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## IDENTIFICATION OF PREFERRED SOURCES OF INFORMATION FOR UNDERTAKING STUDIES IN THE FACULTY OF ENGINEERING MANAGEMENT AT POZNAN UNIVERSITY OF TECHNOLOGY

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**Abstract.** Since 2010 a survey has been conducted among first-year students about sources of information which influence the decision of undertaking field studies in Safety Engineering, Management Engineering and Logistics in the Faculty of Engineering Management at Poznan University of Technology. The goal of these analyses is both to assess the effectiveness of promotion and also show trends in the use of diverse channels of information transfer of studies. The results of the investigation show that internet promotion via university and faculty website plays the dominant role but also direct promotion, such as opinion of older friends, is crucial. Furthermore, from year to year the analyses indicate the significant increase of official media and reveal that the prospective students rely on a few sources of information simultaneously.

**Keywords:** communication channel, higher education, high school graduate, information, information-seeking behaviour, promotion, source of information, university choice.

**JEL Classification:** I21.

### 1. Introduction

In the recent two decades university education has expanded to a remarkable extent in Poland. It results from the fact that before 1990 the higher education system in Poland comprised only state institutions, and the exception was the non-state Catholic University in Lublin. In 1990, the new Act on Schools of Higher Education established rules for non-state institutions of higher education. In the consequence, in the academic year 2013/2014 we had 467 higher education institutions whereas in 2000/2001 there were only 310. These institutions are facing now increasingly complex challenges as the size of higher education age groups is decreasing. In 2000, 1 584 804 students were enrolled in all types of higher education institutions, whereas in 2005 this number increased to 1 953 832. Since then it has been dropping and it amounted 1 676 927 students in 2012 (CSO 2013).

On the other hand, modern technology provides a variety of new information delivery systems, sources and channels, which are accessible at anytime from anywhere. However, it is important to emphasise that the easy access to them does not have to mean that all retrieved information is relevant, reliable, valid and of sufficient quality. Therefore, the range of information resources contributes to the need to identify and select the most appropriate one. Therefore, there is a demand in a deeper understanding of the sources of information prospective students' use when enrolling to college or university.

In the paper the problems of higher education institutions in Poland are highlighted. The analysis of the existing theoretical and methodological potential about information seeking behaviour and sources of information is also presented. It provides a background to the investigation part where the results of the questionnaire survey conducted among students in the Faculty of Engineering Management at Poznan University of Technology are shown and widely discussed. The final part of the paper summarizes the following discussion and provides some suggestions for future research.

## **2. Previous research**

In recent decades science and technology have developed rapidly and brought major changes in the ways in which information is being sought and used. Information seeking behaviour involves activities that are undertaken to identify information needs, search for information, evaluate and select it, and finally use to satisfy its needs (Wilson 1999). Various factors can be differentiated that determine the information seeking behaviour based on an individual or a group of individuals. Thus, it is vital to recognize the purpose for which information is needed, its environment, operator's skills, its channels and sources, including both active and passive seeking, and limitations (Robson, Robinson 2013; Timmers, Glas 2010).

Information-seeking behaviour of children, young people, students, researchers, and professionals has been the interest of the research for decades (Ansari, Zuberi 2010; Brussert 2011; Cluver 2013; Khosrowjerdi, Iranshahi 2011; Oláh *et. al* 2014; Sokkary 2013). However, initially, most of the studies were primarily focused on evaluation of library collections and lead to the design of appropriate information systems and services (Halder *et al.* 2010; Nessel 2014). For the aim of this paper in further analysis of the existing theoretical and methodological potential only high school graduates were taken into account.

Selecting university is a decision-making process, which relies on an individual choice (Gati, Asher 2001). It is connected with the topic of career and it creates a "mini-cycle", which constitutes a part of the whole career development cycle (Germeijs *et al.* 2012). The choice process of educational institution encompasses the following five steps:

- needs and motives,
- information gathering,
- evaluating alternatives,
- decision and post-choice evaluation.

A need or motive is usually a result of a perceived lack and when the student realizes it he starts to pursue higher education and searches for information about its possible providers. On the basis of the possessed experience and knowledge an evaluation between alternatives is established and choice is done. Each choice is evaluated in time (Al-Fattal 2010).

