The relationship between the national culture, Facebook use and smartphone use of students in Serbia

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Abstract

The paper presents the results of research into the influence of the GLOBE national culture dimensions on Facebook and smartphone use items for students in Serbia. The moderating effect of the four variables; the respondents' gender, year of study, success in studies and the possession of finance to open up one's own company was examined on the observed relationships. The survey was conducted by means of a student survey at seven faculties. 488 valid questionnaires were collected. The main conclusions of the research are: 1. The impact of the dimensions of national culture on the observed Facebook and smartphone use items is not strongly expressed, and occurs as statistically significant in individual cases. For example, the dimension of uncertainty avoidance statistically significantly and positively affects the items of frequency of Facebook usage and daily time use, but can also be expressed by avoiding uploading images on Facebook. The number of groups item is under the influence of two dimensions: power distance and humane orientation. Total daily smartphone usage is influenced by two dimensions: collectivism 1 (collective) and collectivism 2 (in group). The dimensions of future oriented and performance orientation slightly negatively affect certain individual items. 2. The most significant impact is achieved by the dimension collectivism 2 (in group), while the items under the greatest influence of the dimensions of national culture are number of groups, total daily smartphone usage and use of smartphones to access Facebook. 3. None of the four analyzed moderators showed a strong moderating effect on the observed relationships.

Keywords:
National culture, Facebook use, smartphone use, students, Serbia

1. Introduction

Facebook implies communication: through this social network people exchange words, messages, pictures, and videos. The daily frequency of Facebook usage, the number of hours spent on Facebook, the number of friends on Facebook, the number of photos posted, and the number of different groups represent categories which vary greatly from person to person. All of these Facebook usage parameters depend on the user's personal characteristics and the purpose for which Facebook is used (Hew, 2011; Skues, Williams, & Wise, 2012). Some people have a dominant desire for self-represen-

tation, while others have the need to satisfy their desire to belong (Nadkarni & Hofmann, 2012). The gender of users and their year of study also affect the way Facebook is used (Sanches, Cortijo, & Javed, 2014). Facebook can also be accessed via smartphones. Numerous studies focus on the factors which influence the way smartphones are used, and one of the most expressive factors is the users' gender (Sanches-Martinez & Otero, 2009; Bisen & Deshpande, 2016).

Facebook is a global social network through which people communicate both within their national cultures and across cultures. Communication, both on-line and offline, also depends on culture. „What, where

and how we should talk (or communicate with others) is regulated by culture" (Chen, 1995, p.85). Numerous papers point to the importance of this topic and confirm the diversity of the use of Facebook and smartphones depending on the characteristics of national culture (Caporael & Xie, 2003; Campbell, 2008).

National culture is a very complex term and „no part of our lives is exempt from culture's influence" (Hofstede, 1991, p. 170). However, culture is not the only factor that affects people's behaviour. Although the dimensions of culture can be established at the national level, this does not necessarily mean that as such they will inevitably be reflected in the behaviour of each individual member of that culture (Hofstede, 1991). In other words, the analysis of the dimensions and characteristics of national culture reflects the basic traits of the country from which such a culture originates, but does not foresee (in full) individual behaviour. However, a significant number of the values of a national community are common to all its individuals, which is why it is called national culture. It represents an important factor which determines the profile of individual values.

One of the characteristics of national culture is certainly individualism or collectivism (Hofstede, 1980; House et al., 1999, 2002, 2004) and it is known that western cultures are individualistic, while the national cultures of the east are collectivist. This feature of national culture greatly influences how individuals within their cultures use Facebook and smartphones (Van Belleghem 2010; Campbell, 2008; Janoff-Bulman & Leggatt, 2002; Caporael & Xie, 2003), and the prevailing opinion is that the use of Social Network Services (SNS) in national cultures that are collectivist (Nadkarni and Hofmann, 2012) has not been sufficiently researched. Also, „Current research on SNS has been primarily developed in North American or European cultural contexts, and this may be problematic in that it inadequately explains the communication behavior of non-western populations." (Zhang & Leung, 2015, p. 1019).

Bearing in mind the aforementioned, the main goal of this paper is to make a modest contribution to the knowledge of the influence of collectivist national culture in Serbia on Facebook and smartphone use. This goal was realized through the establishment of a link between the dimensions of national culture according to the GLOBE project (House et al., 1999, 2002, 2004) and the Facebook and smartphone use items. It is particularly important to note that the research covered all of the dimensions of national culture according to the GLOBE project, and the GLOBE dimensions have not been greatly explored within the context of Facebook and smartphone use. In addition, the moderating effect of the four variables: the respondents' gender, year of study, success in studies and the possession of finance to open up one's own company, were examined on the observed relationships. The survey was conducted by means of student surveys at seven faculties in Serbia. The results and their discussion are given below.

