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Facebook and Public Relations in Higher Education. A Case Study of Selected Faculties from the Czech Republic and Slovakia

Abstract

Nowadays It is essential for universities and faculties to interact on-line with their potential applicants, current students as well as other stakeholders. In recent years, social media such as Facebook has provided higher education institutions with new means of communication with their target groups. The purpose of this study is to explore the use of the most popular social network Facebook by selected faculties in the Czech Republic and Slovakia and to provide a set of practical benchmarks on successful communication with public. To answer presented research questions, a convergent parallel mixed-methods research design was used. Firstly, a focus group investigation was put forward to clarify what communication channels are generally used by applicants and students when searching and sharing information about faculties. Secondly, a quantitative data analysis, based on data mining using tools such as Power BI and Netvizz, was presented. Data for year 2017 obtained from sixteen Facebook profiles of selected faculties were used. The findings provide evidence on the use of Facebook by an institution – customer communication by the faculties. Furthermore, they reveal that different message features generated different customer behaviour. The study contributes to a better understanding of marketing-related activities on social media in higher education.

Keywords: Facebook; higher education; online engagement; post content.

Introduction

Social media has become an important platform in various aspects of our lives. Nowadays, it encompasses social networking, entertainment, marketing as well as newsfeed updates (Warner-Soderholm et al., 2018). Social media allows to use audio-video platforms, such as videos and photos that have a greater effect on users than a simple textual content (Aparicio-Martinez et al., 2017). It is thus no surprise that social networks such as Facebook, Twitter or Instagram represent one of the most common forms of socio-cultural interactions in particular for young people. The youth uses these networks to maintain contact not only with

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friends and family but also with organizations and brands. Age is an important factor determining differences in the use of the internet. Among younger users aged 16 to 24 years in the EU popular online activities entail participating in social networks (90 % in 2017), watching videos from commercial or sharing services such as YouTube and listening to music (Eurostat, 2018). In 2017, the share of internet users who were active on social network was 65 % in all EU member states with 72 % in Slovakia and 57 % in the Czech Republic (percentage of people aged 16-74 who had used the internet during the last 3 months, 2017).

A growing number of companies establish and maintain their interactive online presence via social networking sites. Companies consistently seek to engage with potential and current customers (Wright & Hinson, 2013, Vandemia, 2017). Social media has been identified as an important vehicle in fostering social connections that maintain and expand existing relationship between organization and customers. Usage of social media by organizations especially is changing public relations as important part of promotional mix (Tajudeen, Jaafar, Ainin, 2018). When page visitors observe relevant posts and responses from an organization in a timely fashion, they register the organization's ability to communicate well with them. Several e-commerce studies found that quick and relevant communication increases perceptions of interactivity and consumer trust (Alalwan et al., 2017; Lee, 2005).

Social media facilitates communication among higher education institutions and their students, staff and graduates and other public (page visitors and followers). At the same time, the increasingly competitive character of the higher education market has led to more profound use of marketing oriented activities, branding and brand management (Rutter, Roper & Lettice, 2016, Voss & Kumar, 2013). Most universities are aware of the need for communication with applicants and current students through social networks. Therefore, understanding the characteristics that influence the interactivity and relationship between an organization and its page visitors and influencers is essential for the organization's ability to respond to public on social networking sites in a desired manner.

This paper develops the existing higher education branding literature by considering the use and impact of social media within the university sector. Specifically, the study examines the use of Facebook by education faculties in the Czech Republic and Slovakia and the impact of that social media communication with public on student engagement.

Social media and marketing

The usage of social media has changed communication activities and public relations of organizations. Communication strategy, continuous monitoring, a responsible and a skilled expert or a team of experts to update the information on the website and create suitable content that provides relevant information to public and quality that users perceive as acceptable are now seen as standard components of the communication mix.

When examining the role of social media and its influence (SM) in the marketing context, four main streams may be identified: brand communities, electronic word of mouth, networking analysis, and product-harm crisis (Gensler et al., 2013). Alalwan et al. (2017) introduced further subgroups as follows: social media (SM) and advertising, SM and electronic word of mouth, SM and customer relationship management, SM and brand, SM and customer behaviour and perception, SM from the organizations' perspective, and adoption of SM. Undisputedly the issue of SM application for marketing purpose has gained notable traction. An

alternative approach has focused on the role of media in general (Tuten and Solomon, 2015). The so called media concept has been adopted in a wide range of different contexts including in higher education. Tuten and Solomon (2015, p. 21) expressed the essence of communication via SM as follows “the utilization of social media technologies, channels, and software is to create, communicate, deliver and exchange offerings that have value for an organization’s stakeholders.” At the same, there are technological, organizational, and environmental factors specific to social media that need to be taken into account. The technological context describes both existing technologies in use and new technologies relevant to the organization. The organizational context refers to the characteristics of the organization in terms of its scope and size. The environmental context characterizes the space where the organization provides their services and meets competitors and clients (c.f. Tajuden, Jaafar, & Ainin, 2018).

Several studies have found a significant positive relationship between perceived interactivity and outcome variables such as attitude and behaviour (Hudson et al., 2016; Vendemia, 2017). Interactive features of social networks that engage mobile and web-based technologies allow participants to create highly interactive platforms where individuals and communities share, co-create, discuss, and modify user-generated content (Ariel & Avidar, 2015).

Universities and their social media interaction with public

Increasing competition between universities and faculties (namely within the same field on national level) heightens the need for institutions to understand, manage, and leverage a strong brand position (Dennis et al., 2016; Rauschnabel et al., 2016; Voss & Kumar, 2013). This includes open communication and close relationship with their students, staff and stakeholders. More universities, including in Central Europe, have started to apply common marketing techniques and activities including brand management and customer relationship. Different communication tools are used by educational institutions to create varying levels of connection between the organization and public. It is also time to use the social media in a targeted way in order to achieve valuable communication of the organization with public.

