

DIFERENCES IN CANDIDATES INFORMATION NEEDS WHEN CHOOSING THE FACULTY TO ATTEND IN THE TECHNICAL FIELD

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Abstract: Two important issues are currently at the forefront of national and European debates regarding sustainable economic development and access to education: fostering education and employment among the young and reducing attrition rates in higher education. These two aspects are even more important in the context of young people from disadvantaged backgrounds where various aspects such as lack of information or lack of funding challenge graduating from higher education. Romanian universities are currently faced with considerably high drop-out rates, with more than 30% of students not reaching graduation day. Yet, little quantitative analysis has analysed the causes generating such high levels of student attrition. The article takes on this challenge and aims to analyse the differences in candidates information needs when choosing the faculty to attend in the technical field between students coming from disadvantaged backgrounds and students not facing such difficulties. The approach focuses on the information search phase of the buying decision-making process by analysing what information is offered and sought at the moment students present themselves to the admissions office for the admission procedure. A number of 430 questionnaires asking first year students to rate the quality and importance of the various information received during the admission phase were analysed with the goals to: 1) identify the information students require in order to make a conscious, informed choice when choosing their specialty and 2) identify differences in information needs between students coming from disadvantaged backgrounds and students not facing such challenges. Results show information needs to be tailored according to the different socio-demographic characteristics of the candidates. The article then suggests concrete measures for developing the information phase during the admission process in order to thus contribute to reducing attrition, while at the same time foster higher education enrolment and completion of studies among students from disadvantaged backgrounds. The paper is particularly aimed at higher university professionals involved in the admissions process in the technical field by offering them concrete suggestions for selecting and adapting the information offered based on students backgrounds and interests.

Keywords: higher university; attrition; disadvantaged backgrounds.

JEL classification: M31; I24; I25.

1. Introduction

European Union Member States are currently facing considerable socio-economic challenges with regards to ensuring sustainable economic development. On the one hand, Europe is characterized by an ageing population due to lower fertility rates and an increase in life expectancy, while at the same time experiencing high unemployment rates among its young people. According to Eurostat estimates (Eurostat, 2016), unemployment rates among young people (under 25 years old) continue to remain much higher (double or more) than the general unemployment rate in the EU28. In 2016, the youth unemployment rate was 18,4% in EU28, 2,2 higher than the general unemployment rate of 8,3%, the number of unemployed young people being of 4,169 million persons. This situation is generally

caused by two important aspects: 1) the difficulties young people face in finding employment due to inadequate skills, limited geographic mobility or inadequate wage conditions and 2) the fragility of their position on the labour market, young people generally being the most affected in conditions of economic crisis. In addition, one third of young people aged between 15 and 24 years old are facing the risk of poverty or social exclusion (Paolini, 2013).

One of the means identified for counteracting this situation aims at increasing the level of education among young people. In this context, the European Union is closely committed to stimulating the completion of university studies. This goal is included in the EU2020 Strategy which aims for at least 40% of those aged between 30 and 34 years old to hold a tertiary education degree by 2020 (EU2020 Strategy). Efforts have thus been made to increase access to higher education and develop a mass higher education system (BIS, 2014). These efforts have translated into an increased number of students enrolling for a higher education degree, also generating increased variety in the student population. At the same time, a surge in attrition rates was recorded, with large percentages of students not reaching graduation day. Higher education attrition was first defined by Tinto (1982) as “a student voluntary drop out is anyone who withdraws from the institution without completing the academic program in which the student was enrolled”. The terms student attrition and dropout will be used in the content of this paper with this meaning.

1.1 Higher education attrition in European countries

In terms of current student attrition, research (Quinn, 2013; Arce et al, 2015; Aljohani, 2014; DeShields Jr et al, 2005) suggest this phenomenon to be common among European countries. According to a recent report of the European Commission (European Commission, 2015), higher education attrition percentages among European countries vary from 59% in Norway to 82% in the UK. More than 30% of students decide to withdraw from university before finalising their studies in Romania, while more than 50% of those dropping-out do so after their first year of studies (ANOSR, 2013). The main consequences of students' attrition include less positive labour outcomes for students deciding not to complete their studies involving lower employment rates and lower paid jobs (BIS, 2014). Quinn (2013) identifies three six categories of factors determining university attrition: 1) socio-cultural factors including different community attitudes and the normalisation of dropping out for certain types of students; 2) structural factors including mainly pressures caused by poverty, class, race, disability or gender; 3) policy factors dealing with different strategic decisions that impact on the ability to complete studies negatively; 4) institutional factors including cultures and practices that do not support students finalise their studies; 5) personal factors such as various health issues or traumatic experiences and 6) learning factors including the lack of appropriate learning strategies and a mismatch between the students interest and the subject chosen.

