

Higher Educational Establishments in Social Media: an Analytical Review

Tetiana Bondarenko^[0000-1111-2222-3333], Galina Tkachuk^[0000-0002-6926-1589], Nadia Stetsenko^[0000-0002-9802-6529] and Vladimir Stetsenko^[0000-0003-2232-2089]

Pavlo Tychyna Uman State Pedagogical University, Uman, Ukraine
tanyabond2006@gmail.com, tkachuk.g.v@udpu.edu.ua,
stecenkonm@gmail.com, stecenkovp2006@ukr.net

Abstract. Social media have become a popular online platform for modern society, as they are simple and easy to use. The paper presents the content analysis of higher educational establishments' official web pages on Facebook and Instagram social nets as well as their promotional role in creating a definite image of a school. On the one hand, the article reveals the ranking of the top universities on Facebook with the reference to objective statistic data (Harvard University, the University of Oxford, and National Autonomous University of Mexico) and, on the other hand, the web pages of Harvard University, the University of Oxford and Stanford University are analyzed on Instagram. Such research allowed to summarize the experience of foreign countries in creating an optimal platform for the popularization of the educational institution and to identify Information and communications technology (ICT) tools to present the page of the higher education institution in the social network.

Keywords: Facebook, Instagram, social media, higher educational establishments (HEE), ICT.

1 Introduction

Internet services which aim to introduce, publish, spread information, and provide communication among people with similar interests or social background develop at a high pace. The majority of people are active participants in online communities. They are eager to maintain contacts, communicate, and produce media content.

The data obtained from the research conducted by the Internet resource «Statista» in November 2019, show that Facebook (Fig. 1) [13] is the most popular social media in the world according to the number of active users. Meanwhile, Youtube is mainly used as a video hosting and WhatsApp, Facebook Messenger, WeChat are telecommunication services to exchange text messages. Instagram is also quite popular. Nowadays it has reached more than one billion active users a month.

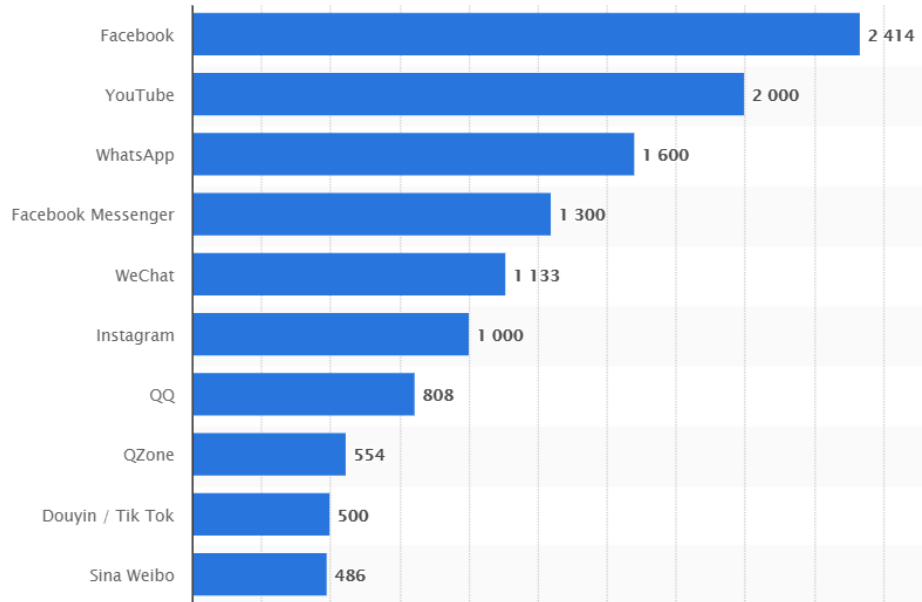


Fig. 1. The most popular social nets in the world in November 2019 (according to the number of active users).

Social interaction on Facebook and Instagram is an effective tool to promote the image of higher educational establishments, to become more influential and authoritative, enlarge the access to education resources, to create the possibilities for communicative exchange.

The objectives of the research are to statistically measure the online audience of the most authoritative higher educational establishments regarded through their official web pages' content, the peculiarities of their work, exposure of facilities of IKT for projecting, designing the page of a higher education institution with a social network.