As universities and their faculties find themselves operating within dynamic competitive and challenging environments, designing a strong marketing strategy becomes a necessary priority for them to achieve their marketing goals. Therefore topics such as brand (Rauschnabel et al., 2016; Rutter, Roper & Lettice, 2016; Palmer, Koenig-Lewis, & Assad, 2016), image (Azoury & El Khoury, 2014; Eger, Egerova, & Pisonova, 2018; Luque-Marinez & Del Barrio Garcia, 2009; Pérez & Torres, 2017), university reputation (Azoury & El Khoury, 2014; Juraskova, Jirikova, & Kocourek, 2015; Sultan & Wong, 2013), in particular focused on recruitment performance (Rauschnabel et al., 2016; Rutter, Roper, & Lettice, 2016), take on increased significance. Nowadays, social media represents a phenomenon which can drastically impact brand’s reputation, image of educational organization and as result also student recruitment (Rutter, Roper, & Lettice, 2016). For example, Luque-Marinez and Del Barrio Garcia (2009) argue that corporate image of an organization is a good predictor of the power of attraction and can influence its internal and external publics.

Very important role in today’s competitive market plays client satisfaction, an antecedent of loyalty (Azoury & El Khoury, 2014). Positive student satisfaction influences namely recruitment performance and loyalty of graduates. Rummel and MacDonald (2016) presented in their research study that influence on students’ sense of belonging to a university entails

not only in-classroom interactions and staff competency (cf. Parusheva, Aleksandrova, & Hadzkolev, 2018), but also service marketing approach which supports student retention as one of important drivers for students' satisfaction.

Sutcliffe, Binder, and Dunbar (2018) have opened discussion about effect of social media marketing and its effect on social satisfaction. On one hand they argue that some authors reported positive affect of increased number of Facebook friends among college students on social satisfaction and on other hand show also contrasting results. After that they expressed consensus from several studies and concluded discussion with assumption that social media more generally is supplement rather than supplant offline social relationships.

With increasing usage of social media by people and especially by young people, more universities are using social media to reach their target groups. The question for higher education institutions is not whether to use social media for communication with the public but rather how to effectively use this tool to reach their marketing goals. Reaching current and prospective clients through social media is considered to be the most promising field of marketing these days (Alalwan et al., 2017; Rutter, Roper, & Lettice, 2016; Smith, 2011).

Brand in higher education

Similarly as in the business sector, also in the field of education, brand management brings sustainable and competitive advantage to universities and faculties. Higher education institutions need to be managed more and more as corporate brands (Khanna, Jacob, & Yadav, 2014).

The topic of brand in education is usually associated with the quality of education and research provided by the particular university or faculty; and the corporate image of this organization. In the literature, a brand image has been defined as perception of quality associated with the brand name (Keller, 1993), in our case, with the name of the university and faculty.

Lowrie (2007) indicated that the service orientation of higher education make branding even more important than for organizations that make physical products. Corporate branding is the most appropriate branding orientation for universities including their faculties. The key task is to build and maintain strong relationships (Voss & Kumar, 2013) with relevant publics (students, staff, stakeholders) and establish differentiation and preference on the level of organization (university and faculty level). As faculties offer similar or identical study programs, teaching subjects or academic degrees, they need to apply marketing activities in order to differentiate their brand and values in the eyes of potential students.

For example, research by Opoku, Hultman, and Saheli-Sangari (2008) was focused on universities, brand personality and communication through official web pages. These authors highlighted the fact that the university's brand name and a corresponding image (reputation) represent a promise of future satisfaction for students in their decision making time. They conclude that universities need to communicate clear and distinct brand personalities online

Social media could enhance a two-way communication between organizations and customers, and accordingly, attach customers to the organizations' brand (Alalwan et al., 2017). Unlike other purchase decisions, a student signing up for a degree is effectively signing up for a lifelong relationship with the university and the faculty, as he or she will always have that university's name linked with his or her own (Rutter, Roper, & Lettice, 2016).

Active communication through social media can positively affect relationships between students and graduates with the university and faculty in terms of their commitment and trust, while consequently affecting brand equity (Dennis et al., 2016).

Brand and user engagement on Facebook

Organizations, including faculties, naturally seek to attract attention from the public. The change in the dynamics of marketing interchange between organizations and users as introduced by social media has placed a focus on the non-transactional customer behaviour.

The social network Facebook is considered as one of the prime platform for faculties to reach their target groups and engaging with them. Facebook is a leading social network actively used by people in these countries and by organizations both in the Czech Republic and Slovakia. At the core of all communication on Facebook is a single post (a message). It represents the unit of every Facebook communication. Each post draws a specific amount of attention from a Facebook page (profile) of an organization. Interactions are important to consumers (also page visitors and followers) and companies (organizations). Successful company-consumer interactions foster customer loyalty, willingness to try new offerings, and resistance to negative information about organization (Bhattacharya & Sen, 2003).

The term engagement becomes the central construct used to describe the nature of participants' specific interactions (Cvijikj & Michahelles, 2013). For example, Mollen and Wilson (2010, p. 923) define online engagement as "a cognitive and affective commitment to an active relationship with the brand as personified by the website". Certain interpretations of this term focus on cognitive and emotional aspects of engagement (Bowden, 2009). Facebook is leading social networks and offers users an opportunity to engage with organizational profile and messages through three different engagement tools such as likes, shares and comments. These three tools – activities represent different forms of social engagement within the SM.

Facebook defines "a like as the easiest way to indicate a user enjoys a post, whereas share redistributes and publishes a post on a user's and their connections' pages, and a comment allows a user to create or add content to another user's posts" (Facebook, 2017; Srivastava et al, 2018). Each mentioned engagement behaviour differs in value and commitment of resources (Kim & Yang, 2017; Srivastava et al, 2018). Giving likes represents a very basic form of engagement. Comments enable people to share their thoughts, ideas, opinion or to show their interest in the post's topic. Zell and Moeller (2018) state that writing comments on Facebook takes more activity and effort than what "clicking like" does. They make a clear difference between "composed communication (comments)" and "one click" communication (likes). Different message features generate different behaviours (Alsufyan & Aloud, 2017): sensory and visual features lead to like; while rational and interactive to comment and sensory, visual, and rational to share. Giving a "like" is thus an affectively driven behaviour while commenting is a cognitively triggered. Sharing is either affective or cognitive or combination of both (Kim & Yang, 2017, p. 441).

