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Introduction

We live in challenging times of technological advancement, business model innovation and changing consumer habits and expectations towards companies [1]. The role of information and communication technologies (ICT) is rising and the prevalence of global Internet use amounts to 59.5% and is constantly growing [2]. The digitalized world is full of benefits such as the ease of access to information, increasing efficiency and quality of services provided by public administration [3].

The pace of changes that we are witnessing requires a more agile approach than ever before. As organizations are under the pressure of constant changes, leaders must adapt to these volatile conditions quickly [4]. If we consider organizations that are very traditional and reluctant to changes, such as those from the higher education sector [5], the outbreak of the COVID-19 pandemic was a huge challenge. Due to the countrywide closures and lockdowns, the...
sector had to adjust to the new situation practically overnight. Changes in the functioning of schools have affected not only students and faculty but also the schools’ authorities.

In this article, we aimed to identify the framework of e-leadership practices implemented by rectors and deans of business schools during the first year of the COVID-19 pandemic. The research objective involves an empirical verification of social media communication implemented by business schools’ leaders. We conducted a study of Twitter and LinkedIn performance of 219 rectors and deans to analyze their activity on those social media platforms during the world health crisis. Our findings show that there is no universal strategy of communication among leaders of business schools, however, there are some patterns of social media use in different world regions. This is highly important from the perspective of leadership in higher education sector practice. As the leaders of higher education institutions must be able to adapt to a constantly changing environment, their online presence needs to reflect this approach [6].

2. Literature review

2.1 Leadership and e-leadership in organizations

Whether the size and scope of institutions leadership is an inherent part of the whole organization [7]. In past years we could observe extensive research regarding leadership as it is perceived vital to the organization’s success [8-10]. Since every leader is unique and takes on an approach that is consistent with their beliefs, definitions of leadership vary greatly [11, 12-15]. Moreover, the concept of leadership is often interchangeably used with the definition of management [16,17]. However, Kotter [18] suggests that management and leadership should not be viewed as fungible concepts. They should rather be separated from one another as leadership is viewed as an abstract term while management focuses on much more concrete tasks [18-21]. Scholars do not always agree on the exact nature of the relationship between management and leadership, but they theorize that those notions can be separated [20, 22, 23]. Heifetz [24] theorizes that adaptive work which requires solving problems to which there is no clear solution is associated with leadership. Gardner took on a consistent approach when creating his definition of leadership. He proposed that “Leadership is the process of persuasion or example by which an individual induces a group to pursue objectives held by the leader and their followers.” [25].

This persuasion mentioned in Gardner's definition can be achieved in a twofold manner. As there is no versatile approach that can be adapted by each leader. Hence, the two essential types of leadership conceptualized by Burns [26]. He states that leadership can either be transactional or transformational. A transactional style of leadership is heavily based on exchange, whereas transformational leaders motivate their followers to exceed at a given task and to achieve extraordinary results [26,27]. A transactional style implies either some sort of transaction between a leader and their followers or a form of punishment [26]. On the other hand, the transformational style of leadership relies on the abilities of the leader that can be leveraged to obtain the intended goal without resorting to transactions of any kind [27]. Transformational leadership pertains to charisma and the intellectual abilities of the leader which are used in the process of motivation of the followers [26,28-33]. Bass [28] shows that through transformational leadership 1) greater results can be obtained; 2) the level of satisfaction amongst followers can be high. Moreover, meta-analyses conducted thus far have upheld the positive relationship between employee performance and the transactional style of the leadership [34-36]. Bass [28] adds that transformational leadership has the means and potential to emerge in the difficult times of a crisis – which are associated with high levels of uncertainty, where transactional style can be observed in a structured and ordered society – where stability is maintained.