Numerous factors influence information gathering process as applicants have different expectations and perceptions of the university degree benefits. They are depicted in 11 groups in Figure 1.

For example, prospective students are affected by different opinions of various reference groups such as parents, siblings, friends, teachers, high school and college counsellors, who have smaller or bigger impact on the individual (Navrátilová 2013; Kim, Gasman 2011). The background also seems to determine the decisions of the students as it is proved that parents who went to college themselves, support much more their children in education process than those who did not attend it (Dumas, Lambert 2011; Kim, Gasman 2011). Moreover, other studies showed that children from a lower socioeconomic background have even a smaller chance to get the qualification for university entrance (Solga, Dombrowski 2009). In many cases it may result from the high school context and location (Bell *et al.* 2009; Mangan *et al.* 2010; Rowan-Kenyon *et al.* 2008). Other critical factors in the students' decision of a place to further studies are career prospects (Kinsler, Pavan 2011; Beffy *et al.* 2009) and reputation of the university, its programmes and rankings (Brown *et al.* 2009; Munisamy *et al.* 2014; Ciriaci, Muscio 2014).

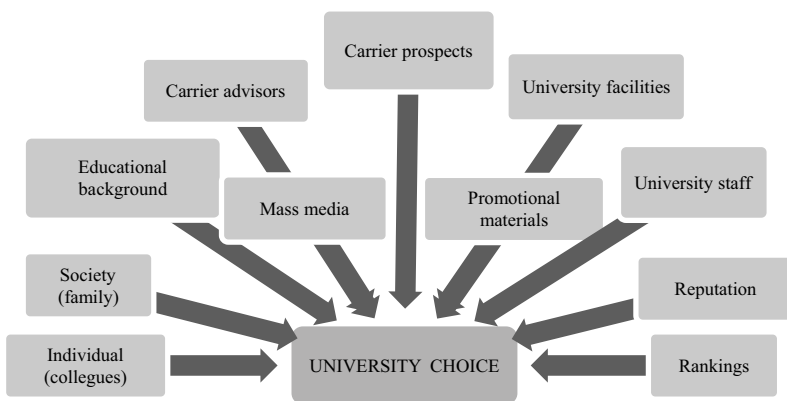


Fig. 1. Factors affecting students' university choice (source: created by the authors)

It is also revealed that financial aspects (e.g. tuition, scholarships, loans, grants, cost of living and the ability to work) are also of high importance for students (Cross, Goldenberg 2009; Dunnett *et al.* 2012; Pampaloni 2010; Rodic *et al.* 2012). Sometimes they are even a key factor as on the basis of them the decision is undertaken to not study at all (Heine *et al.* 2010). Following the study conducted by the Association of Higher Education Facilities Officers (June 2006) it is revealed that students indicate the following university facilities as a key factors to consider when choosing higher school: library (73.6%), technology (53.6%), classrooms (50.9%), residence halls (42.2%) and exercise facilities (35.5%).

Although the factors mentioned above have been identified as influential in the university choice process, there might be still discrepancies due to nation, gender and religion (Kim, Gasman 2011; Ivy 2010; Obermeit 2012; Taulke-Johnson 2010; Sojkin *et al.* 2012).

For educational institutions it is very important to possess knowledge of information, which was taken into account during such decision, as it allows them to prepare the right promotional strategy which is target at the defined audience (Blackwell *et al.* 2001; Navrátilová 2013). Therefore, it is vital to discover what kind of information is supposed to be get, and from what sources it will be collected.

Studies have shown that it is possible to differentiate several sources that are the most influential for students to collect information. According to Evans (1995), the major source of information is an institution's staff and their direct or phone enquiries, whereas Taylor (1992) suggested friends' advice and Pimpa (2005) underlined the role of family. In particularly, Alonderiene and Klimavičiene (2013) emphasized the role of parents and Wiese *et al.* (2010) mentioned siblings. Furthermore, other studies revealed the importance of the role of career advisers in information provision (James *et al.* 1999; Foskett 2009), current and prospecting students and employers (Mupemhi 2013). However, Kotler and Armstrong (2008) emphasized the need of division of information sources into the following four groups:

- personal non-marketer controlled (e.g. family, friends, acquaintances),
- personal marketer controlled (e.g. sales representatives),
- non-personal non-marketer controlled (e.g. mass media),
- non-personal marketer controlled (e.g. advertisements, prospectuses).