2. Theory and research questions

2.1 National culture

Due to globalization and increased dependence among nations, there is a growing interest in understanding national culture (House, Javidan, & Dorfman, 2001). The importance of national culture and its impact on communication are highlighted by numerous researchers dedicated to this ever-present issue, while Hall (1976) and Hofstede (1991) are certainly among the most important. According to Hofstede (1980, 2001), culture is revealed by symbols, heroes, rituals, values and national culture is an important factor in determining the profile of individual values (Hofstede 1980, 2001; Trompenaars & Hampden-Turner, 1997).

In this paper, the level of the dimensions of national culture among students in Serbia according to the GLOBE project (House et al., 1999, 2002, 2004) is determined. GLOBE is a significant and globally accepted project, which included 160 researchers from 62 different cultures. However, the impression is that the dimensions of the GLOBE project are not used frequently enough in researching the impact of national culture on Facebook and smartphone use. Researching the available literature, we found

Names of dimensions and items	Abbr.	N	Min	Max	Mean	Std. Deviation	α
Uncertainty Avoidance	NC1	488	1.00	5.75	3.43	.93668	.731
Future Oriented	NC2	488	1.00	6.80	3.10	1.07890	.777
Power Distance	NC3	488	1.60	7.00	5.13	1.16449	.823
Collectivism 1 (institutional)	NC4	488	1.75	7.00	3.86	.83133	.791
Humane Orientation	NC5	488	1.00	6.40	3.37	.94696	.881
Performance Orientation	NC6	488	1.00	6.00	3.33	1.04190	.711
Collectivism 2 (in-group)	NC7	488	1.50	7.00	4.80	.93882	.855
Gender Egalitarianism	NC8	488	1.00	6.20	3.42	.86158	.722
Assertiveness	NC9	488	1.00	6.50	3.38	1.02901	.893
Frequency of Facebook usage (daily use)	FB1	488	0	6	3.0369	1.77325	
Daily time use (hours)	FB2	488	0	24	2.8279	4.22483	
Number of friends	FB3	488	0	5000	685	761.107	
Number of photos	FB4	488	0	6433	211.76	598.7386	
Number of groups	FB5	488	0	2000	22.1281	117.128	
Total daily smart phone use (hours)	SP1	488	0	24	7.7951	6.76101	
Use of the smart phone to access Facebook (minutes per day)	SP2	488	0	1000	36.6848	78.13496	
Success in studying	SUC	488	1.00	5.00	3.70	.828	
Possesion of finance	FIN	488	1.00	5.00	2.13	1.073	

Table 1. Descriptive statistics

that the cultural dimensions defined by the GLOBE project were used by Reed, Spiro and Butts (2015) to determine the relationship between national culture and self-disclosure behaviour on Facebook for 200,000 users from different cultures around the world. The authors of this paper point to the fact that they were the first to use the dimensions of the GLOBE project to examine the impact of national culture on self-disclosure behaviour on Facebook (Reed et al., 2015). Similarly, in this paper the influences of the GLOBE dimensions of national culture on basic Facebook and smartphone use were researched for the first time.

The dimensions of the GLOBE project show that the characterization of a national culture may be complex and involves ongoing practice and behaviour (state as is) and the values or firm beliefs of what a given culture should be (Waldman et al., 2006). The dimensions of culture (national and organizational) according to the GLOBE project are: (Javidan, House, & Dorfman, 2004: 30; House et al., 1999)

- NC1 - Uncertainty Avoidance is the degree to which the members of an organization or society tend to avoid uncertainty relying on established social norms, rituals and bureaucratic practices.
- NC2 - Future Oriented is the degree to which the individuals in organizations or society are involved in future-oriented behaviour, such as planning, investing in the future and postponing individual or collective gratification.
- NC3 - Power Distance is the degree to which the members of an organization or society expect and agree that power should be stratified and concentrated at higher levels of an organization or state.
- NC4 - Collectivism 1 (institutional) is the degree to which organizational and social institutional practice is encouraged and rewarded by the collective contribution of resources and collective action.
- NC5 - Humane Orientation is the degree to which the individuals in organizations or society are encouraged and rewarded for being fair, altruistic, friendly, generous, caring and kind to others.
- NC6 - Performance Orientation is the degree to which an organization or society encourages and rewards the members of a group for improvement of performance and excellence.
- NC7 - Collectivism 2 (in-group) is the degree to which individuals express pride, loyalty and cohesion within an organization or family.
- NC8 - Gender Egalitarianism is the degree to which an organization or society reduces gender differences while promoting gender equality.
- NC9 - Assertiveness is the degree to which the individuals in organizations or society are asser-

tive, confrontational, and aggressive in social relationships.