Social networks and Facebook have been studied from different perspectives. For example Bowden (2009) focused on concept of satisfaction and understanding of the role of commitment, involvement, and trust in the creation of engaged and loyal customers. Cvijikj and Michahelles (2013) placed a focus on the non-transactional customer behaviour and the level of online customer engagement measured by number of likes, comments and shares. Similarly, Cho, Schweickart, and Haase (2014) analysed organizational messages on Facebook through three different engagement tools: likes, shares and comments. Ji et al (2017) conceptualized two levels of stakeholder engagement online and examined their different effects on corporate reputation. Research conducted by Kim and Yang (2017) examined values of different type of engagement behaviour. Study by Marrino et al (2017) indicated problematic

and non-problematic Facebook users and also measured engagement in Facebook activities through real data from Facebook. However, little has been published about the use of Facebook in the context of higher education in relation to Public Relations and brand building.

As a complex social network, Facebook uses an algorithm that assigns different weight to each behaviour and thus determines what to show on the user's screen. A single share weights approximately as much as two comments, each of which has roughly the equal weight of 7 likes (Calero, 2013, Kim & Yang, 2017, p. 441). Thus, it is important managing communication of an organization with visitors and followers on Facebook. For this purpose is needed to understand how above mentioned behaviours differ from the other and how they affect public. Facebook allows researchers to get solid measures of messages on organizational profile and of public behaviours such numbers of likes, comments, and shares (e.g. using Netvizz or Power BI). Researchers can use tangible Facebook-provided behavioural metrics to investigate the relationship between public behaviours and organizational public relations efforts.

Development of higher education in the Czech Republic and Slovakia and the development of marketing orientation

The tradition of Czech higher education dates back more than 600 years ago. After 1989, university education was in high demand in the Czech Republic and Slovakia, as its capacity was limited during socialism. The democratization of higher education went hand in hand with the establishment of new regional universities, which replaced higher education institutions in the regions. In 1993 Czechoslovakia split into two separate countries, the Czech Republic and Slovakia. Both countries became members of the EU on 1 May 2004, both have cooperated in higher education area and both are members of the European higher arena bologna process (EHEA, 2018).

The past 25 years have been by marked by a period of school system reforms in the Czech Republic. Major changes in higher education were introduced by the Act No. 111/1998 coll. on Higher Education. Subsequently, the first private institutions of higher education were established in 1999. Since 2009, higher education in the Czech Republic has witnessed a decrease in the number of young people. The statistics from the Ministry of Education indicate that while in 2009 there were 388 990 students at Czech colleges and universities, in 2017 it dropped to 299 054 (Ministry of Education, Youth and Sports, 2018). Higher education institutions struggle to attract new students and thus have no other choice but to use effective marketing. The times when schools presented themselves only in specialized periodicals dedicated to education and at fairs organized by universities are long gone (Ptackova, 2017). Furthermore, as a result of the lack of college applicants, universities also focus on attracting students from abroad – marketing of universities thus takes on an international dimension (Kartous, 2014, Krizova, 2017).

The established institutions (public institutions with historical tradition) may rely on the advantage of being well-known by people. However, that constitutes only the first step. They have a better position in terms of history and the tuition-free education.

In Slovakia, there are public, state, and private institutions of higher education. The public institutions of higher education are established pursuant to the Act on Higher Education (2002 and with a series of amendments, the most recent in 2018). Slovakia has rapidly-increasing tertiary education attainment rates, but the internationalisation remains still low. In

2016, the tertiary attainment rate was 31.5 %. Although below the EU average of 39.1 %, it has progressed strongly with an increase of 7.8 % since 2012. In April 2017, the Ministry of Education presented a series of legislative proposals to implement the ‘Learning Slovakia’ reform agenda of education for the period 2018-2027. The main objective in higher education is to introduce greater flexibility for universities to response to current societal needs, while also strengthening their responsibility for the quality of education (Education and Training Monitor 2017).

Slovakia has also seen a decrease in the number of young people at Slovak colleges and universities (Slovak Centre of Scientific and Technical Information, 2018). For example, in the academic year 2016/2017, 147,680 students attended higher institution in Slovakia. In 2018, the number of students in public universities dropped by 9,014 and in private higher education institutions dropped by 1,965 students. According to the latest UNESCO statistics more than 30 thousand Slovak students studied outside of the country with almost 25,000 in the Czech Republic. This is to a great extent influenced by the fact that Czech and Slovak languages share many similarities and studying in the Czech language is free of charge at public higher education institutions for Slovak students.

Marketing, including marketing on social media, became important for higher education institutions in the Czech Republic and Slovakia. At present, the primary goal of marketing is to communicate the portfolio of study programs to prospective applicants in an attractive way and convince them that studying the programs taught at the faculty makes sense for their future life (Kartous, 2014, Mockova, 2016; Voss & Kumar, 2013). Brand building has also become a significant topic for universities in the two countries (Juraskova, Jurikova, & Kocourek, 2015).

The development of higher education in the Czech Republic and Slovakia, described above, the increase in competition in this area and the demographic decline in the category of 18-to-23-year-olds, has resulted in application of marketing in higher education including the usage of SM. In the last decade, it is evident that marketing at higher institutions has become professionalized, first seen at private institutions and later followed by public ones.

This study provides evidence from a research focused on social media in higher education related to branding activities and considers the impact of this activity on public engagement and on student recruitment.

Research Questions

This study investigates the impact of communication on Facebook on public engagement, specifically in the higher education, and the following research questions were proposed:

RQ1: What communication channels are perceived by students as appropriate in order to attract them to study at the university?

RQ2: How do selected faculties in the Czech Republic and in Slovakia use Facebook to communicate with public?

RQ3: What type of user reaction produces communication of selected educational institutions on Facebook?

Hypotheses

The hypotheses below were formulated in response to the research questions RQ2 (Hypothesis 1 and 2), and question RQ3 (Hypothesis 3).

Hypothesis H1: *There is a positive association between engagement rate of the faculty Facebook page and reduced engagement rate.*

Hypothesis H2: *Faculties that are more active in communication on their Facebook pages (number of posts / 2017) achieve higher engagement rate.*

Hypothesis H3: *There is a positive association between engagement rate of the faculty Facebook page and number of students at the faculty.*

The answer to question RQ1 is based on the qualitative phase of the research (results of focus groups) and the answer to question RQ3 is based on both quantitative results and on qualitative evaluation of the best messages with the highest engagement.