He indicated the significance of the personal sources as they are a starting point for a student's information gathering and in the further steps they supplement non-personal sources.

In other studies it is shown that a highly influential role has an institution's promotional materials such as guides, leaflets and prospectus (Pasternak 2005). But on the other hand, Eckel (2007) noticed that information materials are generally poorly designed (not detailed enough or difficult to understand) and do not contain sufficient information for students and their parents for making comparisons between universities. Rankings

seem to be also helpful in undertaking decision which university to choose to study but nowadays they become to have a de-contextualised symbolic value which is no longer related to its original (Kehm 2014).

According to Kim and Gasman (2011) and Pampaloni (2010) students willingly visit campuses to get direct information. On the other hand, it happens that young people, when they have a direct contact with educational institution, get overloaded with data which makes them more difficult to make decisions (Drummond 2004).

However, in the last decade it is noticed that more and more attention is paid to social media. The data presented in the 2014 Social Admissions Report (Pratt *et al.* 2014) reveal that 68% of secondary students use social media to find colleges and on the other hand 73% of universities interact with the prospective students using it. Social media provide the information not only via university web pages and blogs but through such informal media such as Facebook, Google+, Instagram, LinkedIn, MySpace, Pinterest, Twitter and Tumblr (Reddy 2014; Pratt *et al.* 2014).

As far as university websites are concerned, 84% of prospective students indicate it as the most important source which supports their decision-making process concerning university choice (Ashburn 2007). Traditionally, the university website provides general information about school, its campus, academic programmes and news. In the past it used to be updated rarely, only some small parts of it were changed a few times per a month. However, this situation has changed completely in recent years. They have started to be dynamic sources of information which resemble storytelling, include videos and live updating events calendars. They allow to interact with a university community, current students, alumni, faculty, and staff. What is more, such websites include interactive virtual tours of the campus (Hussey 2011). Moreover, RSS (Really Simple Syndication) feeds users can subscribe to it. Such a tool allows to get the latest news without having to search the web in the user's reader. It collects the news on the basis of the reader's set up. The examples of such readers are Bloglines and My Yahoo (Web-based readers) or PRESSfeed reader or NewsGator (downloadable newsreaders) (PRESSfeed 2010).

On the other hand, many higher education professionals have already recognized the opportunities which informal media provide. Following the 2010 Pew Internet Project survey it can be noticed that 73% of online recent school leavers, who are potential prospective students, use social networks. The similar amount of young adults (72%) admits to communicate about their life also on networking sites (Lenhart *et al.* 2010). Moreover, the other research studies show that Twitter is recognized better (30.7%) than other Internet user (10.7%). Its recognition seems to increase as 71.8% of faculty declares to use Twitter more often (Magna 2009). It results from the fact that it is a platform which enables to engage, participate and collaborate the prospective students in real time. It is based on a content strategy: act and interact. Acting means providing news of interest, events, photos or statistics whereas interacting is observing what is

said, answering questions, updating, or congratulating on accomplishments (Hussey 2011). The greatest advantage of this new media is that it allows “the democratization of the creation, publishing, distribution and consumption of media context, and the real-time generation of new, unregulated content” (Reddy 2014). However, 53% of 243 schools admit that they monitor what is written about their institutions (Barnes 2009).

In social media the most important roles as sources of information pay admissions counsellors (36%), currently enrolled students (32%), other admitted students (29%), guidance counsellors (28%), administrators (23%), faculty (20%) and alumni (13%) (Pratt *et al.* 2014). Furthermore, the prospective students precisely indicate that are interested in receiving instant messaging with the admissions counsellors (72%), reading blogs written by faculty members (64%) and profiles or blogs by current students (Junco, Cole-Avent 2008).