2 Facebook use and smartphone use

Facebook is a social network that allows people to establish relationships and connect to each other (Skues et al., 2012). It can be used in different ways. Basic Facebook use is related to the frequency of daily use of Facebook, the number of hours spent on Facebook (time spent on Facebook, daily time use), the number of friends on Facebook, the number of photos posted, the number of different groups, the reasons for Facebook use and the preferred functions of Facebook (Ross et al., 2009).

Research suggests that basic Facebook use and ways of using Facebook vary across cultures. For example, for Hispanic students from South America and the US it is most important to keep in touch with friends and to share photos, while in Greece, Italy, France, the UK and the US, students have other priorities on Facebook (Albarran & Hutton, 2010) . The number of friends reported by users of this social network also differs across cultures: 29 in Japan, 63 in China, 95 in France, 200 in the US, and 360 in Brazil (Van Belleghem, 2010). Huang and Park (2013) state that the average number of friends in East Asia is 349.6 and in the United States 362.0.

Smartphones are an irreplaceable part of everyday life and are used to „call, text, e-mail, video conference, micro-blog, interact on social networks, surf the Internet, watch and share videos and pictures, play video games and utilize a tremendous array of software driven applications" (Lepp, Barkley, & Karpinski, 2014, p. 343). How and for what purposes an individual will use a smartphone depends on many factors. One of the factors which influences the use of smartphones is whether the individual belongs to an individualist or collectivist national culture. In collectivist cultures (Japan, China) the use of mobile phones is different to that in individualist cultures (Anglos, Sweden, Hawaii), which can be seen in the references (Campbell, 2008; Janoff-Bulman & Leggatt, 2002; Caporael & Xie, 2003). For example, while in individualist national cultures it is perfectly reasonable to use a mobile phone on the street and in a public place, in collectivist national cultures such behaviour is often not socially acceptable. On the other hand, in collectivist national cultures, the employer can call his employees outside working hours, and in individualistic national cultures this is not common practice. Based on previous considerations, in this paper, the following research questions can be posed:

- RQ1: Is there a statistically significant influence of the national culture dimensions on the Facebook use and smartphone use items among students in Serbia?
- RQ2: Is there a statistically significant predictive effect of the national culture dimensions on the Facebook use and smartphone use items among students in Serbia?
- RQ3: Is there a moderating effect of the four variables (the respondents' gender, year of study, success in studies and the possession of finance to open up one's own company) in the relations between the influence of the national culture dimensions on the Facebook use and smartphone use items among students in Serbia?

3. Method

3.1 Survey instruments (measures)

National culture. National culture will be examined by means of the GLOBE instrument for measuring national and organizational culture (House et al., 1999, 2002, 2004). The first part of the beta questionnaire, which examines national culture, refers to the state of „as is". The respondents value the questions on a scale from 1 to 7, and the completed questionnaires are processed according to GLOBE Syntax. The questionnaire consists of 39 questions, classified into nine dimensions of national culture: 1. Uncertainty Avoidance, 2. Future Oriented, 3. Power Distance, 4. Collectivism 1 (institutional), 5. Humane Orientation, 6. Performance Orientation, 7. Collectivism 2 (in-group), 8. Gender Egalitarianism, 9. Assertiveness.

The Facebook questionnaire. This questionnaire consists of 5 items. Item FB1 - Frequency of Facebook usage was constructed according to the reference (Sanches et al., 2014). The respondents assign grades from 1 to 6 depending on how many times a day they use Facebook, where larger numbers denote greater daily use of Facebook. For items FB2 - Daily time use (according to Skues, Williams, & Wise, 2012; Kuo & Tang, 2014), FB3 - Number of friends (according to Skues et al., 2012; Sanches et al., 2014; Kuo et al., 2014), FB4 - Number of photos (according to Kuo & Tang, 2014) and FB5 - Number of groups (according to Skues et al., 2012; Kuo et al., 2014), the respondents directly entered the corresponding numerical values.

The Smartphone questionnaire (Lepp et al., 2014). This instrument comprises two items: SP1 - Total daily smartphone use and SP2 - Use of smartphones to access Facebook. The respondents enter how many hours a day they use a smartphone and how many minutes a

day they use a smartphone to access Facebook.

3.2 Participants and data collection

The respondents were students at seven faculties in Serbia. The students who participated in the research are studying at technical and economic faculties. The survey was conducted by means of a survey. The students completed the questionnaires anonymously either during or after classes. A total of 488 valid questionnaires were collected. Out of this number, there were 337 (69.1%) female students and 151 (30.9%) male students. The respondents are between 18 and 32 years of age, with the average age of the respondents 21.38 years (standard deviation 1.962). The research included students from undergraduate and masters studies, from the first to the fifth year of study. The sample comprised 157 (32.17%) first year students, 88 (18.03%) second year students, 122 (25.00%) third year students, 70 (14.34%) fourth year students and 51 (10.45%) students in their fifth year.