Methods

Study design

To answer the research questions, a convergent parallel mixed-methods research design was used; this kind of design allows the researcher to explore a research problem from both qualitative and quantitative perspectives (Gray, 2009). Quantitative and qualitative data were collected during the same phase of research and were analysed separately and independently (Creswell & Plano Clark, 2011).

Using both quantitative and qualitative research methods help us better understand and explain the impact of using social media on communication with public and on specific target, student recruitment, as well as students' attitudes towards this communication.

The quantitative approach consisted of a data mining survey, while the qualitative approach used a focus group investigation and expert evaluation of selected messages. The quantitative phase used Facebook API to gather data using tools Microsoft Power BI (2018) and Netvizz (2018) with aim to classify existing data and to compare activities on Facebook pages. In qualitative phase the focus groups were used to gather information about students' opinions on communication with the faculty with a focus on communication through Web sites and social media.

Qualitative phase

For the qualitative phase, a focus group design was used. Gray (2009, p. 233) notes that "An advantage of focus groups is that they allow for a variety of views to emerge, while group dynamics can often allow for the stimulation of new perspectives". The focus group approach was prepared on the basis of reviewed literature (e.g. Alalwan et al., 2017; Juraskova, Jurikova, & Kocourek, 2015; Rutter, Roper, & Lettice, 2016; Vendemia, 2017). The following questions were developed by the research team for the focus groups:

– What factors were important for you when deciding about your studies at the university?

- Where do students find information about universities nowadays? (Which communication channels are important for university applicants?)
- What recommendations do you suggest to create and maintain good awareness of the faculty and its image?

Questions were primarily focused on assessing students' experience when looking for a faculty for their further studies after graduating from high school. The third question from the scenario aims at communication of the faculty with students and on the development of faculty reputation.

Sample characteristics and procedure

In total, six focus groups were carried out, two in April 2018 and four in November 2018. Four additional focus groups were held to allow better understanding of students' points of view and to validate previous focus group results. Participants were master-level students studying at universities in the Czech Republic. The focus groups consisted of 8 to 12 participants and usually took 60 minutes. Each focus group was mixed in gender. All focus groups were facilitated by one moderator, who had received training in focus group moderation, and two assistants. At the beginning of each focus group, the moderator informed the participants about the purpose of the focus group and the research. Then, the moderator used the prepared questions to guide the session. All focus group discussions were transcribed verbatim. To allow interpretation of focus group data, a qualitative content analysis was conducted.

Second (additional) part of qualitative phase follows results of the quantitative phase. Selected messages with high engagement were assessed using expert evaluation from marketing perspective. The purpose is to demonstrate effect of selected messages on user engagement and is aimed on deeper understanding of communication via Facebook page.

Quantitative phase

First, Microsoft Power BI was used to analyze how selected faculties of education communicated on Facebook over the period 2009 – 2018. The sample consists of 10 faculties from the Czech Republic. Two of them are not directly faculty of education by name, but mainly provide study programs for future teachers (Liberec, Zlin). Six faculties are from Slovakia. Faculty of Education of J. Selye University was not included as in this case only university Facebook page is being used and the quantitative analysis is focused on Facebook pages that manage faculties. Therefore, the number of total analysed Facebook profiles was 16. The data was downloaded in July 2018.

Second, the Netvizz tool was used to analyze different sections of the Facebook platform – mainly pages (links to messages, types of messages, data about user engagement). Then, evaluation of the messages with the higher engagement used data from the Netvizz report to gain information on which messages generated higher customer engagement according to the types of messages (posts). A total of 2315 (Netvizz) records of messages from 16 faculties with Facebook profiles for the year 2017 were selected for investigation (Links, Photos, Status, Videos).

Results

Qualitative findings

In this subsection the findings from the focus groups are presented.

As expected, the most important factor for students was faculty web pages at the time of deciding their future studies. This finding is in line with recommendation by Opoku, Hultman, and Saheli-Sangari (2008) in relation to brand communication through web pages. Another highly important factor was recommendations by former high school students and teachers (WoM). The applicants followed news updates on faculty web pages almost as frequently as the institutions' communication on their social media. Concerning particular social media, they preferred Facebook, YouTube and special pages (portals) focused on information about faculties and entrance exams.

With regard to other factors, students were not united in other items and expressed different preferences. For example: "It was important for me to follow a specialization from high school." Two participants stated: „The parents' recommendation was the first.“ Only some of them participated in high school meetings with university representatives, some of them used the opportunity to visit faculty during its open days.

From the point of view of conducted research, it is important to emphasize the importance of the faculty's web pages, the underlined influence of social media and so called e-WoM. The findings about social media role in communication align with previous studies and show that active communication with an organization affects user relationships with the organization (c.f. Ji et al., 2017). Some of the respondents stated "I use Google to search for everything". On the other hand, the recommendations of friends, former students and teachers of high schools became an important factor as well. A few participants mentioned that they followed their friends from high school. Several participants also retorted that their high school teachers informed them about study programs and image of the faculty.

An important purpose of the presented research was to gain ideas from students on how to improve communication and image of the higher education institutions. The participants of focus groups recommended to use the tool of the so-called events with teaching staff at faculty (to improve F2F communication) and to engage actively students in communication on social media in order to improve partnerships, relations and image of the faculty.

In Table 1 below, results in relation to questions from scenario are presented.

Table 1. Results of focus groups.

