THEORETICAL CONCEPT OF PROMOTION OPTIMIZATION MODEL FOR HIGHER EDUCATIONAL INSTITUTIONS (UNIPOM)

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1. INTRODUCTION

There has been an increasing importance of using marketing communication tools not only for corporate goals but also for higher educational goals. Yet there is a lack in conscious, effective usage of these tools. On the one hand a reason is that many higher educational institutions have no marketing strategy at all and on the other hand there is a shortage of methodology in optimizing marketing communicational tools. Beside lack of marketing strategy, further problem is that from the marketing tools available, higher educational institutions can only change their communication in short term. Shortage in financial resources that can be spent on communication makes matters worse. Beside shortage in financial sources another problem is the scare of time available for the potential students to evaluate all the information available about university choice. Therefore it is important to find out which marketing communication tools and which media to use, who to address the given message with determined content and when to use the given tools during the recruitment process. To solve the above mentioned problems, an optimization is needed for marketing communication tools that also considers scare of financial resources and the habits of potential students when searching for information about their future universities.

2. OBJECTIVES OF THE RESEARCH

This study deals with the advantages optimizing the effectiveness of marketing communicational tools and also introduces a theoretical model of a promotion optimization tool for universities, called UNIPOM. This will be achieved by accessing information gathering habits of potential students in certain phases of school choice process after that communicational tools and messages will be assigned that are the most appropriate for convincing future students.

3. RESEARCH METHOD

Regarding the methodology of the research I plan to apply both quantitative and qualitative methods. In this paper qualitative research results can be found, but in short term, there will be also qualitative results available. As for the process of research, at the beginning I have already set up a panel of students intending to apply to university. They had to fill in a questionnaire regarding their communication habits focusing on school choice and application every fourth month. Therefore there is a longitudinal data for each month of a year (September 2013-August 2014) available about the communicational habits of the potential university students. This data set will be a basis for the optimization model. The initial problem described by formulas:

$$U = xU_x + yU_y + \ldots + zU_z \rightarrow \max \qquad (1)$$

U=utility
x, y, …, z=different communication activities at different times (binary coefficients)

$$I \geq xP_x + yP_y + \quad + zP_z \qquad (2)$$

I=budget
P=price of communication activity

According to my previous researches, optimizing communication mix can be traced back to the so called knapsack problem from operations research and algorithm theory [3, 7]

4. THEORETICAL BACKGROUND

Marketing effectiveness is the quality with which managers go on the market to optimize their spending in order to achieve a good results in short-term and long-term period [9] Marketing effectiveness is also defined as the optimizing quality of spending to achieve the desired results in a period of time [9]. Beside traditional communication channels there are several information sources available for potential students to get information from universities and colleges. Rapid, continuous changes and development of information technology also contribute to expansion of information sources. On the one hand it is an advantage, on the other hand it can also cause difficulties because there is a need for a lot of time to process all data. It is impossible to evaluate and to know all the information available. According to Nobel Prize presentation of Herbert Simon [4] on rational decision making, principle of bounded rationality is about considering the alternatives but it is impossible to evaluate and to know all the possible information, however it would be useful. Unfortunately there is a scarcity in time and we can only make our decision on the basis of restricted information. When working out an effective communication policy, we have to consider that marketing does not stagnate, but changes according to the latest trends. Having success in the field of promotion cannot be carried out without considering and examining these latest trends. The importance of monitoring these changes is also pointed out by Kotler and Fox [5] who make difference among the different phases of higher educational marketing. Attention paid to "marketing is unnecessary" approach is directed to "marketing is promotion", to "marketing is positioning." To narrow the range of alternatives, decreasing communication tools with the released information and precise choice of media is needed. Knapsack problem from operation research can help us to carry out this goal, the method is described as follows.