The case of students from disadvantaged backgrounds was also analysed in the literature with research results indicating that, although the lack of resources plays an important role in the drop-out decision, the high rate of dropout among this category of students is generated by a mix between poor choice of course, inaccurate expectations of student life and negative perceptions with regards the university environment (BIS, 2014). This is consistent with the general characteristic of young people coming from disadvantaged backgrounds who are faced with a lack of sources of support and advice. Many of them are also the first ones in their family to attend higher education so they have no previous similar experience in the immediate environment to relate to. Furthermore, they often face negative feedback from their closed ones who tend to discourage them from pursuing tertiary education in favour of identifying an immediate employment that would contribute to ensuring financial resources for the family (Forsyth and Furlong, 2003). Because of this, they are often more likely to choose a course that is not suitable to them.

1.2 Information search and decision-making in higher education admissions

The model of consumer buying decision-making was first developed by Engle, Blackwell and Kollat in 1968. They identified 5 steps of this process: 1) need recognition meaning the gap existing between the actual situation the consumer finds themselves in and the ideal, desired state), 2) information search implying the efforts made by the consumer to seek information about possible solutions to the problem they are facing, 3) alternative evaluation where the different alternatives are being considered, ranked and judged upon, 4) purchase decision – the consumer completes the purchase and 5) post-purchase behaviour where the consumer evaluates the adequacy of the choice made with regards to the original need (Kotler and Keller, 2006; Kotler and Armstrong, 2008).

Information is key in the process of selecting the right course of studies at university level. A lack of complete and correct information in this regard often leads to students selecting a line of studies which they then find to be inappropriate and that can further lead to student dropout.

Consumers generally engage in two types of information searches: internal and external. The first one implies that the consumer identifies alternatives from their memory, while the second means that the consumer will ask for information among their peers, perform research using magazines, websites and various other sources of information available. When faced with information on a certain topic, consumers will generally follow the AIDA model, which stands for Attention, Interest, Desire and Action (Rawal, 2013). This model explains the four phases consumers will go through. The first stage means that the information provided needs to capture the attention of the audience that will then become interested in the product or service, reach the point where they desire it and finally take action to purchase the product or service.

The literature available examining students' higher university choice process generally considers the role played by personal attributes such as parental background and the socio-economic status (Drewes and Michael, 2006). The topic of how students seek information and where they search for it remains, to our knowledge, little examined. In this context, the article aims to analyse the extent to which information provided by the admissions staff during the admissions process is adequate for choosing the right path of studies and what are the different information needs among students coming from disadvantaged backgrounds and those from well-off families. The added value of the article lies in the fact that it explores an concrete evidence from first year students with regards to the impact information available during the admissions process has on their potential for drop-out as well as then suggesting practical steps universities can take in order to aim at reducing attrition levels by reducing course choice mismatch through adapting the type of information offered based on the different categories of student candidates. The article is particularly aimed at university staff involved in the admissions process and university admissions policies.

2. Research Methodology

2.1. Research objectives

The aim of the paper is to identify whether differences exist in candidates information needs when future students register within the admissions office of a faculty in the technical field. Two groups were analysed: candidates with disadvantaged backgrounds and candidates not facing such difficulties. The specific objectives of the study are therefore the following:

- a) Ranking the information received by students within the admissions office based on the relevance they attributed to it;
- b) Analysing students' satisfaction level with the information received at the admissions bureau when applying to a faculty in the technical field;

- c) Comparing the results obtained for the two analyses above for the two categories of students considered: students with disadvantaged backgrounds and students with so such difficulties.
- d) Analysing the particularities of the information needs of students with disadvantaged backgrounds.

2.2. Empirical study description

The empirical study was conducted using a questionnaire distributed for online completion to students from the Central and North Western part of Romania enrolled in the first year of studies within the Technical University in Cluj-Napoca. The *simple sampling method* was used.