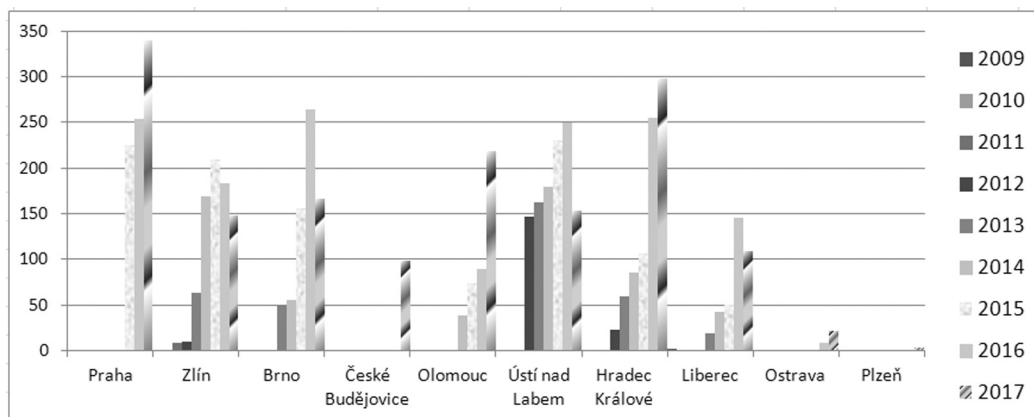
<p>What factors were important for you when deciding about your studies at the university?</p> <ul style="list-style-type: none"> - study program / field of study, - the admission procedure and its difficulty, - application of graduates in practice, - the prestige (image) of the faculty, - recommendations by current students, - the location where the university is located, - place of study, distance from home, - type of higher education institution (public / private), - the ability to continue your specialization from high school, - possibility to go abroad and - parents' opinion.
<p>Where do students find information about university nowadays? (communication channels)</p> <ul style="list-style-type: none"> - websites of the faculty, - open days, - current students of the faculty (WoM), - social media (namely Facebook and YouTube), - presentation about faculty organized at high school, - recommendation by high school teachers, - a fair (event) for future college students, - brochures and catalogues distributed to secondary schools and - special edition of newspapers and magazines focused on entrance exams.
<p>What recommendations do you suggest to create and maintain good awareness of the faculty and its image?</p> <ul style="list-style-type: none"> - to improve and to make more user-friendly the faculty's website, - to organize more informal meetings between students with teaching staff, - to involve more students in creating content of Facebook page, - to prepare more events for new students, - to consider if to apply also the Instagram.

The above presented findings from focus groups help us understand how students want to communicate with the faculty and provide ideas how to change and improve their engagement via web pages and social media.

Quantitative findings

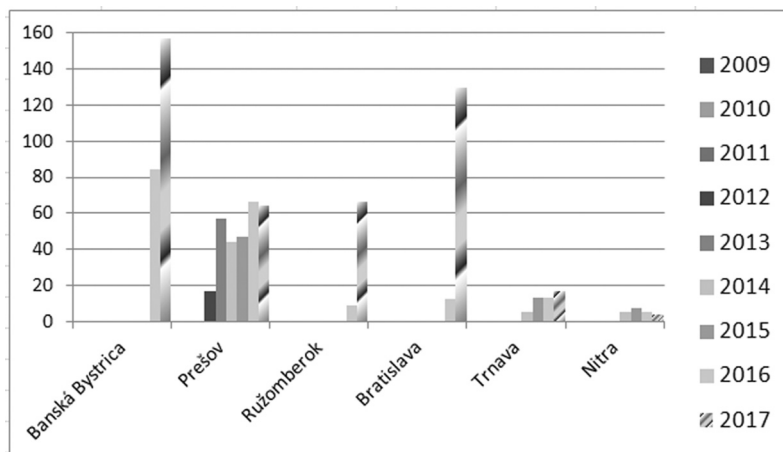
Data downloaded via Power BI presents how selected faculties use Facebook for communication. Figure 1 shows the use of Facebook/year. This data provides an interesting example of the use of Facebook in the education area by faculties focused on teacher training and education in the Czech Republic and Slovakia.

Figure 1. Selected faculties and their activity on Facebook (by years) – Czech Republic



Source: Facebook pages of selected faculties using Power BI.

Figure 2. Selected faculties and their activity on Facebook (by years) – Slovakia



Source: Facebook pages of selected faculties using Power BI.

The purpose of Figures 1 and 2 is to demonstrate the use of Facebook by the analysed faculties while communicating with public. Only the faculty in Liberec experimented with Facebook in 2008 when the Czech mutation was made operational. However, only two posts were published (therefore the pictures do not show year 2008), another one was published in 2009. Subsequently, since 2013 Facebook had begun to be used more frequently. As the picture shows, only three faculties trespassed the threshold of 200 posts in 2017. On the contrary, four faculties were practically unable to use Facebook – see Tables 2 and 4. Faculties from Usti nad Labem, Hradec Kralové, Prague and Brno assumed leadership. In 2015, there were still 6 faculties without any Facebook profile.

This part of the study documents the progress in the use of Facebook among faculties of education in both countries. It is obvious from the pictures 1 and 2 that almost half of the faculties have already used Facebook in the usual way, it means, they publish several posts a week during the academic year (except summer holidays). Conversely, there are faculties that have created channel for communication on a social networks but are not able to use it for Public Relations.

As the comparison of both figures shows, faculties in Slovakia began using Facebook at a later time and in lower intensity than faculties in the Czech Republic. Notwithstanding the fact that EUROSTAT data (2018) on the use of social media inform appear to be more positive in Slovakia.

To answer RQ2 and hypotheses 1 and 2, the engagement was calculated for the selected 16 faculties by using data downloaded from Netvizz. Engagement rate is a metric that measures the level (degree) of engagement received from the audience by a specific part of the published content. Engagement rate represents a (rather dated) metric that measures the level of engagement which a piece of created content (message = post) receives from an audience. It shows how much people interact with the content. Engagement rate is a metric that is used greatly in analyzing social media (Kim & Yang, 2017; Rutter, Roper, & Lettice, 2016). This metric is continually refined by other parameters that enter into the calculation. As the engagement rate is calculated in relation to the number of followers a faculty has on social media, the rate for both small and large faculties can be compared equally. On the other hand, it should be noted that a new Facebook metric calculates engagement rate as PTAT (people talking about this) and this indicator is more accurate, but third parties can't get input parameters.

The calculated engagement rate for selected faculties and their communication on Facebook for the year 2017 is presented in Table 2.

$$\text{Engagement Rate} = \frac{\text{Reactions} + \text{Comments} + \text{Shares}}{\text{Followers}}$$

Reduced engagement rate was calculated according recommendation by Kim and Yang (2017). In this case, a share weights as much as 2 comments, and like weights as 1/10 comments.

$$\text{Reduced Engagement Rate} = \frac{1/10 \text{ Reactions} + \text{Comments} + (\text{Shares} * 2)}{\text{Followers}}$$

Table 2. Faculties of education, engagement rate on their Facebook profiles (2017).

