emotional intelligence." Both of these correlations were negative and of moderate strength (rho = - .301, p = .000; rho = - .301, p = .000). Once again, the "country of study" variable displayed statistically significant correlations with almost all scale items, except for "leadership and social influence."

Table 4

Correlations of age and country of study with the items of the ASC scale for the students

Variable age and citizenship/ASC items		Attention to details and reliability	Using examples	Management of time	Using of active learning strategies	Creativity in teaching and learning
Age	Spear-man's rho	.229**	.224**	.158*	.253	.194*
	Sig.	.000	.001	.015	.000	.003
Country	Spear-man's rho	- .248**	- .242**	- .233**	- .233**	- .301**
	Sig.	.000	.000	.000	.000	.000
		Analytical thinking	Leadership and social influence	Critical thinking	Complex problem solving	Emotional intelligence
Age	Spear-man's rho	.170**	.101	.138*	.164*	.189*
	Sig.	.009	.119	.034	.012	.003
Country	Spear-man's rho	- .235**	- .126	- .191*	- .263**	- .301**
	Sig.	.000	.052	.003	.000	.000

Note: *p < .05, **p < .01

Within the sample of teachers, it's important to note that neither the variable "age" nor "country" demonstrated statistically significant relationships with any of the ASC scale items. These findings only partially validate the initial hypothesis.

Discussion

This section showcases significant research findings through the use of descriptive statistics. The largest group of respondents, totaling 307 individuals, falls into the categories of assistants and assistant professors (40% and 35.7%), as well as first and second-year students (38.4% and 23.6%). This indicates that a majority of participants, encompassing both students and teachers, are of a younger age. Besides the notion that younger students and educators show greater enthusiasm for digital communication, including their engagement in this questionnaire, further research and comparisons are required to draw additional meaningful and relevant insights regarding the age demographics of the participants.

For the sample of students, the Spearman's rho coefficient revealed statistically significant correlations between each item in the ASC questionnaire and the variables „country of study" and „age." Age displayed positive correlations with nearly all ASC scale items, reflecting a connection between age and various aspects of digital communication in education.

Additionally, the variable "country of study" exhibited its strongest correlations with items related to "creativity", "originality", "encouraging dialogue during teaching", and "emotional intelligence," which are all integral components of effective digital communication in education according to Stronge (2007).

Considering that all correlations are positively oriented, it's crucial to emphasize that with an increase of age, attention to details and reliability, the utilization of examples, the significance of time management, the adoption of active learning strategies, fostering creativity in teaching and learning, emotional intelligence, analytical and critical thinking, and tackling complex problem-solving all increase.

In terms of correlations related to the respondents' home country, a negative correlation suggests that students hailing from Bosnia and Herzegovina prioritize social skills and innovative teaching methods to a greater extent. Consequently, students from this region exhibit more positive attitudes toward details and reliability of data obtained during the class; they value the use of examples, efficient time management, and active teaching approaches more than the students from the other two countries; they demonstrate increased appreciation of creativity in teaching methods; and they place greater importance on emotional intelligence as well as analytical and critical thinking and problem-solving.

Conversely, when examining the group of teachers, neither age nor country of origin showed significant correlation with any of the ASC scale items. This result suggests the need for further investigation in this area.

Based on the results obtained, it can be inferred that the hypothesis was not supported and was partially rejected among the student group. This conclusion stems from the discovery of numerous significant differences and correlations concerning selected sociodemographic characteristics of the students in the research. The hypothesis found confirmation only in one-third of its content, specifically regarding assumed gender differences in both respondent groups.

Conclusions

Numerous research on the methods the teaching process unfolds, and the changes caused by the application of digital technology and new environments in which the teaching process takes place, mentioned in the introductory part of the paper, gave significant results, if nothing else, at least in terms of their identification. Given the fact that communication in the teaching process is increasingly taking place in digital environment, online or with the help of various digital devices, channels, and tools, it

is necessary to conduct additional research in order to respond adequately to the new context of the educational process.

The aim of this research was also to check do the participants in the higher education process think the social skills and innovative teaching methods are important in the new digital context. Based on the data and findings derived from the examination of participants' attitudes towards social skills and innovative teaching methods in the digital teaching process across three distinct higher education institutions in different European countries, several conclusions can be drawn.