The sample size

To dimension the sample size, we used the following formula (Smith, 2013):

$$a) \quad n = t^2 \times p \times \frac{1-p}{e^2}, \text{ where:}$$

n = sample size;

t = probability allowed (1.96 was chosen for a confidence level of 95%);

p = 0.5 (usually);

e = accepted limit of representativeness error; e = 4 %

Hence, for this research the computed sample size is:

$$n = 1.96 \times 0.5 \times \frac{1-0.5}{0.05^2} = 3.8416 \times 0.5 \times \left(\frac{0.5}{0.002209}\right)$$

$$n = 434.76$$

Moreover, we corrected the sample size using the following formula:

$$b) \quad n_1 = n / \left[1 + \frac{n-1}{N}\right], \text{ where}$$

n_1 = corrected sample size;

n = sample size;

N = the total population.

Therefore, after applying the correction formula we received the following result:

$$n = \frac{434.76}{\left[1 + \frac{434.76 - 1}{450000}\right]} = \frac{434.76}{1.00096391} = 434.341334$$

According to available statistical data, there were 450,000 students in Romania between the years 2015-2016 (insse.ro) hence, our sample includes 430 respondents. The survey was conducted between March and April 2017.

The questionnaire included both open and closed questions. It comprised 55 items, grouped in 4 sections: information required (satisfaction scale and importance scale), students behavioural traits (multiple answers questions, attitudinal scale), academic performance (open, multiple answers questions) and identification questions (demographic, economic, aspects related to identifying students with disadvantaged backgrounds).

The sample included 50.2% female and 49.8% male respondents among first year students with the Technical University in Cluj-Napoca. A percentage of 18.6% of the respondents are from the rural area and 72.1% from the urban area, with a further 6.7% from the sub-urban area (max. 15 km to a city).

Among the respondents, 145 students were registered as having a disadvantaged background as follows: orphans (7.2%), candidates with parents that work abroad and are tutored by relatives (4.2%), belonging to an orphanage (1.4%) and coming from rural areas (76%). None of the respondents had disabilities or belong of Roma ethnicity. Respondents' accommodation arrangements is presented in Table 1 below.

Table 1: Students' accommodation

	Frequency	Valid Percent	Cumulative Percent
Valid	82	19.1	19.1
University campus	165	38.4	57.4
Rented apartment	111	25.8	83.3
Living with my parents	44	10.2	93.5
I have my own apartment	6	1.4	94.9
Staying with relatives	18	4.2	99.1
Commuting	4	.9	100.0
Total	430	100.0	

Source: computed from the questionnaire

As shown in Table 1 above, 38% of respondents live in the university campus, 25.8% are living in rented apartments and 10.2% are staying at home with their parents.

All respondents are following a degree in the electrical profile of the Technical University in Cluj-Napoca. The majority of the students in the sample are part of the Electronics, Telecommunications and Information Technology Faculty (40.5%), followed by students of Automation and Computer Science Technology (32.1%) and Electric Engineering students (24.4%).

The monthly disposable income of the students in the sample, namely the amount of money they have to spend after paying accommodation, ranges from 55 Euro (19.8%) to 110 euro (24.4%) and 165 Euro (13.5%). Only 12.8% of students had a larger disposable income amount (more than 165 Euro).

Data was computed using SPSS24 using cluster analysis, frequencies, cross tabs assessment and bivariate correlations.

2.3. Research findings and discussion

The questionnaires capture respondents' attitudes towards the information they consider relevant when they are in the "action" phase (see AIDA models) referring to the buyer decision-making process. The degree of students satisfaction with regards to the various aspects included in the analysis can represent a basis for adapting the admission strategy of the university in terms of how appropriate, complete, complex and true to the student realities the information they provide is.

Students' ranking of the relevance of the information provided

When candidates present themselves to the admissions office to register for a certain faculty, their decision is already made or they at least have a short list of preferred faculties. However, the type and amount of information offered by the admission staff still plays an important role in students consolidating their decision. In this stage, the information provided by the staff can help build a strong positive image of the faculty and determine more intrinsic satisfaction among candidates. This step will be therefore crucial for a long term efficient marketing strategy of a faculty.

