

DOI <https://doi.org/10.30525/2592-8813-2024-2-2-2>

IDENTIFICATION OF ATTRIBUTES AND COMMUNICATION CHANNELS BASED ON SOCIO-DEMOGRAPHIC GROUPS OF INTERNATIONAL STUDENTS

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Abstract. In the modern age, universities are experiencing the impact of increased competition in the educational services market, and the emergence of many social networking platforms and communication methods, which negatively affect the quality of communication between students and the university. The purpose of the study is to identify the main and relevant channels and methods of communication when foreign students search for information about Estonian universities. The study revealed that the use of various communication channels is influenced by gender, age, and educational background of students. The results show differences in the use of communication channels among Bachelor's, Master's and PhD students of different ages and genders. The study found that for all groups of international students, the presence of popular, high-engagement social media accounts is perceived positively, while the absence of such accounts has a negative impact.

Key words: Marketing, communication channels, university, students

JEL Classification: M30, M31, M39.

Introduction. The emergence of numerous social networks and other online resources has, on the one hand, facilitated communication between universities and foreign students. On the other hand, due to rapid technological advancements, it is challenging and impractical for universities to allocate resources indiscriminately to all available online technologies. Universities must develop tools to analyze their target audience and segment them into groups based on habits and preferences. Identifying the preferred communication channels of different groups of foreign students in Estonia will help universities structure content in a way that is both be familiar and comprehensible to students. Without a detailed understanding of target audience, it is impossible to determine the necessary communication attributes, the extent to which mobile applications and the university website should be utilized, or how to attract students through interaction, which is now possible using various new technologies.

Literature Review. Since the COVID pandemic, the digital world has exponentially advanced the hybrid learning style. Teachers and students have successfully combined a large number of communication channels, such as email, mobile apps, and messaging platforms. (Colfer, B. P., Johri, N., & Wagner, S. L., 2021, pp. 441-466). The modern era is highly digitized and encompasses various forms of communication.” (Radu, M. C., Schnakovszky, C., Herghelegiu, E., Ciubotariu, V. A., & Cristea, I., 2020). The main tool used today is the smartphone, which allows for virtually continuous communication activities between subjects.

During the pandemic, HEIs began to adopt social media progressively as a marketing tool in addition to a teaching and learning tool. Social media is becoming an increasingly important tool for business and social engagement. (Hung, N. T., & Yen, K. L., 2022, p. 8522)

Social media was already popular before the COVID pandemic (Nguyen, N., & Leblanc, G., 2011). According to Hobsons's survey on international higher education, more than 80% of students rely on social media platforms to find information about educational institutions, (Hobsons, 2017).

It is important to mention that universities, their students, and potential students are assumed to be technocrats, (Mohammadi, M., Sarvestani, M. S., & Nouroozi, S., 2020, p.16).

According to Fourie, L. E., correspondent students most frequently used the university website (56.4%), friends (34.6%), and word-of-mouth (33.3%) as information sources when selecting a university. Since four of the top five information sources include personal friends, word-of-mouth (Elahinia, N., & Karami, M. 2019, pp. 21-34), family members other than parents, university students, and career advisors, it can be inferred from these statistics that students prefer to consult personal sources when choosing a university (Fourie, L. E., 2015).

Social media platforms have an extensive reach and can connect prospective students, particularly those from abroad (Ragini, Y., 2016). Among other advantages, information on social media can be updated and changed after publication, unlike traditional marketing. Social media promotes involvement, communication, and teamwork (Cohen, I. K., & Salaber, J., 2015, p. 167-186). Social media is free to use and can reach a wide audience at any time, particularly those from abroad. Studies conducted before the COVID pandemic, particularly before 2019, suggest that social networking exposes adolescence to a variety of social standards, enabling them to gather important knowledge, build relationships with others (Uguina-Gadella, L., Estévez-Ayres, I., Fisteus, J. A., Alario-Hoyos, C., & Kloos, C. D., 2023), and establish connections before attending college, (Pumptow, M., & Brahm, T., 2021, pp. 555-575). Online platforms were more instantaneous and accessible than conventional media, which is the primary distinction between the two types of media, (Vizcaya-Moreno, M. F., & Pérez-Cañaveras, R. M., 2020, p. 8267). Higher educational institutions consider traditional media less efficient and more expensive. Previously, universities used social networks to build communities among different groups of students (e.g., local and international students) and between teachers and students, other communication channels, such as university's websites, SMS messages, and blogs, were also used to inform students (Goh, T. T., Seet, B. C., & Chen, N. S., 2012, pp. 624-640).

As mentioned above, the situation has changed since 2019 (Ramadan, Z., 2023, p. 1905-1918): social networks have become one of the main communication channels between students and universities (Yalcinkaya, G., Sengul Salik, Y., & Buker, N., 2020, pp. 473-482). Universities in general have begun to use the Internet more often, especially to attract international students (Ahmadi, Y., 2019). Many authors, including Camilleri (Camilleri, M., 2020, pp. 77-95), have demonstrated that social media marketing activities, such as posting videos, news, and information about institutions, significantly influence students' intentions to enroll in college or university (Prabowo, H., Bramulya, R., & Yuniarty, Y., 2020, pp. 103-110).