Year 2017	Sum Engagement	Number Followers	Eng. Rate Faculty order	Reduced Engagement	Reduced Eng. rate	Faculty order*	Number of students	Faculty order**
Faculty/University/City								
Faculty of Education, Charles University/ Praha	9444	3973	1	2193.4	0.55	1	5033	1
Faculty of Education, Matej Bel University Banska Bystrica	677	548	2	281.4	0.51	2	928	16
Faculty of Humanities, Tomas Bata University in Zlin	2111	2035	3	619.1	0.30	4	1976	8
Faculty of Education, Masaryk University/ Brno	4339	4752	4	936.7	0.20	8	4522	2
Faculty of Education, University of South Bohemia in České Budjovice	729	873	5	237.3	0.27	5	2179	7
Faculty of Education, Presov	2014	2568	6	1170.9	0.46	3	1104	15
Faculty of Education, Catholic University in Ruzomberok	380	525	7	123.5	0.24	6	1190	14
Faculty of Education, Palacký University/ Olomouc	1903	2764	8	472.8	0.17	9	4442	3
Faculty of Education, Jan Evangelista Purkyni University in Ústí nad Labem	2816	4083	9	613.5	0.15	10	2711	5
Faculty of Education, University of Hradec Kralové	1725	2675	10	571.6	0.21	7	2773	4
Faculty of Science, Humanities and Education, Technical University of Liberec	477	1354	11	142.8	0.11	12	1893	9
Faculty of Education in Bratislava, Komensky University in Bratislava	252	1381	12	64.7	0.05	13	1827	11
Faculty of Education, Trnava University in Trnava	194	548	13	60.1	0.11	11	1237	13
Faculty of Education, University of Ostrava	115	794	14	34.2	0.04	14	2297	6
Faculty of Education, University of West Bohemia/ Plzen	7	122	15	2.6	0.02	15	1844	10
Faculty of Education, Constantine the Philosopher University in Nitra	47	1514	16	27.2	0.02	16	1361	12

* = according reduced engagement rate, ** = reduced engagement rate / number of students.

Table 2 displays basic data outputs from the Facebook profiles of the analyzed faculties for year 2017 as obtained via Netvizz. The calculated value of Engagement Rate considers the number of follows and put the faculties in order accordingly. Although the first faculty is from the largest city, the other two spots belong to faculties from smaller cities (Banska Bystrica and Zlin). Only then comes a faculty from another large city (Brno). Reduced Engagement Rate as an indicator with higher quality does not adjust the order significantly. Even though the position of the faculty from Banska Bystrica fell and the position of faculties from Ústi nad Labem, Presov and Hradec Kralové improved. The results (positions) of the last five faculties remained the same. Interestingly, among those is the faculty from Bratislava, the capital city of Slovakia. It may be stated that faculties from Pilsen and Nitra completely failed to acknowledge communication with public on Facebook. The Reduced Engagement Rate below 0.02 stands for a notably weak result.

Spearman's rank-order correlation was used to analyse statistical difference between the rankings of two selected variables. The Spearman correlation between two variables is high when observations have a similar rank.

H1. Association between Engagement Rate, Reduced Engagement Rate has been proven. The value of r is 0.82059 and the p (2-tailed) = 0.0001. The association between the two variables would be considered statistically significant.

H2. Figures 1 and 2 and Tables 2 and 3 demonstrate that faculties with higher activity on Facebook achieve better results in both presented indicators than faculties that do not use Facebook in a sufficient manner (see number of posts, likes, comments and shares). The association between Reduced Engagement Rate and number of posts by faculty in 2017 is statistically significant, $r = 0.75588$, p (2-tailed) = 0.00071

H3. Association between Reduced Engagement Rate and number of students. The value of r is 0.04118 and the p (2-tailed) = 0.87965. The association between the two variables is not considered statistically significant.

This means that the hypothesis H1 is accepted. There is a significant correlation between the Engagement rate and Reduced Engagement Rate, that weights reactions, comments and shares. The obtained data via Power BI and Netvizz (Table 2) also showed (H2), that faculties with higher activity on Facebook achieve better results in the assessment of users' engagement. On the contrary, the hypothesis H3 cannot be accepted thus implies that faculties' activity on Facebook is not directly related to the number of their students.

In this context, it is necessary to state the number of prospective and enrolled students of each faculty (Table 3). The criteria for enrolment in both countries are regulated by the accreditation of study programs and Ministries while considering the number of subsidized students (most likely to influence the H3 hypothesis).

Table 3. Faculties of education, number of applicants and percentage of acceptance.

Year 2017	Faculty order*	Applicants	Enrolled students	percentage acceptance	Order applicants	Order % of acceptance
Faculty/University/ City						
Faculty of Education, Charles University/ Praha	1	4067	1204	29.60	1	13
Faculty of Education, Matej Bel University Banska Bystrica	8	646	284	43.96	16	8
Faculty of Humanities, Tomas Bata University in Zlin	4	1500	718	47.87	10	4
Faculty of Education, Masaryk University/ Brno	3	4008	1197	29.87	2	12
Faculty of Education, University of South Bohemia in České Budějovice	9	1999	585	29.26	6	16
Faculty of Education, Presov	2	743	380	51.14	15	3
Faculty of Education, Catholic University in Ruzomberok	11	774	509	65.76	14	1
Faculty of Education, Palacký University/ Olomouc	7	2997	1070	35.70	3	10
Faculty of Education, Jan Evangelista Purkyně University in Ústí nad Labem	5	1578	678	42.97	8	7
Faculty of Education, University of Hradec Kralové	6	2601	736	28.30	4	15
Faculty of Science, Humanities and Education, Technical University of Liberec	10	1229	681	55.41	11	2
Faculty of Education in Bratislava, Komensky University in Bratislava	12	1738	613	35.27	7	11
Faculty of Education, Trnava University in Trnava	13	998	465	46.59	13	5
Faculty of Education, University of Ostrava	14	2227	658	29.55	5	14
Faculty of Education, University of West Bohemia/ Plzen	16	1563	645	41.27	9	9
Faculty of Education, Constantine the Philosopher University in Nitra	15	1103	513	46.51	12	6

Source: Data from Ministry of Education, Youth and Sports (2018) and Slovak Centre of Scientific and Technical Information. (2018).

