Information Accessibility and Decision-Making in Career Selection: An Examination of Influential Sources for University Students

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Abstract

The aim of the present study is to analyze the relationship between information accessibility and career decision making among first-year university students from a Central Eastern European university (n=2,330). Hierarchical cluster analysis was conducted based on motivational factors and four distinct student groups were identified: 'Independent Decision Makers' (IDM, 15.4%), 'Amenity-Oriented Selectors' (AOS, 41.2%), 'Location-Centric Choosers' (LCC, 16.6%), and 'Academic Excellence Seekers' (AES, 26.8%). While IDMs made decisions independent of institutional attributes, AOS prioritized university services, LCC were influenced by the city, and AES emphasized academic course quality. The most relevant sources of information are the official website of the National Office of Admissions, university websites, peer opinions, and institutional information. These findings provide important insights for universities and their targeted enrollment campaigns to understand the different decision-making preferences of students.

Keywords: Career Decision Making, Information Accessibility, Student Motivations, Higher Education Marketing

1. Introduction

Higher education institutions are recognizing the need to adopt a marketing orientation in order to compete for student engagement and increase enrollment (Davis & Farrel, 2016). The shift is being driven by the intense competition among higher educational institutions, and changing student behavior patterns (Mogaji et al., 2020). Information technologies are enhancing higher education marketing strategies by leveraging digital techniques for broader audience engagement (Tripathi, 2013). There is great potential in online platforms that offer universities the opportunity to engage and influence digitally native generations (Zervina & Stukalina,

2019). Current trends in higher education marketing include a shift to a market-oriented approach, the use of technological innovations, and the need for a better understanding of marketing principles (Babb & Giga, 2014). Ziyadin & Serikbek (2020) emphasized the importance of promoting higher education programs to increase their competitiveness.

The basic research question was which groups or clusters of students can be distinguished on the basis of institutional choice and what are their sources of information. After the literature review, the paper presents the methodology of the empirical research, followed by the research results and concludes with the conclusions.

2. Theoretical background

The literature review provides a brief overview of student motivations, with a particular focus on aspects of institutional choice, student clustering, and sources of information.

2.1. University selection aspects

When choosing a university, students consider factors such as reputation, academic quality, location, proximity, and financial considerations (Winkler, 2014). Additional studies (Ariffin et al., 2014, Azzone and Soncin, 2020, Srivastava & Dhamija, 2022) reveal the multifaceted nature of college selection decisions, highlighting aspects such as campus characteristics, job opportunities, and financial viability. Geographic proximity, university reputation, and course reputation are consistently valued (Winkler, 2014; Walsh & Cullinan, 2017; Srivastava & Dhamija, 2022). Notably, the socioeconomic status of students influences the importance placed on hometown proximity. In addition, the influence of peers and family, as well as structural factors such as location, public image, and academic quality, significantly influence student choice (Walsh & Cullinan, 2017; Dhaliwal et al., 2019). Financial considerations, including tuition and economic benefits, also shape decision making (Srivastava & Dhamija, 2022; Dhaliwal et al., 2019).

2.2. Clusters of students

Clustering students based on psychographic (motivational) and demographic variables has become a hot topic today as recruitment and retention are increasingly important issues for higher education institutions (Nonis et al., 2021). Goodrich et al. (2020) highlighted the importance of segmenting students based on psychographic variables such as attitudes, lifestyles, values, and interests. Banász et al. (2023) found that university rankings can be used to create clusters of universities based on similar characteristics and indicators. Goodrich et al. (2020) used K-means clustering to identify six segments in the U.S. market and defined tailored messages for them. Among students, they identified the following clusters: 1) motivated post-

traditionals, 2) focused scholars, 3) unsupported trailblazers, 4) dependent wonderers, 5) privileged experientials, and 6) prestigious collegians (Goodrich et al., 2020:442).

2.3. Information sources of students

Goodrich et al. (2020) provided practical implications for higher education media planning to achieve effective communication goals. They analyzed 14 media channels and categorized these channels as university-driven traditional (campus visits, TV ads, radio, billboards, direct marketing) and online (online ads, social media, university websites) and non-university-driven traditional media channels (family, friends, high school counselors, high school teachers, news) and online outlets (online reviews, third-party reviews). The researchers found that students across all the six segments use campus visits more often than any other university-driven traditional media. Considering personal sources like friends and family more often than any other traditional word of mouth sources.The role of parents (Areces et al., 2016) and peers (Pinna et al., 2018) were highlighted in oder studies, too.