Research done by Kisiołek, A., Karyy, O., Halkiv, L., (2021) suggests that 98% of research participants reported regularly using social media, but only 37.4% of them utilized it to help them choose a university. A quantitative descriptive research study, which used an online electronic questionnaire and a non-probability sampling approach, found that potential university students, primarily from the Generation Z demographic (defined as those between the ages of 14 and 22), reached information about the institution on social media platforms before submitting an application; over half (58.3%) of the respondents did so, 33% said they did so to get familiarized with the university's culture (Arungbemi, 2020).

Students identified establishing connections and communication with HEIs as the primary use of social media, considering it the most significant aspect (Hung, N. T., & Yen, K. L., 2022, p. 8522). Furthermore, a study conducted by Blázquez, F., Rodríguez, C., Teijeiro, M. (2020) and Eger, L., Egerová, D., Tomczyk, L., Krystoń, M., (2021, p. 88-99) found that when higher education institutions post photos and videos on Facebook, they receive the highest response rates, particularly in the

form of ‘likes’, ‘shares’, and ‘comments’. Same results were found by Sörensen, I., Vogler, D., Fürst, S., Schäfer, M. S. (2023, pp. 264-277), who concluded that multimodality—using images, videos, or emojis in content—positively impacts user engagement on Facebook, Instagram, and Twitter, according to the cross-platform study. Amplified diversity and conversation make the area more engaging and appealing, which raises awareness and encourages possible participation and loyalty (Sörensen, I., Vogler, D., Fürst, S., & Schäfer, M. S., 2023, pp. 1-20). Nevertheless, universities must employ more questions to foster interactivity even while they use this social network as a source of knowledge (Maresova, P., Hruska, J., & Kuca, K. (2020, p. 74).

When choosing the right educational institution, potential students often look for certain aspects that suit their needs. Factors include reputation, location, educational programs and departments, ratings, cost, and quality (Onsardi, Wulandari, K., Finthariasari, M., & Yulinda, A. T., 2021). Miotto, G., Del-Castillo-Feito, C., & Blanco-González, A., (2020, pp. 342–353) demonstrated that service marketing is major factor in potential student’s decision-making. When researching universities, students use different channels to find necessary information that meets their needs and preferences. It should be mentioned that social media plays a significant role in student’s lives Mohammadi, M., (Sarvestani, M. S., & Nouroozi, S., 2020, p. 16).

Therefore, universities should inform students about available digital services to improve their productivity in education by providing means of communication and collaboration (Benavides, L. M. C., Tamayo Arias, J. A., Arango Serna, M. D., Branch Bedoya, J. W., & Burgos, D., 2020, p. 16).

In the context of marketing, social media engagement between students and their university faculty can influence the desire to communicate with the university. It was also proven that for higher education institutions, social media marketing activities, such as posting videos, news and information about their institutions, significantly influence students’ intention to enroll in a college or university. Furthermore, higher educational institutions should be aware of and take appropriate steps to engage potential students. as additional interaction between faculty and students has been shown to enhance student retention and loyalty (Sörensen, I., Vogler, D., Fürst, S., & Schäfer, M. S., 2023, pp. 1-20). It was necessary to establish which channels of communication students and university faculty use.

Nevertheless, it should be mentioned that social media plays a significant role in student’s lives. In fact, research conducted by Prabowo, H., Bramulya, R., & Yuniarty (2020, pp. 103-110) shows that students use social media significantly often. The majority of respondents spend up to 25% of their time on social media using Facebook a day, and up to 40% using Instagram. 80% of students who use Instagram once a day do so for at least three hours on average. On the other hand, 41.7% of users browse Facebook for one to three hours each day on average. However, study conducted by Vizcaya-Moreno, M. F., Pérez-Cañaveras, R. M., (2020, p. 8267) found that the most popular platforms among Generation Z are Facebook, Twitter, and YouTube.

In addition to interacting with their friends, students who use Facebook and Instagram also get current information from their universities. According to Šola, H. M., & Zia, T., (2021, pp. 1–23), results showed that potential students extensively use various social media platforms when selecting a higher educational institution, and a specific course of study. Compared to more conventional technologies such as email and phone interaction, social media was commonly used, despite variations in its design and functionality. Additionally, among all the resources available, Facebook was the most popular choice among prospective students for communicating with HEIs and exchanging information with peers. Additionally, Facebook was rated as the best resource for finding possible HEIs and courses. However, an analysis conducted by Sörensen, I., Fürst, S., Vogler, D., Schäfer, M. S., (2023, pp. 264–277) revealed differences in user engagement across platforms. Compared to Facebook and Twitter, a significantly higher number of users responded to higher educational institution’s postings on Instagram.

This study aims to identify the attributes and communication channels that are important for international students in Estonia.

Hypothesis: There are statistically significant differences among international students based on gender, age, and level of education in their preference for certain communication channels and essential communication attributes.

Method. Based on scientific literature, the author identified online and offline attributes and communication channels important for students, before and after the pandemic, which were included in the survey. As part of the study, a survey of foreign students was conducted at Estonian universities included in the Times Higher Education World University Rankings in 2023.