Some other social networks as Ratemyprofessors.com and Stumbleupon also offer possibility of sharing, rating and recommending data on educational context. These are the places where people exchange information about the university staff, their skills and competences (Reddy 2014).

When the sources of information are identified, a promotional effort to build communication channels, which will provide this information, should be done (Navrátilová 2013). For this aim education institutions can create two types of communication channels (Koekemoer 2010):

- pull,
- push.

Pull channels involve the user in whereas push channels are responsible for delivering information to its users so they engage the educational consumers only in the process of receiving it. Communication channels can be also diversified into:

- personal,
- non-personal.

Personal channels comprise two or more people communicating directly with each other. For instance, it can be communication face to face, through personalized mails, over the telephone or public speaking (Clemente 2002; Sandhusen 2008). In the last years more and more important instant messages and independent sites, that allow to contact with its clients, have become. In the future it is supposed that this distinction will be made into three types of communication channels:

- advocate,
- expert,
- social.

Advocate channels involve organization people who contact the prospective student in the target market. Expert channels are those where independent experts make statements to the audience whereas social channels encompass neighbours, friends, family members and associates who influence target person (Kotler *et al.* 2009).

The advantage of personal communication channels is the possibility of personalizing the message and receiving feedback. Non-personal communication channels involve message transmittance without personal contact or interaction. The examples of them are: print (newspapers, magazines, leaflets, guides and direct mailing), broadcast (radio, television), electronic (audiotape, videotape), display (billboards, signs, posters), publicity, special events and atmospheres, or so called “packaged environments” which are responsible for creating or reinforcing a client to purchase a product which is an education (such as viewing rooms) (Sandhusen 2008). They can be also used to encourage personal communication via stimulating opinion leaders who later influence prospective educational consumers (Clemente 2002).

### **3. Materials and methods**

The purpose of this study was to determine sources of information which have an impact on undertaking studies. For this aim a theoretical review of previous researches in this area was done and then practical investigation was carried out among students of the first year of Bachelor and Master Science programme. The respondents studied such fields as Logistics, Management Engineering and Safety Engineering in the Faculty of Engineering Management at Poznan University of Technology. The modes of their studies were both daily and extramural. The study was based on a questionnaire that was distributed to the students before and after lectures in the first semesters in the years 2010–2013. All the questionnaires were valid what allow us to gather 1650 samples (481 in 2010, 456 in 2011, 350 in 2012 and 363 in 2013).

The questionnaire consisted of eight questions from which seven were multiple choice questions with at least two answers. In some of them it was also possible to add more detailed information. The last question was open-ended so the students could add any sources of information not mentioned in the questionnaire. It allowed to collect a wider range of opinions.

### **4. Results, discussion and limitations**

In order to indicate the most important sources of information for enrolling studies in the Faculty of Engineering Management at Poznan University of Technology the investigation was conducted in the four following years and its results are presented in Figure 2.

The studies have shown that in additional to formal information sources, high school graduates also relied heavily on informal communication channels to seek for information about studies. However, Internet was chosen as the most often consulted source. Analysing this information in details (Table 1) it can be noticed that the respondents mainly used university and faculty website (48.76% and 38.84%, respectively).

In most cases they did it directly which means that they had already known university and faculty website. It rarely happened that some browsers were used for this aim.