As stated above, in both countries public universities are regulated by Ministries. The faculties' activity on Facebook (Reduced Engagement Rate), with the Spearman's Correlation coefficient applied, does not indicate a significant correlation with the list of faculties ordered by the number of applicants nor by the number of enrolled students. Nevertheless, it is interesting to note the considerable different prospects of enrolment. In case of the Czech Republic, students are most likely to enrol at the faculty in Liberec (55.41 %) and least likely at the faculty in České Budějovice (29.26 %). For Slovakia, the highest chance of enrolment is in Ruzomberok (65.76%) while the lowest is in Bratislava (35.27 %).

Considering the marketing communication of higher education institutions on Facebook, the following analysis of posts in terms of their engagement (Table 4) provides important findings. Table 4 presents in detail efficiency of each type of posts. The most used type of posts in 2017 of the analysed faculties was a photograph (1364 = 59 %), followed by a hyperlink albeit with only an approximate half of the previous number (747=32 %). There were 135 (or 6 %) video posts and 69 (or 3 %) of the so called basic status updates.

Table 4: Types of posts on Facebook and Engagement

Faculties	Links	Engagement Links	Links Ratio	Photos	Engagement Photos	Photos Ratio	Status	Engagement Status	Status Ratio	Videos	Engagement Videos	Videos Ratio
City												
Praha	111	2257	20.33	207	6319	30.53	2	3	1.50	30	865	28.83
Banska Bystrica	56	68	1.21	180	588	3.27	1	3	3.00	11	18	1.64
Zlin	16	434	27.13	131	1588	12.12	3	8	2.67	6	81	13.50
Brno	53	1146	21.62	94	3042	32.36	0	0	0.00	20	151	7.55
Ceské Budějovice	44	154	3.50	74	503	6.80	17	39	2.29	6	33	5.50
Presov	17	274	16.12	60	1479	24.65	10	46	4.60	4	215	53.75
Ruzomberok	11	25	2.27	53	336	6.34	3	19	6.33	1	0	0.00
Olomouc	111	777	7.00	104	848	8.15	13	253	19.46	4	22	5.50
Ústí nad Labem	61	834	13.67	85	1755	20.65	0	0	0.00	11	227	20.64
Hradec Kralové	55	334	6.07	227	1256	5.53	1	4	4.00	19	131	6.89
Liberec	38	81	2.13	56	293	5.23	11	13	1.18	18	90	5.00
Bratislava	79	104	1.32	71	145	2.04	1	3	3.00	0	0	0.00
Trnava	72	157	2.18	9	12	1.33	4	19	4.75	1	6	6.00
Ostrava	14	66	4.71	10	42	4.20	1	5	5.00	1	2	2.00
Plzen	0	0	0.00	2	4	2.00	2	2	1.00	2	1	0.50
Nitra	9	43	4.78	1	2	2.00	0	0	0.00	1	2	2.00
Average			8.38			10.45			3.67			9.96
Minimum			0.00			1.33			0.00			0.00
Maximum			27.13			32.36			19.46			53.75

Source: Data downloaded using Netwizz.

As it is apparent from Table 4, high efficiency in communication with Facebook users is achieved primarily by photo and video posts. For instance, a very high engagement in 2017 was reached by the faculty of Presov due to 4 video posts, similarly by the faculty of Brno thanks to photo posts used 94 times.

This underscores the need to qualitatively evaluate the posts that achieved the highest Engagement and thus find out what may constitute the most appropriate type of content for faculties of education while communicating with public. In order to identify the most successful posts the data obtained by Netwizz were again used. The top 10 most successful posts are briefly described in Table 5.

Table 5. Ten top posts, engagement rate (reactions, comments, shares) and brief marketing evaluation.

No.	Faculty	Type	Reactions	Comments	Shares	Content	Action
1	Liberec	Photo	61	2	3	Open day invitation	Liberec is an ideal place to study
	Date	21.1.2017					
	Link	https://www.youtube.com/watch?v=YziHGICFONo&list=RDYwgcBVQ3rb0&index=27					
2	Zlin	Photo	185	3	1	The opening ceremony of a new building	Are you already looking forward to?
	Date	6.12.2017					
	Link	https://www.facebook.com/192271707477392/posts/1514441581927058/					
3	Banska Bystrica	Photo	46	3	4	Appointment of a new dean	Wish of success
	Date	15.3.2017					
	Link	https://www.facebook.com/944572382319246/posts/1117441908365625/					
4	Brno	Photo	249	0	1	A letter from a lady who graduated 70 years ago	A wish for a new year
	Date	28.12.2017					
	Link	https://www.facebook.com/195998708673/posts/10155942151238674/					
5	Brno	Photo	949	19	30	The new connection between the buildings of the faculty	Joke = new train in the city
	Date	19.9.2017					
	Link	https://www.facebook.com/195998708673/posts/10155675109213674/					
6	Presov	Photo	84	3	356	Event announcement to support sick children	Join the action
	Date	14.3.2017					
	Link	https://www.facebook.com/406291376051975/posts/1645778075436626/					
7	Ústi nad Labem	Photo	233	3	3	The dean thanks the student for first aid	Thanks for your help
	Date	10.1.2017					
	Link	https://www.facebook.com/106878978178/posts/10154965117213179/					
8	Praha	Photo	237	1	11	Wishes for novice teachers	Joke – students still have time off
	Date	4.9.2017					
	Link	https://www.facebook.com/426359397423041/posts/1556900947702208/					
9	Olomouc	Status	152	2	1	Students go to Indonesia for an internship	Happy journey
	Date	29.8.2017					
	Link	https://www.facebook.com/458881370841042/posts/1528779580517877/					
10	Olomouc	Status	85	0	4	An important award to the professor	Congratulations
	Date	22.3.2017					
	Link	https://www.facebook.com/458881370841042/posts/1370840782978425/					

Source: Facebook pages of selected faculties.

The expert evaluation of the posts includes key identity information (type, date, engagement data, hyperlink) and a brief description of their content, call for action or motivation for users (c.f. Strauss & Frost, 2012; Tuten & Solomon, 2015). The first post (Example no. 1) invites to an Open Doors event, an essential event while communicating with prospective students. Based on the findings from the focus groups, social networks of universities are followed by prospective students and Open Doors events are perceived as highly important for many of them. Inauguration of a new building, innovation of university's equipment or improvement of the university's surroundings always serves as an appropriate opportunity to communicate with the public (Example no. 2). Election or appointment of a new dean traditionally constitutes an important event in the life of each faculty (Example no. 3). A photograph of a hand-written letter by one of the faculty's alumnis was also among the posts with high engagement (Example no. 4). The examples of a post no 5 and 8 demonstrate that humour has its place in academia and attracts high engagement. Appreciation of a certain student or professor (Example no. 7) contributes to the positive name of the faculty and also achieves notable engagement. The example of a post no. 6 call for a humanitarian action and was positively accepted by users. It should be taken into account that the post attracted a significant number of shares! The example no. 9 does is not accompanied by any picture but contains a message of support addressed to exchange students, also this type of posts activates users.