Since organizations are under the pressure of continuous changes, leaders will often adopt the transformational approach [37]. Rapid technological and environmental changes influence entire companies, which imposes environmental uncertainty on the whole organization and the leaders [38]. This uncertainty is now met with the ongoing phenomena – digital transformation, where changes are rapid and complex [39]. Digital transformation is a technology-enabled change that has an impact on every aspect of the organization [40,41]. Schwertner further proposes that digital transformation of business “is the application of technology to build new business models, processes, software and systems that result in more profitable revenue, greater competitive advantage, and higher efficiency. Businesses achieve this by transforming processes and business models, empowering workforce efficiency and innovation, and personalizing customer/citizen experiences” [42].
Since such transformations are powered by many technologies, the adaptation of technologies that allow for continuous communication and exchange of information is vital [43]. Therefore, leaders – as well as business school leaders – implement information and communications technologies (ICT) which allow them to stay informed [44]. ICTs are often defined as “(1) information and communication systems that provide broad functionalities such as an office information system, (2) technological tools used by individuals to communicate” [45]. Physical dispersion and relocation of certain processes to the virtual realm – especially in the context of COVID-19 – showed that the successful implementation of such technologies is vital for a company's survival [46]. More so, educational institutions rely on ICT for increasing the effectiveness not only in the learning sphere but also other processes [47,48].

As companies in which Higher Education Institutions (HEIs), such as business schools reach technological advancement a quest for a new kind of leadership has arisen – e-leadership. E-leadership is defined as a “social influence process mediated by information and communication technology to produce a change in behaviour and performance with individuals and groups in an organization” [49]. This kind of leadership imposes a new set of skills on the leader. E-skills allow for the implementation of technology that will help with managing every aspect through a plethora of different technologies [50]. As previous studies show, leaders who fail to implement and manage new technologies are less successful and generally not perceived as good role models [51]. Hence, leaders nowadays must be able to adapt to the uncertain environment by the effective implementation of proper technologies which further allow them to take a stand [45].

2.2 Social media

Social media platforms are a part of ICT, which can successfully be implemented by leaders for the dissemination of the intended content online [52]. Social media (SM) is defined as “a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0 and that allow the creation and exchange of User Generated Content” [53]. Additionally, SM is a part of a broader concept, namely social networking sites (SNS). SNS can be defined as “networked communication platforms in which participants 1) have uniquely identifiable profiles that consist of user-supplied content, content provided by other users, and/or system-level data; 2) can publicly articulate connections that can be viewed and traversed by others; and 3) can consume, produce, and/or interact with streams of user-generated content provided by their connections on the site.” [54]. Examples of such SNS and SM platforms include LinkedIn, Facebook or Twitter. Thus, social networking sites, as well as social media platforms, are highly dependable on users since they contribute to ongoing communication [55,56].

SM platforms create a multifunctional online environment that is: crucial in the process of customer value management and informal communication (i.e., between brands and customers) and control over the process of value co-creation [57]; significant from the perspective of international scholar cooperation [58], and an important marketing tool which is commonly used by HEIs [59]. Studies conducted so far prove that the use of social media amongst scholars differs greatly [60-62]. There is also a similar tendency when it comes to the population of users of social media platforms. We, as users, tend to use those platforms for many reasons which indicate that our motivations differ greatly [55]. It is not only content that varies. Jordan and Weller [63] theorize that age plays a major role when it comes to the strategy of content posting on SM amongst scholars. They indicate that senior academics used social media platforms mostly to share various pieces of information where young scholars leverage its possibilities to build their rising careers [63]. Another way in which SNS are being used by academics has to do with the discernibility of papers. By sharing a paper on SM platforms, scholars increase the chance of the dissemination of their work [58, 64]. Moreover, differences in the usage of SNS can be spotted when taking latitude and the chosen discipline into consideration [65,66]. This indicates that scholars may use SM platforms as a tool for high citation results, amongst other purposes [58].