For the Technical University in Cluj-Napoca, the admission consists either in a mathematics exam for some faculties, or is based on calculating a students' admission average based on various proportions of the grades they obtained in their high-school final exams. No entrance exam is to be taken in this latter situation which allows candidates to opt for a range of faculties, paying just one single admission fee. In this particular situation, if the candidate has not decided for a certain faculty, he will most often choose one from the faculties he had shortlisted previously based on the amount of information, its appropriateness and even the manner it is delivered by the admissions staff. For these candidates, offering tailored

information, adapted to their needs, is crucial for choosing the faculty that is the most appropriate for the candidates' character, skills, needs or wishes.

Table 2 below presents the importance ranking based on first year students answers of the different information candidates are presented to by the admissions staff. A 5 points importance scale was used (1 - unimportant; 5 – important).

Table 2: Importance ranking of admissions information

	Mean	Std. Deviation
Public relation office	3.42	1.276
Canteen	3.47	1.334
Study counsellor	3.48	1.212
Accommodation	3.57	1.328
Schedule	3.61	1.246
Practical activity (stages)	3.61	1.210
Scholarships	3.64	1.267
Academic curricula	3.76	1.101
Lectures and practical activities location	3.77	1.196
How courses take place	3.78	1.116
Course assessment	3.80	1.133
The student life in Cluj-Napoca	3.89	1.266
How practical applications take place	4.02	1.182
Job opportunities	4.09	1.158
What kind of jobs I could practice when I graduate	4.12	1.083
Valid N (list wise)	430	

Source: computed from the questionnaire

Firstly, it is worth noting that all types of information offered by the admission staff were considered important enough by respondents (all items have a mean score above 3 points). Secondly, the importance of data can be clustered in 3 groups: *very important* (4 to 5 points), *important* (3.5 to 4 points) and *average important* (3.4-3.5 points). The most relevant information for candidates is that related to their future job: the professions future students can exert when graduating, along with the local job opportunities. Very strongly linked to those issues is also the third category of information – how the practical skills and competences are built: lectures, curricula, projects. The answers reveal a very pragmatic orientation (very anchored into the actual macro business environment) which is specific to technical sciences students.

The next important category of information comprises facts related to student life in Cluj-Napoca, details about the lectures and practical activities –the curricula, location, and the lecture schedule. The administrative details are also appreciated as relevant: the schedule, the accommodations facilities and the scholarships regulations.

The admission staff should not insist on providing extra information regarding public relation offices, canteen or the study advisor.

Candidates' satisfaction regarding the information received from the admissions office when applying to a technical university

We analysed students' satisfaction regarding the information received during the admission process. A 5 point Likert scale was used (1 – not satisfied; 5 – very satisfied). Results are presented in Figure 1 below.

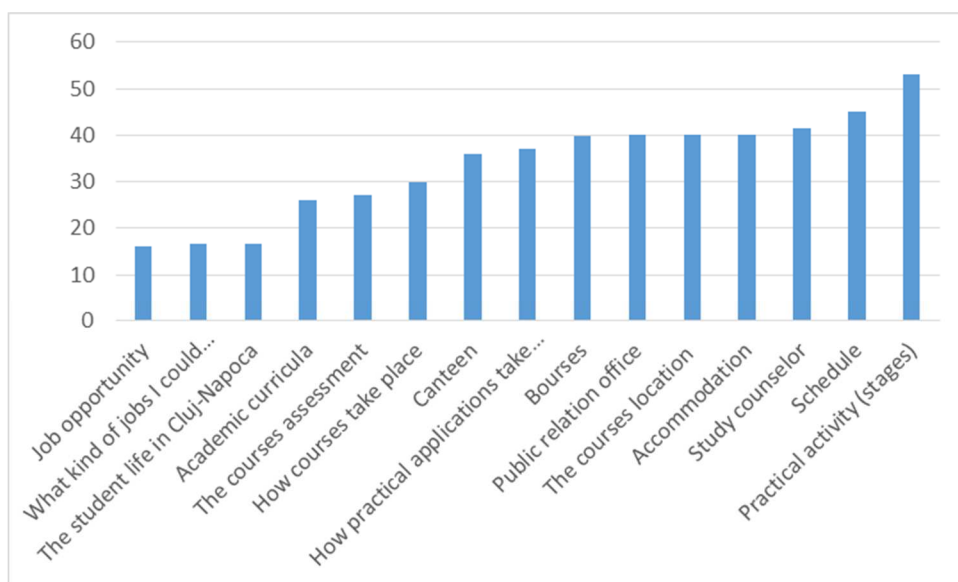


Figure 1: Candidates satisfaction with the information received

Source: computed from the questionnaire

A correlation in respondents' perceived importance and satisfaction can be observed. Pearson correlation is strong and negative ($p=0.89$), meaning that a lack of satisfaction with the information provided is present for issues students are interested in. The highest level of dissatisfaction was recorded for aspects relating to information on future employment, followed by information on the student life in Cluj-Napoca. The next category of information that students are *little satisfied* with is related to lectures.