4. Results

4.1 Descriptive statistics

The descriptive statistics for the national culture dimensions and the Facebook and smartphone use items are shown in Table 1. The table show the dimensions and items, abbreviations, mean values, and standard deviation for each dimension and item, as well as Cronbach's alpha for each dimension. The values of Cronbach's alpha range from $\alpha = 0.711$ to $\alpha = 0.893$. Relevant data were also given for the moderating variables of success in studies and possession of finance.

For most of the Facebook and smartphone use items (with the exception of FB1 - Frequency of Facebook usage) open questions were used where the students showed the real values of these items. Table 1 shows the min, max, mean, and standard deviation for these real numeric values which the students assigned. However, in order to be able to carry out further analyses: correlation, regression and analysis of any moderating effects, the categorization of the responses into five categories was done for each item separately. This was done for all the Facebook and smartphone use items except for item FB1 - Frequency of Facebook usage. Category 5 comprises those respondents who assigned very high marks for the observed item, category 4 those respondents who assigned high marks for the observed item, category 3 the respondents who gave average grades for the observed item, category 2 the respondents who gave

low marks for the observed item, and category 1 those respondents who assigned very low grades for the observed item.

FB1 - Frequency of Facebook usage (daily use) among students in Serbia (M = 3.03688, SD = 1.77325) corresponds to the real value of 6 to 10 times of Facebook usage a day. This value is similar to the result obtained in the reference (Sanches et al., 2014), and slightly higher than the value of 4.81 times a day, which was obtained by Skues et al. (2012). When it comes to FB2 - Daily time use (hours), globally speaking, students spend a daily average of between 10 and 75 minutes using Facebook (Joinson, 2008; Christofides, Muise, & Desmarais, 2009; Ross et al., 2009; Pempek, Yermolayeva, & Calvert, 2009; Orr et al., 2009; Valenzuela, Park, & Kee, 2009; Kuo & Tang, 2014), while in Serbia, students use Facebook for an average of 2.8279 hours a day (M = 2.8279, SD = 4.22483). The average value of FB3 - Number of friends among students in Serbia is 685 (M = 685, SD = 761.107), which is significantly higher than the average number of friends in other surveys, where the number of Facebook friends ranges from 100 to 400 (Elison, Steinfield, & Lampe, 2007; Sheldon, 2008; Tong, van der Heide, Langwell, & Walther, 2008; Lewis & West, 2009; Van Belleghem, 2010; Skues et al., 2012; Huang & Park, 2013; Kuo & Tang, 2014). The average value of FB4 – the number of photos students in Serbia have on their Facebook profiles is M = 211.76 with SD = 598.7386. The average value of FB5 – the number of groups (M = 22.1281, SD = 117.128) students access in Serbia, is both much higher than the 7 groups gained in the survey (Kuo & Tang 2014), and much lower than the total of 66.10 groups gained in the study (Skues et al., 2012).

SP1 - Total daily smartphone usage in Serbia is an average of 7.7951 hours a day (M = 7.7951, SD = 6.76101), which is significantly more than the total of 4.83 hours obtained in the study (Lepp et al., 2014). SP2 - The use of smartphones to access Facebook is 36.6848 minutes per day (M = 36.6848, SD = 78.13496), which is significantly less than 147 minutes per day obtained in the study (Lepp et al., 2014).

4.2 Correlation analysis

The correlation coefficients between the national culture dimensions and the Facebook and smartphone use items are provided in Table 2. Pearson's correlation was used, and all statistically significant correlations are indicated: * $p < 0.05$; ** $p < 0.01$.

4.3 Regression analysis

The predictive effect of the national culture dimensions (independent variables) on the Facebook and smartphone use items (dependent variables) was examined using multiple regression analysis. The results of the regression analysis are given in Table 3.

4.4 Analysis of the moderating effects

	FB1	FB2	FB3	FB4	FB5	SP1	SP2
NC1	.114*	.089*	.025	-.085	.011	.084	.005
NC2	-.008	.031	.005	-.064	-.043	.046	-.029
NC3	.035	-.033	.059	.063	.144**	.034	.135**
NC4	-.018	.050	-.028	-.043	.032	.114*	-.011
NC5	-.029	.014	.082	.015	.131**	-.054	-.034
NC6	-.017	-.033	-.031	-.033	-.040	.022	-.040
NC7	.089*	.035	.031	.072	.095*	.112*	.149**
NC8	.051	-.027	.042	-.014	-.069	.039	-.042
NC9	-.020	-.020	.043	.014	.051	.009	-.030

*p<0.05; **p<0.01.