Although certain media comes with distinct functions which allow for reaching different goals [67] there is one social media platform, in particular, that was studied most often, also in the context of leaders posting content online. This often-analyzed social media platform is Twitter [68,69]. This tendency may be substantiated by the nature of the said SM platform. Twitter allows its users to post and repost content quickly, which academics often use for sharing updates on ongoing projects [70]. In the context of academia, Priem and Castello [71] also uncovered that Twitter helps with the dissemination of research outcomes.
In this paper, we focused specifically on two SNS that enable researchers to reach a broader audience but are still highly used by leaders - LinkedIn and Twitter. Previous research shows that SM platforms like Facebook and YouTube are used as a tool for sharing mostly private content whereas, Twitter and LinkedIn are used as more professional media [72]. Moreover, van Noorden [73] discovered that Facebook is occasionally used by researchers as a tool for posting professional content, such as research results. Therefore, the reasoning behind choosing LinkedIn was that it is the professional SNS that has the biggest user database – over 756 million users by 2021 [74]. Additionally, it has been proven that although it is not designed as an academic medium, it is frequently chosen by scholars [73, 75-77]. Cann, et al., [78] states that scholars often choose this medium, as it allows them to present their experience and serves as a tool for collaboration. Hence, we purposely excluded those media that are perceived as more private as the content published is often highly personal. Moreover, our experience shows that a common practice with this media is that the profiles are private, which indicates that we would have no insight into the content. This would result in poor outcomes.

2.3 Specifics of business schools

Business schools are Higher Education Institutions that provide business and/or management education [79]. According to The Financial Times [80], there are over 13,000 business schools in the world, thus the market can be perceived as competitive. High competitiveness in the market of business and management education makes brand-building activities an important element of business schools’ strategy [81] – among others, this makes business schools imply innovative marketing solutions that have not previously been used in the higher education sector. Nowadays, worldwide recognized rankings and accreditations shape the world of business and/or management education in which schools are fighting for ambitious and international students. According to Mazurek et al. [58] European business schools missions’ analysis, they are focusing on becoming global and research-oriented. Moreover, Lejeune, et al., [82] claim that business schools’ impact is broader than academic publications or alumni’s scores. Since these institutions educate future leaders, they have three dimensions of impact – economy, knowledge, and social responsibility.

Significant changes in the education sector are the result of the development of information and communication technologies (ICT) [83]. Such technologies provide both – new opportunities and new challenges.

Even though HEIs are perceived as conservative [5], the adoption of advanced digital technologies happens there as well. The implementation of digital technologies in the sector of Higher Education is necessary to encourage aspiring students – most of whom are digital natives and expect quick results of their education [84]. Recently, the COVID-19 pandemic stimulated rapid digitalization and, in some cases, digital transformation of HEIs, including business schools [85].

3. Methodology

Business schools are managed by rectors and deans who can implement ICT into their leadership practices – e.g., through communication via social media. The key research questions referred to the following: are there any online communication strategies implemented by rectors and deans? Are countries and regions characterized by the activity of rectors and deans on social media? Is there a form of communication (written or shared) that is preferred by rectors and deans?

To check whether leaders of business schools are adapting to the realities of digitalization and digital transformation we decided to analyze their social media communication regarding the COVID-19 pandemic. Since international rankings and accreditations play a significant role in the HEIs market our sample was based on the EFMD Accredited Schools list [86] and was supplemented by schools ranked in the Financial Times European Business School Ranking 2019 [87]. The study was conducted in April 2021 and its purpose was to examine the activity of rectors and deans over the past year (March 2020 to March 2021) on LinkedIn and Twitter. We searched for posts related to the topic of the COVID-19 pandemic (posts about COVID-19 related research, posts about the functioning of schools, posts about government recommendations, etc.), written by the account holder or shared by the account holder.
Our database included 196 business schools from 43 countries. Countries are assigned to regional groups according to the United Nations geoscheme [88]. However, due to leadership changes in 22 schools, our research sample of rectors and deans included 219 people – 187 of whom were men (85.4%). Due to a large number of posts and the impossibility of analyzing them between March 2020 and March 2021 (technical issues that caused posts to be displayed only up to a certain date), 3 rectors/deans were excluded from analyses deeper than analyses specifying a presence on Twitter and LinkedIn. This study is descriptive in its nature. The data was analyzed using IBM SPSS Statistics version 27.0.