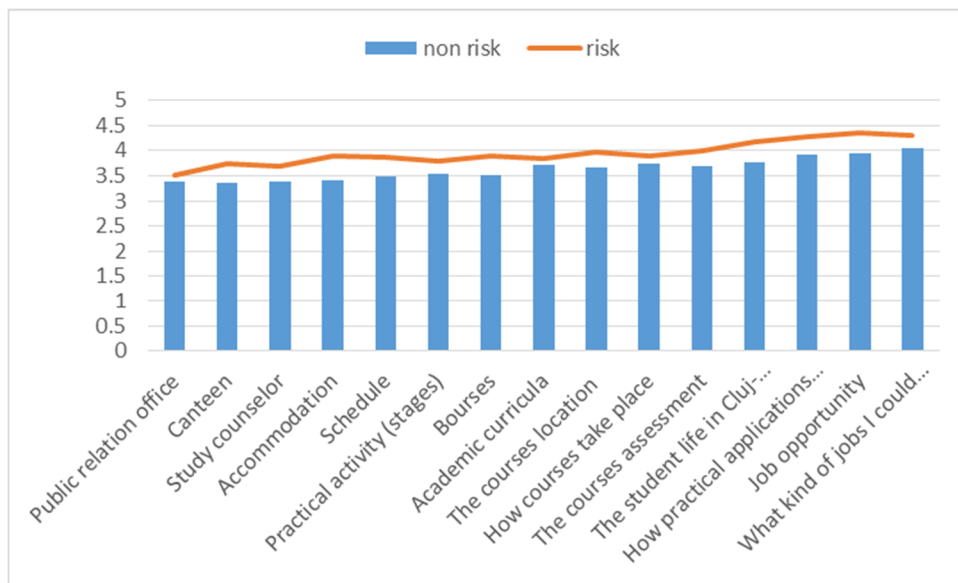
It is worth emphasizing that answers offered by first year students who have experienced student life for one semester are significant as they have had the opportunity to be confronted with various decisional problems regarding every day and academic life. They have often found themselves in the position to analyse, prioritize and evaluate alternatives. In this period, students are more independent, and the decision is more decentralized than in their earlier period. The lack of information can slower or even interfere with the decision making process. Based on these results, it is recommended that the admission staff emphasize employment opportunities after graduation, along with the living costs, possibilities for covering at least the physiological needs such as accommodation, canteen, security needs and socialization needs. Furthermore, offering students more information regarding lectures, the practical activities and assessment methods could also contribute to a more positive experience with the admissions office as well as helping students adjust their expectations regarding university academic life.

Comparing information needs for the two segments: students with disadvantaged backgrounds and students with no such difficulties

Students with disadvantaged backgrounds for this study included the following categories: orphans, students having parents working abroad and being tutored by their relatives, those coming from an orphanage, students with disabilities, belonging to the Roma minority or from rural areas.

Figure 2 displays the comparative assessment importance rankings for the information provided by the admissions staff for the two groups

Figure 2: Comparison in information needs for students with disadvantaged backgrounds and students facing no such difficulties



Source: computed from the questionnaire

The results presented above indicated a stronger tendency of candidates from disadvantaged backgrounds to rely on the information received from the admission staff. As shown above, these candidates indicated higher scores for the information offered to them during the admissions stage. This result was not surprising given the fact that research shows (BIS, 2014) these candidates are often faced with considerable lack of information regarding what student life entails.