To calculate the significance of differences in the proportions (percentages) of the frequency of occurrence of characteristics, the Z and c2 criteria were used using SPSS software. The critical significance level of for testing statistical hypotheses in this study was set at 0.05. For multiple comparisons, the Bonferroni correction was applied, (Abbas, M., Asghar, M. W., & Guo, Y., 2022, pp. 231–248):

$$\alpha_B = \frac{\alpha}{m}, \quad (1)$$

where:

α – initial alpha level (0.050)

α_B – adjusted α level with Bonferroni correction

m – number of hypotheses.

Furthermore, the Cano Method, (Hossain, M. A., Cano, J. A., & Stewart, C. M., 2023, pp. 4001-4019) was used to identify attributes related to the subjective perception of the university. To compile the Kano questionnaire, two questions were formulated for each identified attribute, requiring feedback from international students (Tontini, G., Søylen, K. S., & Silveira, A., 2013, pp. 1253-1271). Based on the responses to the two parts of the question, the product feature can be classified into one of six categories: A=Attractive, M=Must-be, O=One-dimensional, I=Indifferent, R=Reversal, Q=Questionable.

Once all the Kano questionnaires have been collected, the data are tabulated by classifying each customer requirement in the Kano Evaluation and recording it in the appropriate row of a Kano questionnaire tabulation form.

To determine the indicator “Positive impact in the presence of an attribute”, the results were obtained using the Kano model: the indicators “Attractive (A) and One-dimensional (O) were summed up and divided by the sum of Attractive (A), Questionable (O), Must-be (M), and Indifferent (I).

To identify the “Negative impact in the absence of an attribute” indicator, the results were obtained using the Kano model: Questionable (O) and Must be (M) were summed up by the sum of the indicators; Attractive (A), Questionable (O), Must be (M) and Indifferent (I).

Next, all the results were transformed using the Mike Timko method to show a decrease in satisfaction depending on the presence or absence of the corresponding element (Timko, 1993).

Results. The analysis of scientific literature contributed to the identification of important attributes and communication channels, both online and offline, that were relevant before and after the pandemic. These attributes and communication channels are a priority for different groups of consumers of educational services (see Table 1).

Table 1

Communication Channels and Attributes

Attributes	Author
Educational Ratings	Kisiołek, A., Karyy, O., & Halkiv, L. Onsardi, Wulandari, K., Finthariasari, M., & Yulinda, A. T. Miotto, G., Del-Castillo-Feito, C., & Blanco-González, A.
University websites	Ramadan, Z. Kisiołek, A., Karyy, O., & Halkiv, L. Mohammadi, M., Sarvestani, M. S., & Nouroozi, S.

Table 1 (continuance)

Internet Review, comments	Kisiołek, A., Karyy, O., & Halkiv, L. Mohammadi, M., Sarvestani, M. S., & Nouroozi, S.
Websites about education	Hung, N. T., & Yen, K. L. Fourie, L. E. Mohammadi, M., Sarvestani, M. S., & Nouroozi, S.
Search Engine	Fourie, L. E. Nguyen, N., & Leblanc, G. Mohammadi, M., Sarvestani, M. S., & Nouroozi, S.
Communication with friends	Hung, N. T., & Yen, K. L. Fourie, L. E. Camilleri, M. Sörensen, I., Fürst, S., Vogler, D., & Schäfer, M. S.
Social media	Colfer, B. P., Johri, N., & Wagner, S. L. Radu, M. C., Schnakovszky, C., Herghelegiu, E., Ciubotariu, V. A., & Cristea, I., Hung, N. T., & Yen, K. L. Kisiołek, A., Karyy, O., & Halkiv, L. Sörensen, I., Fürst, S., Vogler, D., & Schäfer, M. S.
Education agents	Kisiołek, A., Karyy, O., & Halkiv, L. Sörensen, I., Fürst, S., Vogler, D., & Schäfer, M. S.
Video	Prabowo, H., Bramulya, R., & Yuniarty, Y. Blázquez, F., Rodríguez, C., & Teijeiro, M. Maresova, P., Hruska, J., & Kuca, K. Sörensen, I., Fürst, S., Vogler, D., & Schäfer, M. S.
Blogs	Prabowo, H., Bramulya, R., & Yuniarty, Y. Mohammadi, M., Sarvestani, M. S., & Nouroozi, S.
Mobile application	Colfer, B. P., Johri, N., & Wagner, S. L. Radu, M. C., Schnakovszky, C., Herghelegiu, E., Ciubotariu, V. A., & Cristea, I.
Forums	Prabowo, H., Bramulya, R., & Yuniarty, Y. Mohammadi, M., Sarvestani, M. S., & Nouroozi, S.
Hashtag	Prabowo, H., Bramulya, R., & Yuniarty, Y. Blázquez, F., Rodríguez, C., & Teijeiro, M.
Real time events	Uguina-Gadella, L., Estévez-Ayres, I., Fisteus, J. A., Alario-Hoyos, C., & Kloos, C. D.
Calls to University	Yalcinkaya, G., Sengul Salik, Y., & Buker, N.
Online chat	Sörensen, I., Fürst, S., Vogler, D., & Schäfer, M. S.
WOM	Fourie, L. E., Elahinia, N., & Karami, M.
EdU platforms	Hung, N. T., & Yen, K. L. Sörensen, I., Fürst, S., Vogler, D., & Schäfer, M. S.
Subscriptions	Prabowo, H., Bramulya, R., & Yuniarty, Y., Camilleri, M.
Photo	Prabowo, H., Bramulya, R., & Yuniarty, Y., Camilleri, M. Blázquez, F., Rodríguez, C., & Teijeiro, M. Maresova, P., Hruska, J., & Kuca, K. Sörensen, I., Fürst, S., Vogler, D., & Schäfer, M. S.
Influencers	Kisiołek, A., Karyy, O., & Halkiv, L.
Pop-up windows	Arungbemi O.G.
SMS	Goh, T. T., Seet, B. C., & Chen, N. S.
Email	Colfer, B. P., Johri, N., & Wagner, S. L. Radu, M. C., Schnakovszky, C., Herghelegiu, E., Ciubotariu, V. A., & Cristea, I.