Netvizz divides Facebook reactions into love, haha, wow, sad angry and thankful. As stated above, it is necessary to differentiate between the forms of interaction (c.f. Zell & Moeller, 2018). „Angry“ reactions were rare. A post with a significant number of „sad“ reactions was identified. It informed about the passing of a former dean of one of the faculties. These examples confirm Kim and Yang's statement that like is an affectively driven, comment is a cognitively triggered behaviour, and share is either affective or cognitive or combination of both (Kim & Yang, 2017, p. 441). Furthermore, the examples also stress the importance of the post's content in relation to its target group. It may be assumed that the type of posts exerts less influence. While the data from Table 4 show that the average highest engagement rate was achieved by video posts; the selection made from all the analysed posts pointed out substantial individual differences and included photo, hyperlink and even status updates posts among the most successful.

It is evident (Table 5) that users are engaged with an organization not only through connecting and liking but also by sharing its content on their personal social networks as well as by creating new comments on the organizations' profile page which represents the highest level of publics' engagement on Facebook. Information about top ten posts (Table 5) calls for discussion about categories of engagement behaviour, in particular about reactive and proactive engagement behaviour (c.f. Gutiérrez-Cillan, Camarero-Izquierd, & José-Cabezudo, 2017; Ji et al, 2017; Kim & Yang, 2017, Sirvastava et al, 2018)

Conclusion and discussion

This study has addressed the knowledge gap identified by Rutter, Roper, & Lettice (2016) concerning the use and impact of social media within university sector. It serves as a response to Alalwan et al.'s (2017) call for empirical evidence of the use of social media in marketing. In the increasingly competitive higher education marketplace, building open communication and close relationship with applicants, students, staff and stakeholders have become essen-

tial. From a theoretical perspective, the study builds on previous work by various scholars including, inter alia, by Alalwan et al. (2017), Keller (1993), Lowrie (2007), Luque-Martinez and Del Barrio-Garcia (2009) and Rutter, Roper, & Lettice (2016).

The study provides evidence from a research focused on social media use in higher education and related branding activities. It considers the impact of the activities, in particular of interactions between an institution and public, and on student engagement. Dennis et al. (2016) argue that commitment is a demanding dimension that is not easily obtained and therefore universities should make more customer-orientated effort to further build brand equity. To reach high commitment (Dennis et al., 2016) and high engagement on social media in particular (Al-sufyan & Aloud, 2017; Tuten & Solomon, 2015), universities and their faculties should actively communicate to the stakeholders and to the media using social networks like Facebook.

The outcomes from focus groups firstly provide useful information on what factors applicants perceive as important when they are deciding about their university studies. Secondly, they help to identify the most suitable communication channels; with faculty websites and social media (namely Facebook and YouTube) being selected among the most important channels. Thirdly, they put forward recommendations by the focus groups participants related to websites, Facebook and Instagram. It became apparent that students would like to actively participate in creating content on the social media. The results are presented in Table 1 in an organized fashion. They are useful for those who are responsible for Public Relations of higher educational institutions.

The presented study on Facebook engagement show differences among the selected faculties in the use of this popular social network for communication with public

The study by Rival IQ states that the average engagement rate on Facebook across all industries was 0.17 (Schwartz, 2017) and 0.16 (Feehan, 2018). In case of US higher education institutions, the 2018 study indicates figure 0.19. In comparison, the average reduced engagement rate of the analysed faculties was 0.21 in 2017. Nevertheless, the difference between the highest position (0.55 = the faculty in Prague) and the lowest position (0.02 = the faculties in Pilsen and Nitra) point out vast diversity of the results. Moreover, the findings reveal the influence of photo and video posts which were continuously reaching the highest engagement in the presented study (see Table 4).

Major differences among faculties have been also identified while analysing the number of posts by faculty (for 2017). The Figures 1 and 2 document differences in the use of Facebook by faculties of education in the Czech Republic and Slovakia since 2009. At the same time, according to the Eurostat, the ratio between internet users and social network users was 72 % in Slovakia and only 57 % in the Czech Republic. Thus, the above-average use of social media by young people in Slovakia has not yet matched their activity on Facebook pages of institutions.

Finally, the study findings shed light on what types of posts increase engagement of Facebook users. The results in Table 5 summarize that the post with content related to its target group and an appropriate call for action reaches higher engagement.

Implications

The study aims to assist administrators and those responsible for communication of higher education institution with public in better understanding of the methods that support their institution's image and brand via social media and facilitate high engagement on Facebook.

The study provides evidence that investment in social media can help institutions develop their relationship with students, staff and other stakeholders. Administrators and managers are encouraged to consider integrating social media into existing communication tools in order to support the image and brand of the faculty or university. The results indicate that faculties with higher activity on Facebook find themselves in better position to improve engagement of their students and other stakeholders. Activity on Facebook can positively enable higher education institutions to communicate better with public, and thus achieve one of the main goals of Public Relations. Effective engagement may be also a trigger to maintain effective Public Relations.

Research limitations

Some limitations of the research survey must be considered. Firstly, the study focused exclusively on faculties of education from two countries. Further research with increased size of the sample pool is needed. Secondly, the data were obtained through convenience sampling, which is acceptable for an explanatory study. Thirdly, data using Power BI and Netvizz in July 2018 were obtained only from the social network Facebook. These tools are highly relevant to the purpose of the research. Nevertheless, some minor differences in data are beyond the control of the researchers. The data on number of applicants and enrolled students did not allow for an assessment of the dependency between the level of engagement on social media and e.g. number of students (a possible performance indicator) as the number of students at public universities in the Czech Republic and Slovakia is regulated by the respective Governments.

The presented research can be further extended by increasing the size of the sample pool as well as by focusing on social media marketing and PPC advertising of higher education institutions.

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