Table 2. Correlation coefficients between the national culture dimensions and the Facebook and smartphone use items

The paper examines the moderating effects of four variables (the respondents' gender, year of study, success in studies and the possession of finance to open up one's own company), in the relations between the influence of the national culture dimensions on the Facebook and smartphone use items. In doing so, hierarchical regression analysis was used. The results of these analyses are given in Table 4. Table 4 shows those pairs where there is a moderating effect, the values of R squared change and F-change in those cases, as well as the correlations of the observed pairs for both relevant groups (groups

Dep.	Independent									R^2	F	Sig.
	NC1	NC2	NC3	NC4	NC5 β	NC6	NC7	NC8	NC9			
FB1	**.164**	-.024	.004	-.039	-.052	-.077	.081	.077	-.019	.034	1.883	.052
FB2	**.116**	.019	-.065	.048	.035	**-.111**	.043	-.020	-.057	.023	1.232	.273
FB3	.045	-.006	.054	-.040	.078	-.069	.006	.035	.031	.017	.917	.510
FB4	-.091	-.037	.032	-.039	.022	.015	.071	-.010	.044	.020	1.057	.393
FB5	.020	-.044	**.121**	.020	**.158**	-.049	.029	-.090	.036	.054	3.021	.002
SP1	.067	.033	.009	**.095**	**-.106**	-.030	**.101**	.056	-.005	.037	2.037	.034
SP2	.017	.019	.093	-.028	-.035	-.008	**.128**	-.027	-.011	.035	1.901	.050

Table 3. Regression analysis (independent variables: the national culture dimensions; dependent variables: the Facebook and smartphone use items)

depending on the respective moderator).

For the year of study variable, the sample of N = 488 respondents was divided into younger students (students in the first and second year) and older students (students in the third, fourth and fifth year). The first group (younger students) comprises 245 (50.20%) respondents, while the second group (older students) consists of 243 (49.80%) respondents. In the case of the success in studies variable, the sample of N = 488 respondents was divided into those who assigned this variable grades 1, 2 and 3 (those who claimed to have relatively poor success in studies - Low SUC) and those who assigned this variable grades 4 and 5 (those who declared themselves to have relatively high success in their studies - High SUC). In the first group (Low SUC) there are 185 (37.91%) respondents, while in the second group (High SUC) there are 303 (62.09%) respondents. For the possession of finance to open up one's own company variable, the sample

Moderator	Independent	Dependent	R square change	F-change	Correlations	
					Male	Female
Gender	NC7	SP2	0.013	6.567	.316**	.076
					Younger	Older
Year of study	NC1	FB2	0.011	5.234	.201**	-.029
		FB4	0.009	4.353	-.029	-.142**
	NC5	FB1	0.009	4.543	0.045	-.130*
	NC9	FB4	0.010	4.760	-.086	.110
					Low SUC	High SUC
Success in studies	NC5	FB1	0.015	7.584	-.184**	.062
		FB4	0.018	8.754	-.113	.090
					Low FIN	High FIN
The possession of finance	NC2	FB1	0.010	4.736	-.028	.074
		SP1	0.012	5.958	.031	.152
		SP2	0.008	3.977	-.007	-.167
	NC3	FB1	0.014	6.944	.053	-.056
		FB3	0.010	4.778	.092	-.166
		FB4	0.013	6.363	.088	-.104

*p<0.05; **p<0.01.

Table 4. Results of the research into the moderating effects of the four observed moderators(those cases where there is a moderating effect)

of N = 488 respondents was divided into those who rated this variable 1, 2, and 3 (those who claimed to have relatively low finance) and those who assigned this variable grades 4 and 5 (those who declared themselves to have relatively significant finance - High FIN). The first group (Low FIN) comprises 396 (81.15%) respondents, while the second group (High FIN) consists of 92 (18.85%) respondents.

5. Discussion

5.1 Discussion of the results of the correlation analysis (answering RQ1)

Table 2 shows that for the main part the dimensions of national culture do not have a statistically significant impact on the observed Facebook and smartphone use items. Statistically significant impacts exist in individual cases (between the individual dimensions of national culture and the individual Facebook and smartphone use items), and they are always positive. This general conclusion is also the answer to RQ1. Below are some comments on the statistically significant relations.