A questionnaire was developed and used to survey 425 respondents. The demographic characteristics of the respondents show that 55% (n=133) are aged 23–37 years, 25% (n=62) are

aged 37–55 years, 15% (n=36) are under 23 years old, and 5% (n=13) are 55 years and older. The study showed that 81% (n=197) were women, 19% (n=47) were men. Among the respondents, 71% (n=172) were undergraduate students, 13% (n=32) were master's students, and 16% (n=40) were doctoral students.

Analysis of the results of the questionnaire revealed that most respondents use Facebook as the primary social network (See Fig. 1).

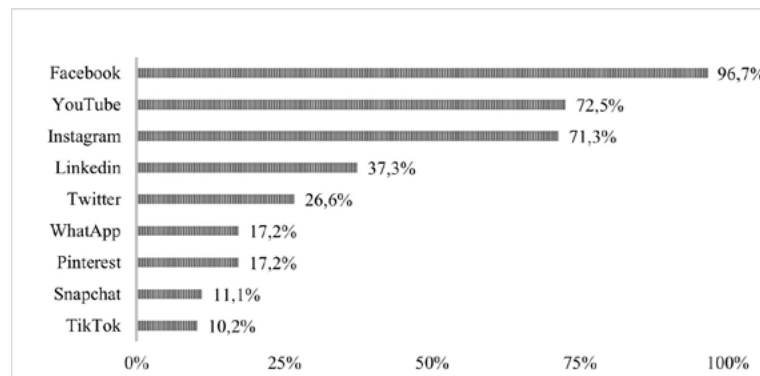


Fig. 1. Respondents' answers to the question “What social networks do you use?”

To determine what information sources and channels respondents use when they are looking or would look for information about a university, a list of possible sources was compiled based on a review of the literature (See Fig. 2).

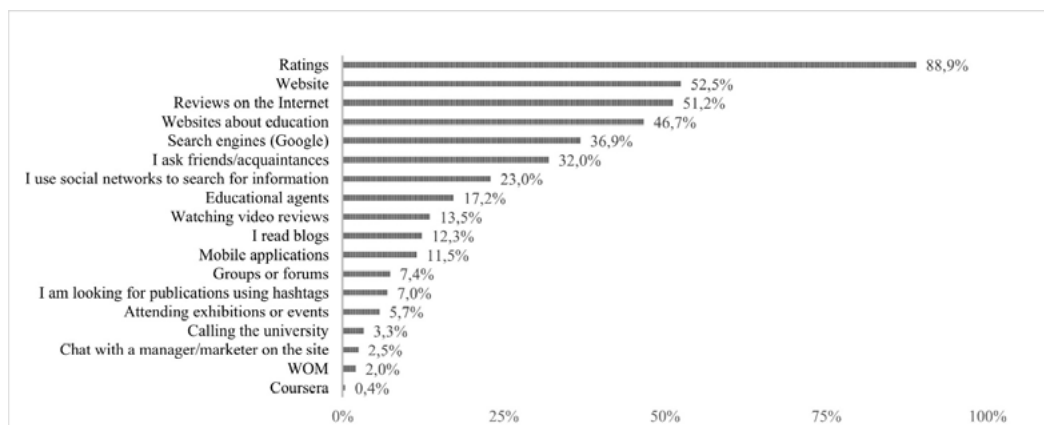


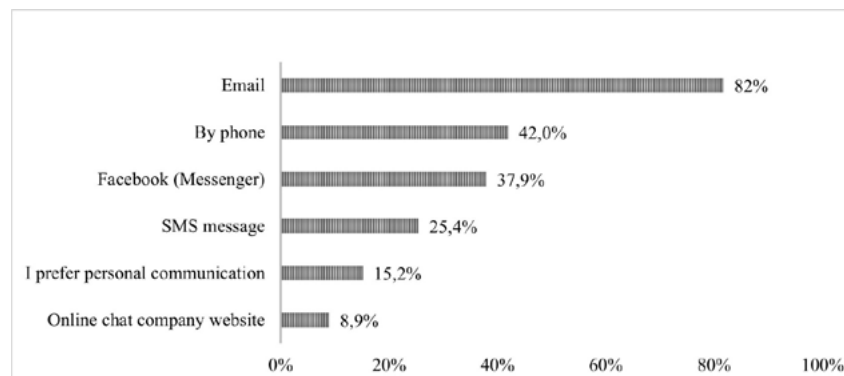
Fig. 2. Respondents' answers to the question “What do you use when you are looking or would look for information about a university?”