2 Related Scientific Works

Namely, Dilek Doğan and Yasemin Gülbahar suggest using a wide range of Facebook instruments (information exchange, the spread of adverts, publication of comments) to obtain higher education results [7]. Kalelioğlu researched the integration of academic courses on Facebook [10]. Some aspects of learning English via Instagram were analyzed by Fitri Handayani [9].

Saleem Alhabash and Mengyan Ma analyze social media in their works which reveal and prove motivational differences among Facebook, Twitter, Instagram, Snapchat taking into account their intensity and motivation to use. There are some instruments to evaluate and measure the time spent by the user on each of these platforms [2].

In the listed publications the researchers mainly highlight the added educational value and effectiveness of online learning in social networks. However, their work does not pay enough attention to analytical research aimed at identifying and analyzing the digital profile of higher education institutions, presenting their identity in the network for the formation of social image and cooperation with users of the Internet audience. The need to study and cover this issue has led to the relevance of the chosen topic.

3 Higher Education Institutions in Social Networks

We have focused our analytical review on the three leading educational brands' social channels: Harvard University, the University of Oxford, and the National Autonomous University of Mexico. It was done to measure the social effectiveness of information content and to reflect public interest in the university activities on the Internet. The conclusions reflect the benchmarks of a Facebook page for higher educational establishments. According to UniRank [16], which covers 5000 universities from 200 countries in the world in its sample and measures their level of popularity in social media (Fig. 2), the above-given universities' representatives are the most successful world companies on Facebook.

2019 Facebook University Ranking





















Rank	Likes	University	Country
1	5,441,044	Harvard University 	us 
2	3,681,283	University of Oxford 	gb 
3	3,103,539	Universidad Nacional Autónoma de México 	mx 
4	2,616,582	Daffodil International University 	bd 
5	2,352,456	Hajvery University 	pk 
6	2,166,242	University of Cambridge 	gb 
7	2,061,768	Amity University 	in 
8	2,020,905	Universiti Teknologi Kreatif Limkokwing 	my 
9	1,496,456	Lovely Professional University 	in 
10	1,450,111	Universidade Estácio de Sá 	br 

Fig. 2. The most popular social nets in the world in February 2019 (according to the number of active users).

Despite the fact that the audience of higher education institutions has significantly increased, such factors as the number of publications, likings, and comments have renewed, when our article is published, still, this analysis permits to define the general state of activity of the three leading institutions. It allows evaluating the prospects of world education leaders in social media to follow their pace and experience for national achievements.

We have applied professional automated services of social networks monitoring Rival [12] and Likealyzer [11] as well as partially turned to hand calculations to evaluate the content, which was produced by the corresponding higher education institutions in the period of January 11 – 25, 2019. We provide all the data in Table 1 given below.

Table 1. The analysis of the HEEs' digital profiles on Facebook social network dating from January 2019

Characteristics	Harvard University	National Autonomous University of Mexico	The University of Oxford
The number of likings (general information about the page during its whole history)	5 328 495	2 967 338	3 604 193
The number of followers (general information)	5 292 984	2 985 357	3 600 232
Publication numbers per day	1	14	1.14
The most popular publications (the frequency of interaction in the given time period)	0.046%	0.37%	0.044%
The biggest number of comments (in the given time period)	67	840	75
The widest spread (in the given time period)	579	2528	482
Information about the record being advertised (general information)	-	-	-
Profile interface and image (general information)	-	+	+
Information about the page (in general)	Partial	Partial	Partial
Communication with the visitors (general information)	-	-	-
Users' comments (general information)	-	+	-

During the preliminary analysis, we have found out that the information published on Facebook is put on the main web site of the higher educational establishments with traffic generation. Sometimes, the reposts made by friendly pages or resources are possible. It is mainstream in the work of the National Autonomous University of Mexico. Facebook should correspond more to the popular reading inquiries of the users than visual Instagram as the first one is a more readable social network. Thus, publications with qualitative, dignified, and considered content with video- or photo-reports are typical for the posts in the Internet resources of Harvard University, the University of Oxford, and the National Autonomous University of Mexico. Correspondently, they attract a wide circle of readers. In other words, there is created some significance and scope of an interesting topic, which predetermines its full coverage, spread, and commenting.