4. Results

LinkedIn happens to be a more popular social network platform than Twitter among rectors and deans. Over 90% of representatives of our sample hold a LinkedIn account while only 45.7% of them decide to be on Twitter. 99 rectors and deans (45.2%) use both, Twitter, and LinkedIn – almost every rector/dean who holds a Twitter account is also a LinkedIn user (99.0%).

According to our findings, Twitter seems to be particularly unpopular in Eastern Asia where 28 out of 32 (87.5%) rectors and deans do not have an account. The percentage of Twitter non-users is high though the result is due to Internet censorship in China which includes Twitter. Only a VPN connection enables the use of Twitter in China. However, in the case of the Republic of Korea and Japan, none of the rectors and deans uses Twitter, which may be a result of cultural differences and the popularity of Asian social media platforms. Moreover, Twitter is rarely used by rectors and deans from South America – only 18% (2 out of 11) have a Twitter account. Twitter is popular among leaders of European business schools – the lowest percentage (50%) of users was observed in Eastern Europe. Moreover, leaders of French business schools were qualitatively the most numerous group – 28 – 75.0% of them hold a Twitter account.

According to our findings the region in which LinkedIn is least popular is Eastern Asia – only 46.9% of business school leaders have a LinkedIn account.

Since 3 of the rectors and deans belonging to our sample showed extensive activity on both Twitter and LinkedIn, it was impossible to analyze their activity between March 2020 and March 2021. Due to the Twitter and LinkedIn websites crashing they were excluded from subsequent analyses of social media activity. Thus, in the following steps N=216 – 185 men and 31 women.

4.1 Twitter communication

97 out of 216 analyzed rectors and deans hold a Twitter account, however, one of them has a private (blocked) account which excluded them from the Twitter communication study. Thus, we consider N=96.

Our analysis shows that rectors and deans of business schools did not follow a specific strategy of communication about the COVID-19 pandemic. Some of them did not add any posts on the topic, while the most active user wrote 107 posts on the topic of the health crisis between March 2020 and March 2021. The activity of rectors and deans on social media during the health crisis is identical to the previous activity of scientists, which is characterised by the individual approach of the account holder [60-62]. The fact that the skewness is greater than twice the standard error suggests a departure from the symmetry of the distribution.

To obtain more relevant results, we decided to exclude users who did not write any posts about the pandemic during the analysis period.

There were 43 rectors and deans of business schools (44.3% of those who had a Twitter account) who wrote a LinkedIn post about the COVID-19 pandemic. In our sample, the dominant was equal to 1, which means that most frequently we observed that rectors and deans wrote 1 Twitter post considering the topic of COVID-19. On average rectors and deans posted 13.07 Twitter posts about the pandemic between March 2020 and March 2021 (1.09 posts per month on average). In our sample, the most active person posted 107 times about the pandemic. The distribution is leptokurtic.
In the case of shared communication, the distribution and number of outliers in our research sample allows us to conclude that there is no strategy of shared communication considering the COVID-19 topic that is used by all the rectors and deans of business schools. This finding is also coherent with previously conducted studies that found no particular SM posting strategy within scholars [60-62].

Similarly to posts written by rectors and deans, not all of them shared an original post about COVID-19 on Twitter. 52 out of 96 business schools’ leaders (54.1%) who were Twitter users decided to retweet (or cite a tweet) at least once. More business school leaders have chosen to use this form of communication instead of writing their posts as it is a quicker and more convenient approach. Moreover, the posts shared on Twitter were often devoid of any comment from business school leaders. In our sample, the dominant was equal to 1, which means that most frequently we observed that rectors and deans shared 1 Twitter post on the topic of COVID-19. On average rectors and deans shared 22.15 Twitter posts about the pandemic between March 2020 and March 2021 (1.85 posts per month on average). The most active rector/dean shared 165 tweets about the world health crisis. The distribution is leptokurtic.