To determine whether respondents verify information on website, the following results were obtained. The majority, 58% (n=141), almost always verify information; 22% (n=53) sometimes do, 13% (n=33) do not check at all, and 7% (n=17) do not engage with the information.

The questionnaire results also revealed whether respondents consider it important to have specific actions available on a website (e.g., purchasing or signing up). A majority of 66% (n=162) believe that this is important, 19% (n=45) of respondents do not care, 10% (n=25) do not use the sites and 5% (n=12) believe that it is not important.

Among respondents, 40% (n=98) are neutral about pop-up windows for communicating with managers and use them if necessary, 29% (n=70) dislike them but still use them, 24% (n=58) close them immediately, 5% (n=13) find them premature, and 2% (n=4) are unfamiliar with them.

The majority of respondents (81.7%, n=183) prefer to be contacted by a manager or marketer via email (See Fig. 3).



**Fig. 3. Respondents' answers to the question
"How would you like the manager to contact you if necessary?"**

Since many services today are promoted using famous or authoritative personalities, respondents were asked whether they trust the recommendations of famous (popular) personalities. Of these, 48% (n=117) of respondents answered that they trust in some cases but often verify the information. Meanwhile, 37% (n=88) do not trust such recommendations unless they come from a professional in the relevant field, and 15% (n=37) trust them only if the recommendation is from a professional. 44% (n=107) of respondents rarely leave reviews on the Internet about goods or services, while 37% (n=91) do so more often than not. Among those who leave reviews, 9% (n=21) mostly leave positive reviews, while only 1% (n=2) leave negative reviews. Only 6% (n=16) of respondents never leave reviews. Only 3% (n=7) of respondents stated that they are always willing to leave feedback.

To determine how respondents feel about email newsletters, a relevant question was asked. The majority, namely 39.3% (n=95) answered that they do not subscribe to newsletters and will not, 18.2% (n=44) stated they would subscribe if the university provided interesting offers and content. 13.6% (n=33) have never been offered such a subscription, 9.1% (n=22) would subscribe if there was a positive experience of cooperation, 8.3% (n=20) would subscribe if offered, 7.4% (n=18) never subscribe, while 4.1% (n=10) might subscribe to maintain contact. Respondents' answers to the question "Do you subscribe to e-mail newsletters from the university?"

Social networks are a popular media channel; therefore, universities without social media pages appear less trustworthy. Moreover, the frequency and quality of their publications influence user engagement, as they either capture interest or go unnoticed. 29% (n=70) of respondents pay (more often pay) attention to publications from the university. 29% (n=70) answered that they don't pay attention more often than they pay attention. 24% (n=59) reported paying attention, stated they do not, and only 7% (n=18) indicated they had not seen such information. At the same time, 25% (n=60) of respondents like more often than not under posts on social networks with information from the university that is interesting to them, 24% (n=59) like, more often they do not like than they do – 20% (n=49), do not like 24% (n=58) and 7% (n=18) have not seen such information. To understand under what circumstances respondents subscribe to university social media pages, a corresponding question was asked (See Fig. 4).

To understand under what conditions respondents are willing to return and use the services of a university they liked, a corresponding question was asked. 58% (n=140) of respondents are willing to return, 20% (n=49) stated that their decision depends on various circumstances, 11% (n=27) answered that they are more likely to return than not, 9% (n=22) would return if a discount were available, and

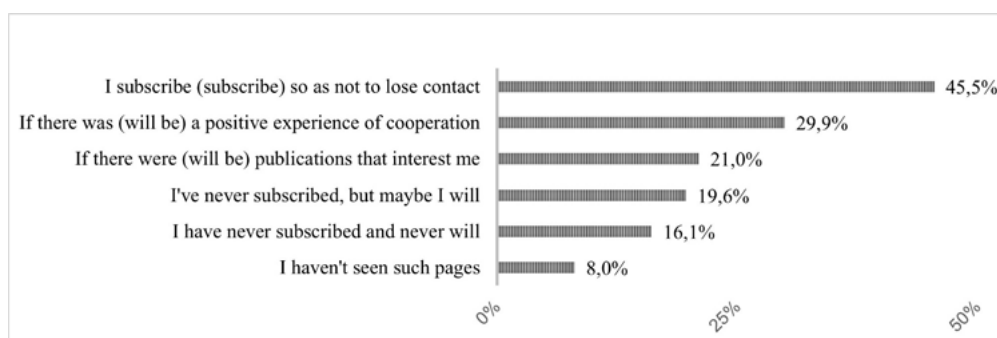


Fig. 4. Respondents' answers to the question "In what cases do you subscribe to the university's pages on social networks?"

2% (n=5) answered that they are more likely not to return than to return. 41% (n=99) of respondents usually publish photo, 16% (n=40) do so very rarely, – 16% (n=40) publish depending on various circumstances, 15% (n=37) always publish, 7% (n=17) never publish, and 5% (n=11) almost never publish. At the same time, 24% (n=59) of respondents usually tag publications with hashtags, 17% (n=42) tag them, but very rarely, 21% (n=51) never tag them, 12% (n=28) almost never tag them, 16% (n=40) do so depending on various circumstances, 7% (n=18) always mark them, and only 3% (n=6) do not know what hashtags are. The majority of respondents, 38% (n=93), usually mark publications with geotags, 17% (n=41) do so very rarely, 6% (n=16) almost never mark them, 16% (n=38) – never noted them, 14% (n=35) always noted them, and 7% (n=16) do so depending on various circumstances. Only 2% (n=5) of respondents do not know what it is.