3. Methodology

This empirical study surveys first-year students at universities in Central Eastern Europe using a registration questionnaire distributed at the time of admission. The anonymous survey is administered through the university's website and assesses students' motivations, information sources, and demographics. Questions cover factors that influence the choice of institution, sources of information and information about faculty applications, education level and funding. The survey began on July 27, 2023 and was completed by 2,330 students on September 7, 2023.

The questionnaire consisted of three sections: motivations, sources of program information, and sociodemographic characteristics. Participants reported their motivations by expressing their level of agreement on a 5-point Likert scale with the endpoints 1: not all influenced, 5: totally influences. Based on the literature review 19 motivators were analyzed reputation of the institution, university-industry link, available scholarships, tuition fees, practical training, free language learning opportunities, friends, results from previous years, chances of admission based on previous year's scores, opinions of family members, opinions of friends, distance from home, low college fees, better chance of getting into college, information from the media, education should be possible while working, diversity of student life, sports facilities, city, job opportunities. The following online and traditional sources of information were measured on a six-point Likert scale with endpoints 0: never, and 5: absolutely agree: official website of the National Office of Admissions (NOA), university websites, national and institutional information publications, opinions of friends, peers, family and information in newspapers. Sociodemographic characteristics included gender, age (in years), residence (Hungary,vs. abroad), and place of residence (village, town, county center, capital).

The university offers a wide range of study programs and the respondents came from different fields of study: engineering (47.1%), social sciences (15.7%), economics (13.9%), law (9.6%), health and physical education (7.8%), agriculture (4.0%) and arts (1.8%). 48.7% of the students are female and 51.3% are male, the majority belong to Generation Z and live in Hungary, mainly in towns and villages. The demographic composition of the sample is shown in Table 1.

Table 1. The demographic composition of the sampe. Source: Own research, n=2330 students.

Gender	Female	Male		
	48.7%	51.3%		
Generation	**Gen X (44-58)**	**Gen Y (29-43)**	**Gen Z (18-28)**	
	6.4%	14.1%	79.5%	
Residence	**Hungary**	**Abroad**		
	97.5%	2.5%		
Residence type	**Capital**	**County center**	**Town**	**Village**
	7.0%	28.1%	30.3%	34.6%
Form of financing	**Public-financed**	**Self-financed**		
	84.2%	16.8%		
Level of training	**higher-level vocational training**	**Univocational training**	**BA**	**MA**
	6.1%	5.6%	77.4%	10.9%

Data analysis was performed using SPSS 26.0 software. Multivariate statistical analysis was used to answer the research questions. Previously, factor analysis was conducted and four factors were distinguished from the 15 motivators (based on the factor scores) explaining 64.2% of the total variance: education and reputation (22.68%); dormitory and services (15.83%); opinion of others (14.19%) and finally the city (11.50%). The importance of proximity, reputation and educational quality, and peer and family influence have been emphasized by previous researches. This study identified dormitory and services as a new factor. This empirical The study used Ward's hierarchical cluster analysis, specifically agglomerative clustering with Euclidean squared distance, to address the primary research question. Four clustering solutions were considered and treated as nominal variables. F-statistics were used to analyze the relationship between cluster membership and information sources.

4. Results and discussion

4.1. Categorization of students on the basis of motivational factors

Based on the results of Elbow criterion and Agglomeration schedule the four cluster solution was selected. Count and frequency in case of each cluster was the following: 1st cluster 359 people (15.4%), 2nd cluster 961 people (41.2%), the 3rd cluster 386people (16.6%) and the 4th cluster 624 students (26.8%). In order to make a typology of the different clusters, it was necessary to analyze the means. The method of one-way ANOVA was used to check the category means of the motivational factors (education and reputation, dormitory and services, opinion of others and city) in case of each cluster and significant differences (IDM: 581.47, p: 0.00, η^2:0.43; AOS: 2453.05, p: 0.00, η^2: 0.76; LCC: 8.67 p: 0.00, η^2: 0.011; AES: 465.19, p: 0.00, η^2: 0.37). There were significant differences between groups for all variables. To test the homogeneity of variables post-hoc tests (Dunnett T3 and LSD) were performed. according to the results there were statistically significant differences between variables (Table 2).

Table 2. Results of cluster analysis. Source: Own research, n=2330 students.