4.2 LinkedIn communication

LinkedIn was a more popular SM platform than Twitter within our sample. 181 out of 216 (83.8%) rectors and deans had a LinkedIn account. However, similarly to Twitter, rectors and deans from our sample did not use a particular strategy of writing LinkedIn posts.

66 rectors and deans (36.5% of those who had a LinkedIn account) decided to post at least 1 post dedicated to COVID-19. Similarly to Twitter written communication, the dominant in this case was equal to 1. On average rectors and deans posted 6.42 LinkedIn posts about the pandemic between March 2020 and March 2021 (0.54 posts per month on average). The most active rector/dean posted 50 posts about the health crisis.
Similarly to Twitter shared communication, we did not find any pattern that could lead us to the conclusion that rectors and deans use any kind of communication strategy. The number of outliers (rectors and deans who posted more frequently than others) makes LinkedIn communication concerning COVID-19 individual (author-dependent). 62 rectors and deans (33.7% of those who had a LinkedIn account) decided to share at least 1 post dedicated to COVID-19. In the case of LinkedIn, 4 more rectors chose to write their post than to share an existing one, which may be due to the specificity of this professional SNS and the greater desire to be seen by the LinkedIn network as an active person sharing their thoughts. The dominant in this case was equal to 2 – it was observed most frequently that rectors and deans decided to share 2 COVID-19 related posts on LinkedIn. On average rectors and deans shared 4.76 LinkedIn posts about the pandemic between March 2020 and March 2021 (0.4 posts per month on average). The most active rector/dean posted 50 posts about the health crisis.

5. Discussion and Conclusions

Since the outbreak of the COVID-19 pandemic, we have been witnessing various changes in the higher education sector. The health crisis posed an enormous challenge not only for the EdTech sector but also for students, universities’ academic and administrative staff and schools’ authorities – all of whom were forced to be flexible and open to new solutions [5]. The unexpected situation was a huge challenge from the leadership perspective. By implementing ICTs and posting on social media platforms into leadership practices, rectors and deans of business schools can safely communicate with students, schools’ employees, and stakeholders.

Research findings indicate that only some rectors and deans chose to communicate about COVID-19 as part of Twitter and LinkedIn communication. No strategy of communication was observed, which confirms the results of previous research on academics' social media activity [60-62]. However, some interesting patterns were observed linking the world regions and rectors’ and deans’ appearance on social media platforms. LinkedIn is a professional SNS, thus is perceived by business school leaders as more important and appropriate from their communication perspective than a social media platform like Twitter [73]. In some parts of the world (i.e., all parts of Europe)
Twitter seems to be a very popular platform among rectors and deans of business schools, while LinkedIn is used by rectors and deans from almost every region. However, rectors and deans are present on social media, they are not always active users of such platforms. In the case of Twitter, shared communication was popular whereas a larger group of rectors and deans that were LinkedIn users decided to write their post.

Although, Twitter is a recurrently analyzed SM platform – even in the academic realm [68,69] – our study shows that only 45.7% of HEIs leaders hold a Twitter account. Compared to LinkedIn where over 90% of the rectors and deans have the account, Twitter may be unduly overestimated by researchers when conducting studies. Other aspects that have to be considered, especially in the light of future research, are the cultural and geographical differences that may influence the presence of HEIs leaders in social media. As is the case of China, where censorship may influence the ability to have an active social media account.

It also needs to be stressed out that the authors of the article are aware of the limitations of the findings. The main deficiency of the conducted research is different sample sizes from different regions of the world. Since there were only 3 schools from South-eastern Asia on the EFMD list it is difficult to draw conclusions about the e-leadership practices of rectors and deans from this region. Moreover, the presented study limited itself to examining communications about COVID-19 from a quantitative perspective. The research described in this paper broadens the existing knowledge on the e-leadership practices of business schools’ leaders during the global health crisis and it is a good starting point in this subject matter. Additionally, we raise the following questions to be addressed in future research. Firstly, how rector’s and dean’s crisis communication qualitatively differ between regions? Secondly and finally, are there any communication strategies used by rectors and deans at the micro-level (e.g., national, or regional level)?

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