Thus, women statistically trust recommendations from famous personalities more (75%, n=73) than men do (54%, n=15). Additionally, men (46%, n=13) are more likely than women (25%, n=24) to trust recommendations, but only if they come from a professional in the relevant field. These may include video clips (including advertising) on YouTube, posts (reviews) from famous bloggers on Instagram, etc. (p=.0478).

At the same time, women are statistically more likely to leave online reviews about university services (89%, n=82) than men (60%, n=9). In addition, men are more likely to never leave reviews (40%, n=6) compared to women (11%, n=10) – (p=.0098).

Additionally, the analysis of the study results revealed that women (74%, n=52) are statistically more likely than men (44%, n=7) to pay attention to university publications from a university on social networks (p=.0335). Furthermore, women (45%, n=89) are statistically more likely than men (28%, n=13) to subscribe to university pages on social networks if they find the publications interesting (p=.0287).

When examining social networks as a communication channel and user behavior within them, the following results were obtained:

Statistically, significantly more women tag publications with hashtags (53%, n=67) than men (35%, n=10) – (p<0.05). However, age does not influence the use of hashtags.

Statistically, more people under the age of 37 (66%, n=103) geotag publications than those people aged 37 and older (37%, n=25), (p=.0010).

Significantly more women publish photos (72%, n=119) than men (44% n=17) – (p=.0016).

The use of social networks depends on the gender and age of respondents. Statistically, significant gender differences were identified in the use of the social network Instagram, Twitter, and Pinterest. Women are more likely to use Instagram (74.6%, n=147) than men (57.4%, n=27) (p=.0308), while Twitter is used more by men (40.4%, n=19) than women (23.4%, n=46) – (p=.0281). Similarly, Pinterest is used more by women (20.3%, n=40) than men (4.3%, n=2) (p=.0086). Age-based differ-

ences were also identified in the use of Facebook, LinkedIn, Instagram, TikTok, and YouTube in two age groups: under 37 years old and 37 years and older. Facebook (99%, $n=167$), LinkedIn (44%, $n=75$), Instagram (83%, $n=141$), TikTok (15%, $n=25$), and YouTube (78%, $n=132$) are used more by individuals under 37 years of age than by those aged 37 and older ($p<0.05$). Also, differences were identified in how respondents of different genders, education levels, and ages search for or would search for information about the university if needed.

The use of certain channels when searching for information about a university depends on the gender of the respondents. Ratings are primarily used by women (92%, $n=182$) rather than men (74%, $n=35$) ($p=.0011$). Similarly, education websites are more commonly used by women (52.8%, $n=104$) than men (21.3%, $n=10$) ($p=.0001$). Conversely, statistically more often men (12.8%, $n=6$) are called directly than women (1%, $n=2$) – $p=.0008$.

At the same time, the use of certain channels when searching university-related information is also associated with respondents' age. Statistically, significantly more people under the age of 37 (42%, $n=71$) use search engines to find information about a university than those aged 37 and older (25.3%, $n=19$) – $p=0.02$. However, university websites are used more frequently by individuals aged 37 and older (64%, $n=48$) than by those under 37 (47.3%, $n=80$) – $p=0.001$. In addition, respondents aged 37 and older read blogs more (21%, $n=16$) than those under 37 (8%, $n=14$) – $p=.0042$. But at the same time, when selecting a university, individuals over the age of 23 (67% $n=50$) are more likely to use social networks to search for information than those under 23 (4%, $n=6$) – $p=0.03$.

At the same time, the use of certain channels when searching for information about a university is also linked to the respondents' level of education. Thus, respondents pursuing a bachelor's or doctoral degree (54%, $n=114$) are more likely to use online reviews to search for information than master's students (34%, $n=11$) – $p=0.04$. A similar trend is observed among those who visit the website: bachelor's or doctoral students (55%, $n=117$) than master's students (34%, $n=11$) – $p=0.045$. Educational websites and platforms are used more frequently by respondents bachelor's or doctoral students (51%, $n=108$) than by master's students (19%, $n=6$) – $p=0.01$.

Also, differences were found between respondents' level of education and their preferred method of contact with a manager if necessary. The choice of communication channels for contacting a manager, when necessary, depends on the respondents' level of education. Thus, doctoral and master's students (53%, $n=38$) are more likely to prefer phone communication with a manager than bachelor's students (33%, $n=56$) – $p=.0049$. Also, bachelor's and doctoral students (77%, $n=164$) are statistically more likely to prefer email contact from a manager, if necessary, compared to master's students (59%, $n=19$) – $p<0.05$. At the same time, no differences were found between the respondents' gender and age and their preferred method of contact with a manager if necessary ($p<0.05$).

Thus, the survey results show that there are differences in the use of social networks and communication channels among international students with varying genders and levels of education.