According to our research data, the official web page of the National Autonomous University of Mexico has the biggest number of posts (around 14 publications a day). During the analyzed period of time, Harvard University published the most popular news post «Bill Gates visited the Wyss Institute for Biologically Inspired Engineering at Harvard and got a firsthand look at innovative robots»: <https://www.facebook.com/Harvard/videos/592416614514545/> (the frequency of interaction 0,046%). The National Autonomous University of Mexico demonstrated a popular video of Janis Lyn Joplin devoted to her birthday: <https://www.facebook.com/UNAM.MX.Oficial/videos/296101104596860/> (the frequency of interaction 0,21%). The University of Oxford published «Anna, studying Geography, writes about her first term at Oxford in 'Student Blog: from North Yorkshire to the first term at Brasenose College»: <https://www.facebook.com/the.university.of.oxford/posts/10161531419075107> (the frequency of interaction 0,044%).

The followers of the above-mentioned universities communicate via spread, comments, likings of the published posts. On having analyzed these data, we found 2528 reposts of the news on internationalization of Mexican culture and 840 comments about the career-oriented post of the National Autonomous University of Mexico. If it runs about the likings, their number is practically the same for Harvard University and the University of Oxford pages. It means 2,1 and 2 thousand «likings» correspondently for the most popular publications. Still, National Autonomous University of Mexico took the lead over its rivals having 5 thousand «likings».

The statistics prove that Harvard University is the leading one among its rivals according to the number likings and followers. The University of Oxford comes next. Though the National Autonomous University of Mexico drops behind its concurrents, still, it has a chance to become an open informational and educational space which is able to orient society and form a public point of view. Unlike other universities, the webpage of this institution is frequently renewed. There is a possibility for both administrators and readers to publish. All its pages are marked with a wide variety of publication discussions and reposts. Relevant «youth» of the page explains its lagging in audience growth. Thus, Harvard University created its page in 2009, the University of Oxford developed theirs in 2008. There was a page for National Autonomous University of Mexico only in 2011.

Correspondently, the successful public pages of Harvard University, the University of Oxford and National Autonomous University of Mexico, which are in our sample, have the following positive characteristics:

1. Quality. The resources present only useful, trustworthy, topical, informative, and unique materials.
2. Content. Text posts are accompanied by strong author's video or photo.
3. Following links. There is a reference to an external corporative resource, which could be followed to other important issues.
4. Systematic character. In general, the frequency of publications is once a day.
5. Events. Creating scientific events, conferences, seminars, exhibitions, photo-albums, etc.

6. Advertisements. The absence of clear advertising content and sponsored posts. Still, there are some promotional and career-oriented posts but the advertisement is delicate, unobtrusive, and natural.

Along with enumerated positive functions and content, the higher educational institutions usually ignore the interactive possibilities, which they obtain for communication. The universities' pages are mostly used to generate news content. The networking activity could be raised with the help of commenting initiation, clearing up the disputable questions by the administrator, creation of questionnaires, drawings, development and application of the feedback option Click-to-Messenger. The effective tools to promote the educational content are geolocation setting, marking people on the photos or mentioning them in the posts. Marked publications appear on followers' personal pages and in the lines of their friends, which contributes to natural visibility of the posts in social space.

We evaluated the integration prospects of learning and teaching spaces of the leading education brands such as Harvard University, Stanford and the Oxford Universities on Instagram with the help of Professional Automation Services like Rival [12] and Likealyzer [11], and partially using hand calculations.

According to UniRank evaluation [16] (Fig. 3), Harvard University and Oxford Universities represent the most successful education companies on Instagram. Stanford University takes the lead over the National Autonomous University of Mexico.

Rank	Followers	University	Country
1	861,711	Harvard University	us
2	387,629	Stanford University	us
3	355,404	University of Oxford	gb
4	353,762	University of Cambridge	gb
5	230,576	Yale University	us
6	222,239	Universidad Nacional Autónoma de México	mx
7	194,114	Universitas Indonesia	id
8	189,677	Princeton University	us
9	186,032	Texas A&M University	us
10	183,983	Universitas Gadjah Mada	id

Fig. 3. HEEs ranking according to the number of followers on Instagram social network dating from February 2019.

In the course of the study, it was found out that the number, regularity of postings, subscribers, and comments on pages of Harvard University, the University of Oxford is much higher on Facebook than on Instagram (see Table 2). But if you turn to the number of preferences, you may notice that the percentage of coverage is higher on Instagram, which proves a much higher viral activity of photos which motivate users to share their emotions with members of their social environment. Comparing digital profiles of the above-mentioned universities, we found out that posts on Facebook are al-

most never duplicated on Instagram. Such a technique segments the audience and allows to immediately generate information and adapt the posts according to the requirements of a certain social networking site.