The dimension NC1 - Uncertainty avoidance statistically significantly affects items FB1 - Frequency of Facebook usage and FB2 - Daily time use. This result can be understood in the following way: people who are trying to avoid uncertainty sometimes do this by accessing Facebook more often and thus spend more time on Facebook. In this way, probably unconsciously, they escape from reality and avoid facing real life problems and challenges. At times when a challenge or a change has to be faced, requiring the acceptance of uncertainty and a certain level of engagement, some people retire to a secure place, and Facebook can be such a carefree oasis, or at least it may seem so. Interestingly, avoiding uncertainty has a negative link with item FB4 - Number of photos. Although this correlation is not statistically significant, it points to the emergence of a habit whereby people who avoid uncertainty also avoid posting a large number of images on social networks. The reason probably lies in the fact that they do not want to risk posting images that might not be accepted for a number of reasons, or because of concerns about how they look in such pictures.

The dimension NC3 - Power distance has a statistically significant effect on items FB5 - Number of groups and SP2 - Use of smartphones to access Facebook. A possible explanation should be sought, first of all, in the high average value of NC3 - Power distance (M = 5.13, Table 1). There is a strong power distance in Serbia and it is possible that those respondents who feel the distance of power join a larger number of groups, consciously or unconsciously seeking in those groups what they lack: a low distance of power, equality and respect within social groups. If the predominant influence of certain individuals is manifested in the group, then the user enters new groups, striving to join groups where no such individuals are present. The impact of power distance

on item SP2 - Use of smartphones to access Facebook is particularly interesting. This item relates to accessing Facebook by means of a smartphone, therefore, in conditions that are generally not at home. It is outside the home where the power distance is felt the most acutely, making the respondents most likely to approach Facebook at that time so as to reduce the power distance (and since they are out of the house, they have to do it on their smartphones).

The dimension NC4 - Collectivism 1 (institutional) has a statistically significant impact on item SP1 - Total daily smartphone use. As the dimension of institutional collectivism relates to values such as collective loyalty, collective interest, collective acceptance, and cohesion within the collective, it is clear that this implies a significant degree of interaction and communication between the members of groups and collectives. Mobile phones are available at all times, and thus represent a significant means of meeting the needs, but also the obligations, of collective connectivity.

The dimension NC5 - Humane orientation has a statistically significant effect on item FB5 - Number of groups. Among other things, the humane orientation dimension implies consideration for others, a sense of others and friendliness, and membership in groups can easily meet these needs and create behaviour in accordance with this cultural dimension.

As might have been expected, the dimension NC7 - Collectivism 2 (in group) has the strongest impact on the Facebook and smartphone use items. Specifically, statistically significant influences exist on items FB1 - Frequency of Facebook usage, FB5 - Number of groups, SP1 - Total daily smartphone use and SP2 - Use of the smartphones to access Facebook, therefore, on most of the observed items. As with power distance, it should be noted that the NC7 - Collectivism 2 dimension has a high average value (M = 4.80, Table 1), the highest after power distance. This points to the collectivist culture in Serbia. Group and family connections are easily realized, satisfied, and demonstrated through activities on social networks and the use of smartphones.

In Table 2 it should be noted that the dimensions NC2 - Future oriented and NC6 - Performance orientation negatively affect certain individual items. Although these influences are not statistically significant, there is an interesting tendency for the respondents who highly perceive orientation towards the future and performance to use Facebook and smartphones less. It is possible that the respondents who have such a perception of the given dimensions (and perhaps themselves have a higher orientation towards the future and performance) realize that a person needs to constantly work, progress, plan and improve, all of which involve involvement in activities which do not leave as much space for the use of social networks and smartphones for the purpose of having fun and spending time without any specific goal.

2 Discussion of the results of the regression analysis (answering RQ2)

The regression analysis (Table 3) shows that the statistically significant predictive effect of the independent variables (the dimensions of national culture) on the dependent variables (the Facebook and smartphone use items) is not strongly expressed, is predominantly positive, and occurs mainly in the cases described in the discussion of the results of the correlation analysis. This statement may be considered a response to RQ2.

The results of the regression analysis may be said, to a large extent, to be consistent with those of the correlation analysis, as discussed earlier. However, two statistically significant and negative standardized beta coefficients should be noted as differing from the results of the correlation analysis. One appears as the negative predictive effect of NC6 - Performance orientation on item FB2 - Daily time use. In addition, the predictive effect of NC5 - Humane orientation on item SP1 - Total daily smartphone usage was also statistically significant and negative. This result can be explained by the fact that increased consideration for others, a sense for others and friendliness are all likely to encourage individuals to become more involved in live communication and interaction rather than through telephone conversations and messages. Also, more direct socializing means less playing games, watching movies via smartphones, and similar. Therefore, it should be noted that institutional and group collectivism intensifies the use of smartphones, while human orientation decreases it. According to Table 3, the corrected determination indexes R^2 have very low values, ranging from 0.017 to 0.054. However, the values of the determination indexes R^2 are statistically significant for three items: FB5 - Number of groups, SP1 - Total daily smartphone use and SP2 - Use of smartphones to access Facebook. Observed along with the results of the correlation analysis, it can be generally said that from the observed items these three are most influenced by the dimensions of national culture.