Kano's Model Results. Noriaki Kano and his team first developed this model in 1984. This model was developed to enhance consumer satisfaction over time when they return to a product from the same manufacturer. It aims to classify and prioritize customer needs while providing a structured framework a production container with guidelines for product design and development cycles (Madzik, P., 2018, pp. 387-409). In the Kano diagram, the horizontal axis represents the extent to which specific qualitative traits are fulfilled, while the vertical axis represents the level of customer satisfaction with these attributes. The attributes and communication channels identified in the survey were logically grouped into categories: The 'Social media' category with high metrics, included factors contributing to improved social media performance, such as hashtags, geolocation tags, photo and video content, subscriptions, active student interactions, comments and reviews.

The 'Online Community' category includes attributes that facilitate the formation of interest-based groups, such as mutual friends and influencers. The "Cooperation" includes attributes related to promotion through educational agents, educational websites, and platforms.

The most significant differences were observed across four groups: bachelor's and master's students aged 37 and younger, doctoral students aged 37 and younger, bachelor's and master's students older than 37 years old, doctoral students after 37 years old (See Fig. 5).

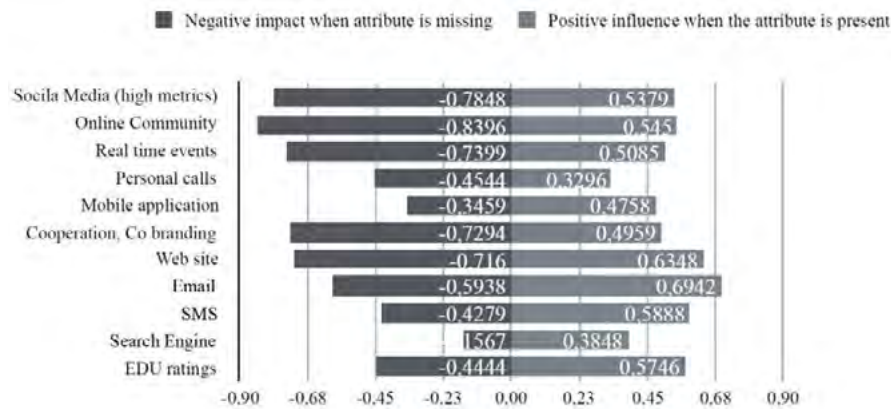


Fig. 5. Positive and negative impact of the identified attributes on the attitude of foreign students in Estonia

(bachelor's and master's students up to 37 years old to the perception of higher education institutions in the presence and absence of appropriate opportunities)

In the first group, bachelor's and master's students up to 37 years old, it was revealed that it is not so important how widely the university promotes itself in search engines (-0.15; 0.38), it is important that the university is active in social networks (-0.78; 0.53) and in the Online community building (-0.83; 0.54), as well as interacts with other universities and organizations both in real life and on the Internet (-0.72; 0.49) (See Fig. 6).

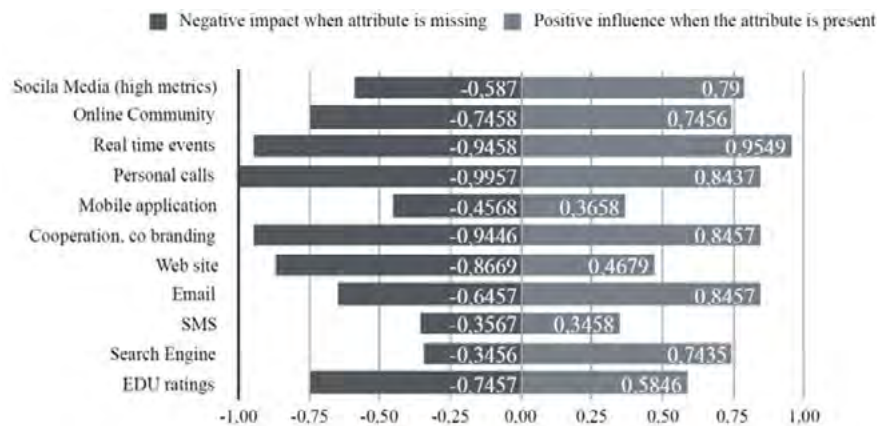


Fig. 6. Positive and negative impact of the identified attributes on the attitude of foreign students in Estonia

(doctoral students up to 37 years old (inclusive) to the perception of higher education institutions in the presence and absence of appropriate opportunities)

In the second group, which included doctoral students up to 37 years old, it was noted that alongside popular social networks (-0.99; 0.96), it should be easy to contact the university (-0.85; 0.73), the phone number should be easily found on the university's website, in social media accounts (See Fig.7).