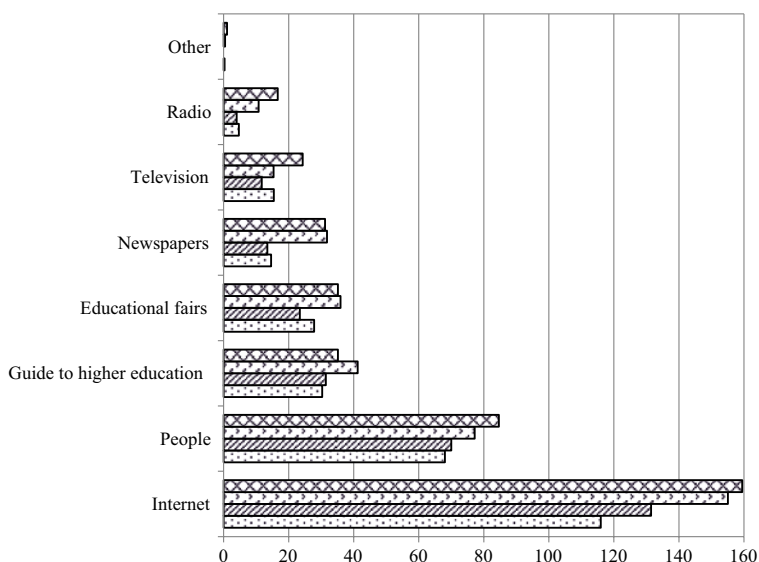


Fig. 2. Sources of information for undertaking studies in the Faculty of Engineering Management at Poznan University of Technology (source: created by the authors)

The research participants indicated people as the second most suitable source of information. They mainly relied on the opinions of their friends (41.32%) and family (21.21), and only sometimes on employers and other (ca. 1%). According to the study more than one-third of responses concerned the guides to higher education as a source of information for enrolling studies. The resources published by the university were the highest assessed. When traditional news media are taken into account it appeared that television was indicated 56 times (overall ca. 15%) and radio was only chosen 20 times (ca. 6%). The newspapers, in particular, local ones, are a source of information in only 7%.

On the basis of the results of the study it can be said that modern news media such as Internet is the most often perceived as the preferred source of information in contrast to traditional ones among young people. However, verbal communication still leads to an efficient flow of information. Seeking for knowledge about studies the attention is also paid to materials especially devoted to this issue such as guides and leaflets rather than advertisements in newspapers. During educational fairs the graduates compile a wide range of competitive information on education and its suppliers – educational institutions. These results of the study are comparable with the investigations presented in chapter 2 of this paper where an enviable role of institution and family is emphasised in the choice of higher schools. So, it can be noticed that directly involved factors have much more significant influence than indirect ones such as media.

The limitation of the study is not a possibility of finding a correlation between variables what could help to better understand the choice of communication channels.



Table 1. Detailed sources of information for undertaking studies in the Faculty of Engineering Management at Poznan University of Technology (source: created by the authors)

Source of information	Number of answers (N = 363)	%
Internet		
university website	177	48.76
faculty website	141	38.84
directly	105	28.93
browser	43	11.85
People		
colleagues	150	41.32
family	77	21.21
employer	6	1.65
other	4	1.10
Guide to higher education		
published by Poznan University of Technology	104	28.65
national	18	4.96
regional	7	1.93
Educational fairs		
organized by Poznan University of Technology	78	21.49
regional	19	5.23
organized by other higher school	5	1.38
Television		
local	51	14.05
national	5	1.38
Newspapers		
local	29	7.99
national	23	6.34
Radio		
regional	13	3.58
national	4	1.10
AFERA	3	0.83
Other	1	0.28

Over the years the questionnaires were not kept and only data were collected in files. Moreover, this study was conducted in only one faculty so the respondents might have an impact on the final results. It is also not possible to define any trend for the whole university. Furthermore, it could be interesting to compare these data with other higher schools.

## 5. Conclusions

Contemporarily, young people have an opportunity to use many communication channels for data gathering. However, in the educational point of view, it is crucial and vital to identify the preferred ones to be able to provide appropriate promotion as the

number of high school graduates is decreasing in contrast to the number of educational institutions. Therefore, the study was carried out among the students of the first year of Bachelor and Master Science programme in the Faculty of Engineering Management at Poznan University of Technology.

On the basis of the obtained data it can be concluded that the Internet was identified as the most suitable source of information. Almost 50% of the students indicated the university website as the basic knowledge provider about the studies. The faculty website was directly searched by 39% of the prospective students whereas 29% of them used a browser to find it. Majority of the respondents indicated also the significant role of friends and family in the process of enrolling studies. However, it must be emphasized that colleagues (41%) and family (21%) were indicated as the most significant source of information. Furthermore, the respondents identified the need for searching information in materials such as guides and leaflets published by the university. Such information can be easily distributed during educational fairs. Furthermore, traditional news media, particularly television and newspapers, should be not regarded as outdated as they constituted ca. 35% of answers.

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