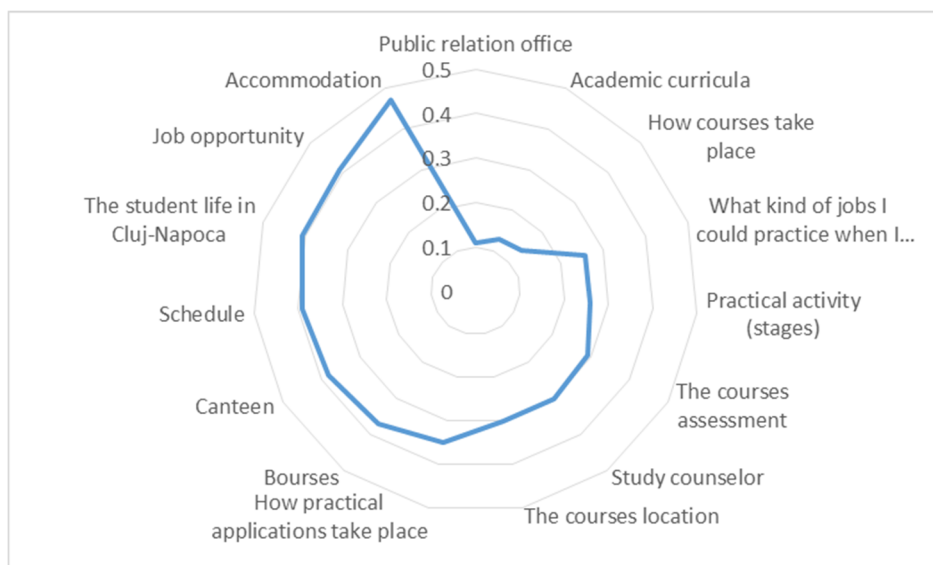


Figure 3: Disparities in the information needs for the two groups analysed
Source: computed from the questionnaire

It is highly probable that their primary group of reference could not share with them information regarding what to expect in tertiary education. Moreover, the literature review indicated that this group is even discouraged to attend a faculty. When analysing the data more in depth, the greatest disparity among the two groups is registered in the case of information regarding the basic needs: accommodation, canteen, financial support. Figure 3 above comprises a visual presentation of the results.

According to our results, candidates with disadvantaged background are more interested in information regarding accommodation, employment opportunities and living costs. An interesting result was there keen interest in the scheduling details. This could be explained by the fact that generally, technical universities, require compulsory attendance for practical activities and project classes so having a part-time job during the semester could be challenging.

Segmentation of information needs for students with disadvantaged backgrounds by categories

Findings reveal that orphans are the most interested in the future employment opportunities, along with information regarding the public relations office and the study advisor. Respondents from orphanage are most interested in academic life: lectures and practical activities details, location and assessment methods. Surprisingly, the assumption that financial support in the form of scholarships could be an issue valuable for this category of candidates is not supported. An explanation could be that orphans already know they will receive financial allowance because of the disadvantaged situation. Candidates with parents working abroad who are in the care of their relatives are interested especially in students' life details and accommodation. Candidates coming from rural areas are interested primarily in administrative aspects such as scholarship regulations, schedule and location of the lectures/practical activities.

4. Conclusion

A faculty's admission staff represent the first contact of candidates with the institution. They are therefore the marketing front line officers and the first persons candidates interact with when deciding to attend a certain college. Based on the research findings we recommend the admission staff to adapt the type and amount of the information provided to the demographical, economical, psychological and cultural background of the future students. The 430 respondents of this empirical perceived the information provided by the admissions staff to be delivered following a certain strategy. They perceived the admissions staff as promoters of educational programs and registered an above medium satisfaction level with the information provided. They did not consider the information obsolete or not covering the aspects they were interested in, but rather indicated an interest for more details and more practical, concrete descriptions and examples. An important correlation was identified in the sense that student satisfaction with the information offered was indirectly related to the relevance attributed to the information provided.

Answers also indicated which are the most significant categories of information from the point of view of first year students: future employment opportunities, job flexibility, information regarding the academic process (lectures, practical activities, location of the educational activities). Students with disadvantaged backgrounds allotted higher importance scores for all the information categories analysed. The largest disparities were registered in the case of information about accommodation, job opportunities and student life. A surprising result was the fact that no particular difference emerged between the perception of the importance and relevance information provided regarding financial support in the form of scholarships between students with disadvantaged backgrounds and students facing no

such difficulties. This could be explained by the level of disposable income of students in the sample. Based on these findings we can conclude that the information needs of candidates wishing to pursue a degree in the technical field is determined by rational, rather than emotional reasons. Hence, an integrated, strategic and efficient academic marketing cannot operate in an organization that is not truly customer oriented and systematically interested in the candidates' needs, desires and expectations.

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