Students at the higher education institutions that participated in this research collectively value social skills and innovative teaching approaches during the educational experience. Notably, students from all three nations share a common viewpoint, highlighting the importance of these aspects, with those from Bosnia and Herzegovina showing the greatest emphasis.

Additionally, the age of students is positively related to the perceived importance of social skills and innovative teaching methods. Older students tend to assign greater importance to specific social skills in digital communication during the teaching process.

These results can be interpreted within the framework of research on effective teaching and the characteristics of an effective teacher, conducted by Stronge (2002). Referring to numerous other research, Stronge notes that the role of a teacher extends beyond the mere transmission of knowledge and encompasses a complex interplay of personal qualities and social skills that significantly impact the educational experience of students. Referring to research done by Maddux, Samples-Lachman, & Cummings (1985, see Stronge, 2007, p.34) this is especially evident when it comes to gifted or older students (Stronge, 2007, p.28).

On the other hand, McCrae, Costa, & Martin believe that such a result may be the result of a misunderstanding of the research instrument, that is, the meaning of the items in the survey by the younger respondents (McCrae, Costa, & Martin, 2005, p.261). These scholars believe that these surveys can only be adequately applied for use by adults, while in other levels of education they require adaptation. In the findings of the research conducted by McCrae, Costa & Martin (2005) at different levels of education, an explanation can be sought for the results of our study, which show that positive correlations between the age of students and the explored items are statistically significant but of a relatively small magnitude, since the age of respondents in this study is 18 and above, and are all at the level of higher education.

Moreover, the age category exhibited statistically significant positive correlations with nearly all survey items, with the exception of the "leadership and social influence" item. Although Stronge argues that "leadership" is an important factor in effective teaching, he considers it important for gifted and high-ability students (Stronge, 2007, p.170), which was not examined in this study. In order to obtain relevant results regarding this item, it is necessary to conduct additional research.

In contrast, our study showed that teachers do not seem to attribute importance to any of the listed social skills or innovative teaching methods within the context of an effective online and digital teaching environment which is not in accordance with Stronge's emphasizing the role of the teacher in the process of effective teaching. The effective teaching, according to Stronge depends a lot on the teacher's attitude towards the profession (Stronge, 2007, p.129) and willingness and readiness to embrace change and new strategies in order to improve himself, and consequently, the effectiveness of the teaching process (Stronge, 2007, p.170). At this point, the study could be potentially useful in practice as a place to identify communication problems in the educational process in higher education, especially in the context of Bosnia and Herzegovina. The results of the study show that students from Bosnia and Herzegovina showed the greatest emphasis on the evaluation of social skills and innovative teaching methods, while teachers from the same country do not attach statistically significant importance to the explored items. Reasons for problems in communication and effective teaching process can be sought in this discrepancy of the attitudes and teachers' opportunities for personal development.

It is important to note that gender, either in the group of students or in teachers, does not appear to exert a significant influence on students' or teachers' attitudes towards these aspects of the teaching process which partially confirms the initial hypothesis. It is also consistent with Stronge's conclusion that effective teaching should exhibit "respect and understanding, along with fairness regarding race, cultural background, and gender." (Stronge, 2007, p.25)

These findings of the study offer valuable insights into the varying attitudes of students and teachers toward digital communication skills and teaching methods, shedding light on potential areas for further research and improvement within the educational process.

STAVOVI UČESNIKA U DIGITALNOJ KOMUNIKACIJI U VISOKOM OBRAZOVANJU O ZNAČAJU SOCIJALNIH VJEŠTINA I INOVATIVNIH NASTAVNIH METODA U NASTAVNOM PROCESU

Rezime

U današnjem obrazovnom okruženju postalo je od suštinskog značaja i za nastavnike i za učenike da steknu vještine i kompetencije digitalne komunikacije. Ovo je inicirano sve većim uključivanjem digitalnih informacionih tehnologija u metode podučavanja i učenja. Prije svega, ove vještine i kompetencije se usredsređuju na sposobnost korišćenja različitih tehnologija i digitalnih alata u svrhu razmjene informacija i olakšavanja prenosa znanja između nastavnika i učenika. Nasuprot tome, socijalne

vještine i inovativne nastavne metode imaju tendenciju da dobijaju manje pažnje u novijim istraživanjima. Iz tog razloga, cilj ovog istraživanja bio je istražiti stavove nastavnika i studenata u digitalnoj komunikaciji u visokom obrazovanju o važnosti socijalnih vještina i inovativnih nastavnih metoda koje su kroz literaturu (vidjeti Stronge, 2007) prepoznate kao osnove efektivnog nastavnog procesa.