3 Discussion of the moderating effects (answering RQ3)

The analysis of the moderating effects of four variables (the respondents' gender, year of study, success in studies and the possession of finance to open up one's own company), shown in Table 4, show that the mode-

rating effects in the relations between the influence of the national culture dimensions on the Facebook and smartphone use items are very weak and only occur in rare cases. This can be considered a response to RQ3. The discussion of the cases where moderating effects occur is given below.

The moderating effect of the students' gender variable in the relations between the influence of the national culture dimensions on the Facebook and smartphone use items proved to be very weak: there is only one pair: NC7 - Collectivism 2 (in-group) and SP2 - Use of the smartphones to access Facebook. This relationship is otherwise strong and positive (correlation in Table 2), but it can now be seen that it is actually very strong for men (correlation in Table 4). Practically, the perceived collectivism in the group specifically directs men to access Facebook via a smartphone. This phenomenon is not easy to explain. The dimension NC7 - Collectivism 2 consists of the following items: In this society, children take pride in the individual accomplishments of their parents; In this society, parents take pride in the individual achievements of their children; In this society, aging parents generally live at home with their children; In this society, children generally live at home with their parents until they get married. Particular attention should be paid to the last two items. Life with parents in later years is a common phenomenon in Serbia, and is often due to poor finances and the consequent inability to purchase an apartment. Male students are especially affected by this circumstance because in the years when they plan to establish their own family, it is desirable to have their own apartment or house. This can cause anxiety and more frequent stays away from home. Therefore, accessing Facebook via smartphones is more common. It is possible that male residents, away from home and accessing Facebook via their smartphones, are actually escaping reality and unconsciously seeking a solution to this situation.

The moderating effect of the year of study variable in the relations between the influence of the national culture dimensions on the Facebook and smartphone use items is also very poor, but nevertheless somewhat stronger than for gender. The moderating effect of year of study is present in the relation between NC1 - Uncertainty avoidance and FB2 - Daily time use and FB4 - Number of photos. For younger students there is a statistically significant correlation between NC1 - Uncertainty avoidance and FB2 - Daily time use. Young students' perceived uncertainty diminishes with their presence on Facebook, thus making it easier to cope with. On the other hand, the correlation NC1 - Uncertainty avoidance and FB4 - Number of photos is statistically significant and negative for older students. This

is what was indicated in the discussion of the results of the correlation analysis. Older students are more cautious about posting images because such images may reveal certain details about them, so avoiding posting them is actually a way of reducing uncertainty.

We should immediately notice here that the situation is reversed by the impact of the NC9 - Assertiveness dimension on the same item: FB4 - Number of photos. Namely, older students perceive assertiveness as one of society's challenges, and accordingly post more images on Facebook. Older students are safer and more persistent, and this results in the posting of a larger number of photos. There is an interesting situation here with older students: on the one hand perceived avoidance of uncertainty serves to reduce the number of images on Facebook, while on the other, perceived assertiveness encourages the uploading of images on Facebook. In other words, maturity requires them to be careful when images are in question, and security and self-confidence encourage them to post images. Given the average ratings of item FB4 - Number of photos for younger students (FB4mean, y = 2.38) and older students (FB4mean, o = 2.63), as well as the fact that the t-test showed a statistically significant difference in these values, for older students assertiveness prevails over uncertainty avoidance, at least when it comes to item FB4 - Number of photos.

The moderating effect of year of study is present in the relation between NC5 - Humane orientation and FB1 - Frequency of Facebook usage, as this relation becomes statistically significantly negative for older students. If students perceive the environment as less humane, more intolerant, and with no feeling or consideration for others, then frequent use of Facebook may serve as some kind of compensation for such circumstances. This is especially true for older students who think more about this condition, they find if more difficult to cope with and it affects them more. On the other hand, the perception of high humane orientation, feelings for others and companionship, may reduce the need for access to Facebook, with older students especially striving for live contact.

The moderating effect of the success in studies variable in the relations between the influence of the national culture dimensions on the Facebook and smartphone use items is very weak and occurs between NC5 - Humane orientation and FB1 - Frequency of Facebook usage and FB4 - Number of photos. These relationships are not statistically significant (Table 2), but they now become extremely negative (for FB1 - Frequency of Facebook usage and statistically significant) for less successful students. This phenomenon can be explained in the following way: if a student perceives society as

having low humane orientation and he is a bad student, he then tries to find a place for himself in such an environment. This encourages frequent visits to Facebook, where he expects „to find something", as well as posting a large number of images hoping that „something will happen". Conversely, if a student perceives society as humane oriented, and he is a bad student and therefore unsuccessful in his work, this may cause envy, insecurity and a decreased desire to appear on Facebook.