Table 2. HEEs digital profile analysis on Instagram social network dating from January 2019.

Characteristics	Harvard University	Stanford University	The University of Oxford
Number of publications (general information)	1 242	1 252	1 224
Number of readers (general information)	1 млн.	471 тыс.	453 тыс.
Frequency of publications (per week)	3.5	4.5	5.5
Typical posting (frequency of interaction for a time period)	4.85%	1.66%	3.57%
Hashtags for messages (for a definite period)	0.86	1	0.82
The biggest number of likings (for a definite time period)	49 429	25 004	29 504
The biggest number of comments (for a definite time period)	274	37	74

All this testifies to the developed concept of the use of Instagram where visual appeal of information is of great importance. Therefore, professional photos of higher educational establishments mostly dominate on Instagram. Photographers use a variety of software tools, editors and filters to handle shots. There are also stock photos or frames made by students, teachers or casual people. The network contains pictures of buildings, auditoriums, libraries, gymnasias, laboratories, university campus; successful graduates' photos, their speeches or quotations; students' and employees' photos of everyday life, their achievements; research and scientific work; cultural, educational, sporting activities, as well as funny, ridiculous, and just positive images.

Instagram may contain stories or permanent stories that reveal a small plot. Such a format of information presentation is often found on pages of the University of Oxford. An accelerated real-time video of a snowy courtyard with the students walking in it from time to time, hiding from the wet snow, gained the greatest number of likings for a definite time period. The topic of weather phenomena is also popular at Harvard University. Thus, according to our sample, the picture of the snow-covered Main Gates of the University gained the greatest number of likings. Stanford University page publishes the videos of laboratory tests, which allow looking closely at the world of the academic life of the university. In our sample, one of such video materials got the biggest number of likings.

The Stanford University website publishes videos with laboratory experiments that allow look closer at the world of scientific life of the university. One of such videos in our sample collected the most likes.

On average, leading social networking sites of higher educational establishments usually publish a little less than one post a day. Still, there is no reduction in the number of

readers as the quality of content and the frequency of publications is more important for Instagram than the number of postings. Unlike Facebook, links to external resources are rare. Studying the selected accounts of higher education institutions, we found out that there is at least one hashtag in the posts. Such markers, as well as geolocation tags, help users to detect posts more effectively on Instagram. Therefore, their increase (about 5-10 under each new post) will contribute to positive results and draw the attention of social network participants to the digital profile of higher education institution. The main idea of Harvard, Stanford and Oxford Universities' presence on Instagram is based on advertising and information campaign. The advantages of such managing tools are in enhanced recognition and formation of the university's digital profile for self-identity, presentation, the creation of a positive image, growth of users' interest in the institution's activities, trust, and loyalty of visitors.

Representation of a higher education institution in a social network is impossible without the use of ICT tools of the appropriate software. Consider the ICT tools used by the above-mentioned institutions of higher education in the social network in the design of their own digital profiles.

Geolocation allows you to get the real geographical location of the institution of higher education, as well as learn about the location of events, conferences, seminars held on the basis of the institution and more.

Hashtags. A hashtag is a word or phrase preceded by a lattice symbol that converts the specified word to a reference. By selecting such a link, the user will be able to see posts that have the same word (tag). The use of hashtags makes it possible to reach more users, and promote higher education through the use of widely used hashtags.

Automation. Post release scheduling, sorting, filtering, posting, and more. You can also search using a pre-configured category (topics).

Confidentiality:

- Selection of the target audience. This is an opportunity to show relevant content to those categories of users who are interested in receiving it. What categories of users can see posts on the page of a higher education institution - administration, teachers (different faculties as separate categories), students (I-IV courses as separate categories), graduates, etc. This feature can also be used for career guidance when you need to advertise certain information to potential applicants and their parents.
- Tags. Allows you to view the materials in which a user has been spotted. These can be photos, posts, videos that are distributed by the institution of higher education.

Multimedia. This feature allows you to download your own video content, embed videos from various services (mostly YouTube), watch live broadcasts. This way of presentation allows educational institutions to publish in real time a variety of events : seminars, conferences, celebrations and more.