U periodu od januara do marta 2023. godine sprovedena je opsežna studija koja je istraživala značaj digitalnih komunikacijskih kompetencija, socijalnih vještina i inovativnih nastavnih metoda u obrazovnom procesu. Istraživanje je koristilo onlajn upitnike kao primarni alat za prikupljanje podataka od nastavnika i studenata. Po 3 pitanja u svakom od upitnika (jedna za nastavnike i jedan za studente) služila su za prikupljanje demografskih podataka o ispitanicima, dok je 11 pitanja ispitivalo stavove studenata i nastavnika o važnosti socijalnih vještina i inovativnih metoda u nastavnom procesu. Saradnjom između tri međunarodna univerziteta prikupljeno je mišljenje studenata i nastavnika u visokom obrazovanju na međunarodnom nivou.

U okviru upitnika napravljena je skala za procjenu stavova od 11 jedinica kojima su provjereni stavovi studenata i nastavnika o značaju pojedinih socijalnih vještina i nastavnih metoda u obrazovnom procesu kao što su: obraćanje pažnje na detalje i pouzdanost podataka; sposobnost da se problemi ilustruju primjerima; efikasno upravljanje vremenom; aktivne i prilagodljive strategije učenja; kreativnost, originalnost i upotreba dijaloga u nastavi; emocionalno upravljanje i inteligencija; analitičko mišljenje i inovativnost; kritičko mišljenje; sposobnost rješavanja kompleksnih problema i vođstvo i društveni uticaj. U istraživanju je učestvovalo 307 ispitanika, nastavnika (n = 70) i studenata osnovnih studija (n = 237). Dobijeni podaci su analizirani pomoću softvera SPSS.

Studija je otkrila brojne rezultate. Na primjer, starost studenata uticala je na važnost koju studenti pridaju određenim socijalnim vještinama i inovativnim nastavnim metodama u digitalnoj komunikaciji tokom nastavnog procesa. Stariji studenti imaju tendenciju da pridaju veći značaj specifičnim socijalnim vještinama i inovativnim nastavnim metodama u digitalnoj komunikaciji tokom nastavnog procesa. Takođe, pronađena je statistički značajna korelacija između zemlje studija i ovih jedinica skale za procjenu mišljenja, dok varijabla roda nije pokazala nikakve statistički značajne rezultate. Studenti iz sve tri zemlje dijele zajednički stav, ističući važnost istraživanih aspekata društvenih vještina i inovativnih nastavnih metoda. U poređenju sa ostale dvije zemlje, studenti iz Bosne i Hercegovine stavljaju najveći naglasak na evaluaciju ovih aspekata. Sve jedinice skale za procjenu mišljenja, osim „vođstva" bile su pozitivno povezane sa varijablama „starost" i „zemlja studija".

Nasuprot tome, čini se da nastavnici ne pridaju važnost komunikacijskim odnosno socijalnim veštinama ili inovativnim nastavnim metodama u kontekstu efikasnog onlajn i digitalnog nastavnog okruženja. Na nivou nastavničkog uzorka nisu pronađene statistički značajne korelacije koje bi potvrdile da nastavnici smatraju navedene vještine i nastavne metode značajnim za nastavni proces, bez obzira na rod, starost

i zemlju porijekla. Sudeći prema prethodnim studijama koje su se bavile efektivnim nastavnim procesom, kao što je ona koju je predstavio Strong (Stronge, 2007), navedene u sadržaju, u ovoj diskrepanciji stavova po pitanju važnosti socijalnih vještina i inovativnih metoda podučavanja između studenata i nastavnika u visokom obrazovanju, može se tražiti uzrok problema u nastavnom procesu naročito u kontekstu visokog obrazovanja u Bosni i Hercegovini.

Ključne reči: digitalna komunikacija, socijalne veštine, nastavne metode, visoko obrazovanje, nastavni proces.

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