Clusters	Education and reputation	Dormitory and services	Opinion of others	The city
IDM	-0.7751534	-0.6356900	-0.0366592	-1.2630638
AOS	0.1679341	**1.0332016**	0.1225809	-0.0156210
LCC	-0.9738776	-0.5793173	-0.1088513	**0.8285886**
AES	**0.7897631**	-0.8671114	-0.1003574	0.2381674

Based on the final results, four groups of students could be distinguished: '*Independent Decision Makers'* (IDM), '*Amenity-Oriented Selectors'* (AOS), '*Location-Centric Choosers'* (LCC) and '*Academic Excellence Seekers'* (AES). While Goodrich et al. (2020) focused on psychographic segmentation, Banász et al. examined university rankings and their impact on student clusters. IDMs were not influenced by the quality of the courses offered by the university, the reputation of the institution or the services it provides (the dormitory), or the city of Győr itself during the admission process. On the contrary, the other three clusters were created in which there were main drivers each. AOS were most influenced by the services offered by the university when choosing the institution. Among the services, sports, housing and entertainment facilities were the most important. LCC were clearly attracted by the city and the geographical location was the main influence to the exclusion of all other options. AES made their decision to continue their studies based on the quality of the courses offered by the university. Findings enhance our understanding of student behavior and inform educational strategies. The researchers

systematically classified each cohort of students based on demographic parameters, the details of which are not presented in this report due to space limitations.

4.2. Information sources

Finally, the students' preferred information sources were analyzed using F-statistics. Although there were statistically significant differences between student clusters, the effect size (η^2) was relatively modest. IDMs primarily used the official NOA website (3.92) and the college website (3.68), traditional peers (2.86), and family opinion (1.79), but print advertisements (0.89) were not important to them at all. For all groups of students, the main source of information was online, especially the official NOA website (4.20), followed by the institutional website (4.11) and the interpersonal network (3.55). Traditional sources of information, such as print advertisements (1.59), were less relevant to students, as shown in Figure 1. Previous research (Goodrich et al., 2020) and our findings highlight the increasing importance of online channels and personal sources in higher education marketing, while traditional media channels are becoming less relevant.
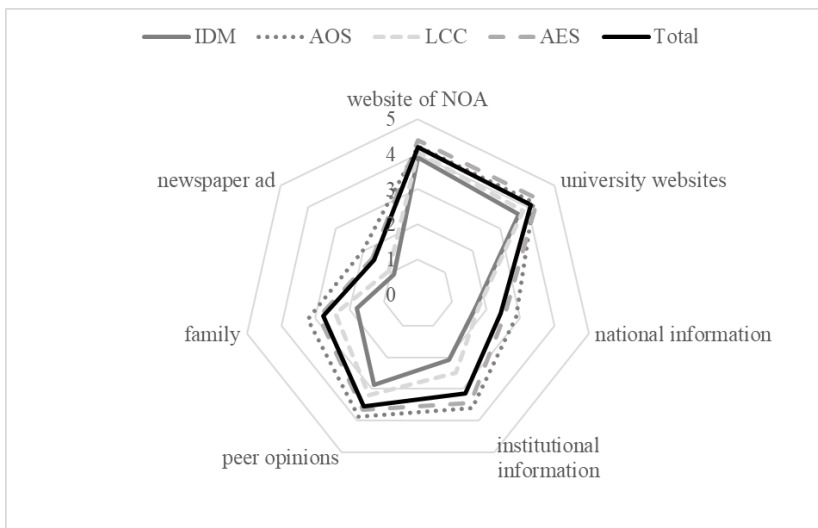

Figure 1. Importance of different information sources. Source: Own research, n=2330 students

5. Conclusion

The results of the research are useful for a variety of stakeholders in higher education, such as institutions (universities), policy makers, students, education and marketing professionals. Institutions can tailor their marketing and communication strategies and develop more effective campaigns tailored to the specific needs and preferences of different student segments, especially for AOS, LCC and AES. Owned online media tools (university-driven and non-

university-driven websites) are more effective than traditional information sources. In the creative concept of the university, it is worth highlighting the factors that students use to make their choices (AOS: '*Enjoy the facilities of the uni*', LCC: '*Feel the city*', AES: '*Reputation, Success, Quality Education*'). Those involved in career counseling use the findings to provide more targeted and effective guidance to students, taking into account the diverse motivations and decision-making factors revealed in the study. Scholars in the fields of education, marketing, and career development can use the study as a basis for further research and contribute to a deeper understanding in the student decision-making process.

As a limitation of the research, we would like to highlight the measurement instrument used in the research, since the online questionnaire was a version developed by the university that has been used for years. Therefore, it would be worthwhile to include both online and traditional university and non-university sources of information, especially events, exhibitions, fairs, and social media for enrollment purposes. To extend the research in the future, the researchers plan to analyze longitudinal data from previous studies and conduct qualitative focus group interviews with students from different faculties. These interviews will provide insights into information sources and brainstorm creative content that appeals to young people.

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