Feedback. Communication has always been an important tool for attracting more participants in higher education events. As a means of feedback on the social network, they use the functions of liking, commenting on posts, distributing them to other users, direct communication in chat, etc.

Analytics. Provides the ability to track user activity, comments, view posts, number of visits, etc. The analysis of statistical data will allow to determine the effectiveness of publications on the page of the higher education institution and the further strategy in covering various events.

These ICT tools can significantly strengthen the information component of a higher education institution, promote the institution, identify priority ways of development, get feedback on the quality of educational services, etc.

4 Conclusions

Taking into account the popularity of social networks and the peculiarities of interaction in communicative environment under analysis, higher education institutions are trying to state their presence in the place where there is a real opportunity to tell about themselves, to provide support for the educational vector of influence, to gain new technologies for development and communication.

In the course of our research, we revealed that, at the present stage of development, the digital profiles of higher educational establishments, which we have selected, have a clear concept and strategy of functioning in the web space. There are social channels for educational brands on Facebook (Harvard University, the University of Oxford, National Autonomous University of Mexico). Harvard University, the University of Oxford, Stanford University have their own development models, originality and novelty on Instagram.

Considerable potential for further scientific analysis is traced in the study of ICT tools for the development of information and educational environment of higher education institutions in social networks, the organization of feedback with participants in the educational process, improving the quality of educational services in general.

References

1. Agnihotri, R., Dingus, R., Hu, MY, Krush, MT. Social media: Influencing customer satisfaction in B2B sales. *Industrial marketing management*, 53, 172-180 (2015).
2. Alhabash, S., & Ma, M. A Tale of Four Platforms: Motivations and Uses of Facebook, Twitter, Instagram, and Snapchat Among College Students? *Social Media + Society*. Retrieved from <https://doi.org/10.1177/2056305117691544> (2017).
3. Barroso, MJC. The use of Instagram by Catalan political parties during the referendum of 1 October. *Revista de comunicacion De la Seeci*, 47, 17-36 (2018).
4. Blackwood, R. Language, images, and Paris Orly airport on Instagram: multilingual approaches to identity and self-representation on social media. *International journal of multilingualism*, 16 (1), 7-24 (2019).
5. Bohlin, E, Shaikh, AA, Hanafizadeh, P. Social Network Banking: A Case Study of 100 Leading Global Banks. *International journal of E-business research*. 14 (2), 1-13 (2018).
6. Choi, T R., Sung, Y. Instagram versus Snapchat: Self-expression and privacy concern on social media. *Telematics and informatics*, 35 (8), 2289-2298 (2018).

7. Doğan, D., Gülbahar, Y. Using Facebook as Social Learning Environment. *Informatics in Education*, 17(2), 207–228 (2018).
8. Ducange, P., Fazzolari, M., Petrocchi, M., Vecchio, M. An effective Decision Support System for social media listening based on cross-source sentiment analysis models. *Engineering Applications of Artificial Intelligence*, 78, 71-85 (2019).
9. Handayani, F. Instagram as a teaching tool? Really? *Proceedings of ISELT FBS Universitas Negeri Padang*, 4 (1), 320–327 (2016).
10. Kalelioğlu, F. Using Facebook as a Learning Management System: Experiences of Pre-service Teachers. *Informatics in Education*, 16(1), 83–101 (2017).
11. Likealyzer. Increase your Facebook performance. Retrieved from <https://likealyzer.com> (2019).
12. Rival IQ. Social media analytics that make you look good. Retrieved from <https://www.rivaliq.com> (2019).
13. Statista. The Statistics Portal – Most popular social networks worldwide as of October 2018, ranked by number of active users (in millions). Retrieved from <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users> (2019).
14. Thomas R. B., Johnson P., Fishman E. Social Media for Global Education: Pearls and Pitfalls of Using Facebook, Twitter, and Instagram. *Journal of the American College of Radiology*. 15 (10), 1513-1516 (2018).
15. Tsapatsoulis, N., Djouvas, C. Opinion Mining From Social Media Short Texts: Does Collective Intelligence Beat Deep Learning? *Frontiers in robotics and AI*, 5, 138.
16. UniRank. Most popular social networks worldwide as of October 2018, ranked by number of active users (in millions). Retrieved from <https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users> (2019).