Although the moderating effect of the possession of finance to open up one's own company variable in the relations between the influence of the national culture dimensions on the Facebook and smartphone use items is poor, it is still stronger than the previous moderators. More specifically, the moderating effect focuses on two dimensions of national culture: NC2 - Future oriented and NC3 - Power distance. The NC2 - Future oriented dimension has the lowest average rating of all the national culture dimensions (Table 1). Logically, it should be assumed that most students perceive future oriented as low. If a student perceives low future orientation, and is relatively well off, such circumstances may result in a certain degree of relaxation and a reduced need to seek something through frequent entries on Facebook and long conversations via a smartphone. The situation is reversed when it comes to the impact of the NC2-Future oriented dimension on the SP2 - Use of smartphones to access Facebook item: relaxation in these conditions may lead to time outside the home being spent on Facebook via a smartphone. Conversely, a student who has money and perceives high future orientation may develop the feeling that people in the environment are involved in activities and making plans, so when he already has money this encourages him to do something and to be more proactive. This may be partly manifested through accessing Facebook and getting involved in long discussions. This does not apply to item SP2 - Use of smartphones to access Facebook because these more proactive students use their time outside the home more effectively, without the need to use Facebook.

The moderating effect of the possession of finance variable is expressed in the NC3 - Power distance dimension where a negative impact on the power distance of certain items related to Facebook is present for students with access to finance. Note that NC3 - Power distance has the highest average rating of all the national culture dimensions (Table 1). Hence, in Serbia, there is a high power distance which has a stronger effect on those students who do not have their own money. Conversely, in high power distance conditions, students with access to their own funds feel more secure, and have greater opportunities for other kinds of entertainment. Practically, students who perceive high power distance

and have access to their own funds are more confident, and have less need to access Facebook, search for friends or upload images on Facebook. They may even avoid this so as not to provoke the majority because they have money and they may not want someone to accept them because of certain hidden expectations.

6. Conclusion

The influence of the dimensions of national culture on the observed Facebook and smartphone use items is not strongly expressed, and is statistically significant for certain individual dimensions of national culture and Facebook and smartphone use items. The NC1 - Uncertainty avoidance dimension statistically significantly and positively influences items FB1 - Frequency of Facebook usage and FB2 - Daily time use. Thus, accessing Facebook can create a subjective feeling of avoiding uncertainty and escaping problems. Also, avoiding uncertainty can also be manipulated by avoiding uploading images on Facebook. Item FB5 - Number of groups is under the influence of two dimensions: NC3 - Power distance and NC5 - Humane orientation. The respondents are encouraged to gain the support and attention of others through group membership, and through equality within such groups they find a place where they are able to avoid the power distance which is high in Serbia. Item SP1 - Total daily smartphone use is also influenced by two dimensions: NC4 - Collectivism 1 (institutional) and NC7 - Collectivism 2 (in group). Mobile phones simply and efficiently serve to meet the needs, but also the obligations, of collective and family connections. NC2 - Future oriented and NC6 - Performance orientation negatively affect individual items. Although these impacts may not be as strong, they still suggest that planning and focusing on results reduce the space for using Facebook and smartphones.

By combining the results of the correlation and regression analysis, it can be concluded that the total strongest impact is achieved by the dimension NC7 - Collectivism 2 (in group), while items FB5 - Number of groups, SP1 - Total daily smartphone use and SP2 - Use of smartphones to access Facebook are under the greatest influence of the national culture dimensions. The paper examines the moderating effects of four moderators: the respondents' gender, year of study, success in studies and the possession of finance to open up one's own company. However, none of them demonstrated a strong moderating effect in the observed relationships. In general, the effects of national culture on the Facebook and smartphone use items are not statistically significant in the majority of cases, just like the moderating effects, but some interesting relationships and tendenci-

es have been noticed. The results would probably have been more pronounced if the research had included all social networks at the same time. This and the fact that the results of the research apply to the conditions in Serbia may be considered as the main limitations of the research. Therefore, the proposal for further research is to repeat a similar study where the respondents would evaluate their own parameters for all social networks together. In any case, the results of the research presented here have theoretical and practical significance. The theoretical significance is that the observed impacts have not been examined with the GLOBE dimensions of national culture so far, while the practical significance is that the results may contribute to a better understanding and guidance of students when it comes to the use of Facebook and smartphones.

7. References

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