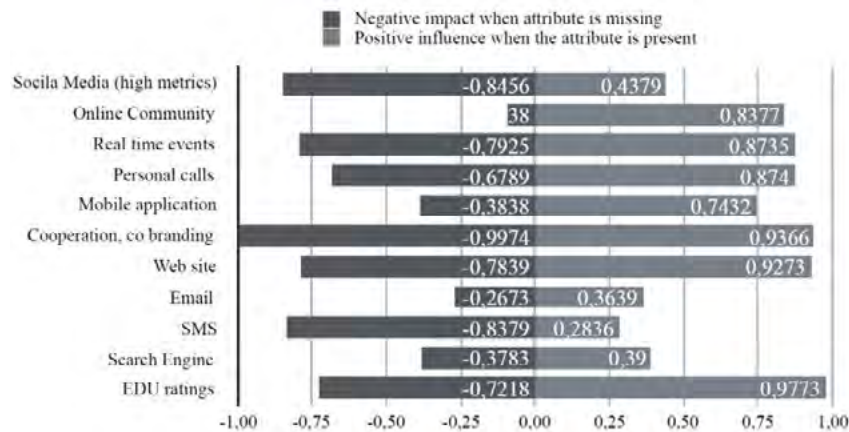


Fig. 7. Positive and negative impact of the identified attributes on the attitude of foreign students in Estonia

(bachelor's and master's students of the country is 37 years old) to the perception of higher education in the presence and absence of appropriate opportunities

For the third group of respondents (bachelor's and master's students over 37 years old), it was important that real events were held at the university (-0.94; 0.95) so that the university actively cooperated with partners (-0.94; 0.84) and engages with educational platforms, as well as promoted itself through educational ratings (-0.74; 0.58) (See Fig. 8).

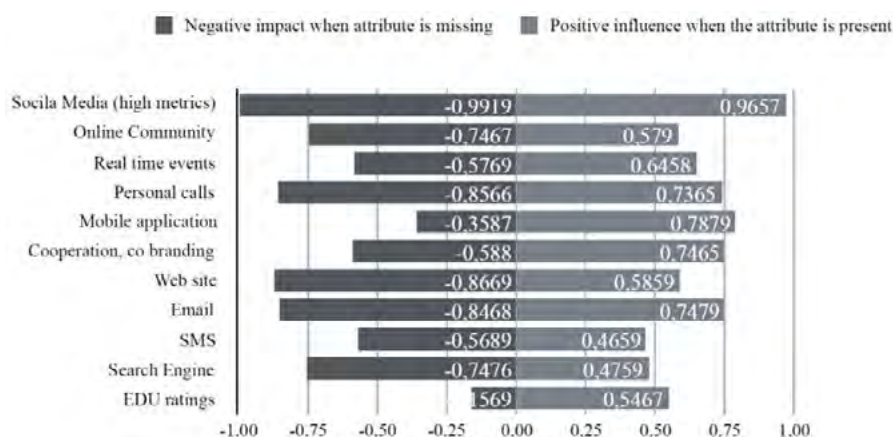


Fig. 8. Positive and negative impact of the identified attributes on the attitude of foreign students in Estonia

(doctoral students over 37 years old) to the perception of higher education institutions in the presence and absence of appropriate opportunities

For the fourth group of international students, doctoral students over 37 years old, the lack of an online community (-0.09) did not worsen the perception of the university, and the presence of real events (-0.79; 0.87), cooperation with other educational agents (-0.99; 0.93), a high ranking in educational ratings (-0.72; 0.97) and the presence of a popular website (-0.78; 0.92) were important attributes.

Discussion. As many researchers have mentioned, after the pandemic, universities have become more likely to use ICT to interact with students, especially those from abroad (Colfer, 2021; Radu, 2020).

However, despite this shift, real-life events at universities and the opportunity to make a phone call and speak to a real person remain relevant for some student groups. As shown in studies by Hung & Yen (2022), Hobson (2017), Ragini (2016), Cohen & Salaber (2015), Prabowo, Bramulya, & Yuniarty (2019), Vizcaya-Moreno & Pérez-Cañaveras (2020), and Sörensen et al. (2023), for most international students across all groups, a developed social media system and the ability to use specific social media communication attributes—such as hashtags, likes—are a priority.

Similarly, in studies by Fourie (2015), Ragini (2016); Cohen & Salaber (2015), it was found that international students value a university that is active not only online but also in real life.

The results of this study differ from previous research. For example, according to Fourie (2015), students most often used the university website (56.4%), friends (34.6%) and word of mouth (33.3%) when searching for university-related information. This study revealed that foreign students first check whether a university appears in educational rankings, then review the university's website, and examine reviews published in the intervention. Discussion with friends about the university ranked only sixth in importance.

The study by Capriotti, Carretón-Ballester, & Losada-Díaz (2024) supports the argument that universities must thoroughly analyze their target students and tailor messages using modern technologies. A more personalized message is necessary. Capriotti, Martínez-Gras, & Zeler (2023) found that despite the availability of numerous online communication methods and channels, universities often fail to consider the interests of prospective students. They do not actively engage their social media followers and tend to publish generic, monotonous content. These findings further confirm that the data obtained on the preferences of foreign students in Estonia can help universities enhance the communication strategies and make them more effective.

Conclusion. The purpose of the study was to identify the attributes and communication channels with the university that are important for foreign students in Estonia to facilitate more effective interaction between students and the educational organization. The study reveals that the university should build its marketing strategy for promotion and communication with students based on students' level of education, age, and gender. This will help the university convey messages to the target audience; the messages will be more personalized and easily understood by students. In turn, students will be able to interact with the university in a way that is convenient for them, without having to consider which social network or communication channel provides the most detailed and high-quality information. Also, in the future, the data obtained in this study will help universities refine student profiles for each communication channel, leading to more tailored communication strategies. The results of the research showed that, despite the popularity of online communication methods, different attributes and communication channels are prioritized for different groups of international students. This suggests that the university should consider these differences when designing communication strategies and online promotion.

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