4.1 Knapsack problem

Knapsack problem got its name after a situation, namely a tourist intends to carry n pieces of objects. Weight of the objects are $a_1, a_2, \ldots, a_n$,, however the tourist is only

able to carry altogether a maximum of b weight because not all of the objects fit in the bag. The tourist has to select so he gives each item a numeric value that represents utility that are c_1, c_2, …, c_n.. During selection he must not forget weight limit, so selection happens in a way to achieve the maximum total utility with the values of the objects. Selection of each objects can be recorded by decision variables with values of 0 and 1. Mathematic description of the problem:

$$x_j = 0 \ or \ 1 \ (j = 1, ..., n) \tag{3}$$

$$a_1 x_1 + a_2 x_2 + ... + a_n x_n \leq b \tag{4}$$

$$c_1 x_1 + c_2 x_2 + .. + c_n x_n \quad max! \tag{5}$$

Where values of a_j, c_j, b are positive integers.

There are more methods available for solving knapsack problems that are the following: branch and bound method, implicit enumeration, Gomory cuts, dynamic programming. From the methods above I attempted to solve my knapsack problem with dynamic programming, with a computer program that was developed for this purpose.

4.2 Sources of information in connection with recruitment

Sources of information in connection with university choice was collected with the help of international professional literature and focus group interview. According to their number and importance plenty was included in the theoretical model. A lot of professional literature deals with the factors influencing university choice, sources of information used by potential students and their recruitments: [2, 8, etc.]. It is important to highlight that at higher education lack of marketing strategy is usual, in many cases marketing is used with ad hoc basis [8]. In practice, most of the higher educational institutions are satisfied with traditional communication tools. Following tools are used in most cases: national and regional exhibitions, homepage, recruitment publications, open days, advertisements in media, personal visit, information gathering on phone, film for applicants, foreign exhibitions newsletters. Exception from ad hoc basis are alumnus. With their help universities can liaise with their former students in order to make them increase the reputation of the given universities and colleges, they can offer these institutions to their acquaintances, relatives, family member, friends and they can also help them with other issues. Expanding traditional student relationship with potential and former students is a kind of paradigm change [2], however in our case this present paper focuses on gaining potential students, but certainly role of former students cannot be neglected as word of mouth has clearly important role in the case of recruitment. Many professional literature considers reference group to be an important source, [1, 6], it includes friends, relatives, family, acquaintances, secondary school teachers, who can offer the given institute because of goodwill or their own previous studies. Role of television in recruitment marketing is note typical, this can be explained by expensiveness of the broadcast

advertisements on TV. A possible alternative can be when leader of a given institution (usually dean) is interviewed in connection with admittance at the given university or college. Certain institutions can have on TV although scope of the later one is not determined by marketing tasks and target groups. We could meat TV advertisement of a Central European university, in which successful, famous former students advertise and may address a part of potential students with success. TV is highly prestigious media. Defence mechanism of the spectator improves because of development of advertisement life, advertisements impulses reaching the individuals, therefore thanks to the level of familiarity. Convincing young students is going to be a harder task, as they bypass advertisements consciously, but they are ready to use new media tools. Reaching potential students through traditional media (radio, TV, newspaper) is getting more doubtful, since they follow the latest trends, they spend most of their time on the internet with the help of their smart phones -wherever they are- they can access to community homepages, portals. Community websites entertain, inform, spread and appear anywhere (they can be inserted into any webpages): sooner or later they reach everyone and try to involve them. In connection with internet communication we have to mention the significance of university homepages that is also considered a "dynamic" tool. However, with rapid development of technology demands of homepage visitors also change which should be continuously monitored and the homepage has to be developed according to these changing demands. Therefore success of communication depends on whether the homepage is easy to access for the target group, if the website is able to present information effectively, considering both quantity and quality aspects. We should also highlight harmony of formal and content elements. Significance of search engines (Google, Yahoo) can be also great in the process of recruitment marketing, however there is no information available on its importance. Yet generally success of a corporation can improve significantly, its turnover can largely increase if it can be find in the first five or ten results of the search engine. Printed press yet has got a significant role in the recruitment process. Most popular tool for this is Admission Handout. When students get it, their thoughts in connection with the application get stronger. When using Admission Handout and other information tools ideas are developed, a lot of potential student leave application for the last moment. Appearance of higher educational institutions in printed press is important. When reading an interview with a leader of the institution potential students also get closer to the given university or college. Potential students can look for the own brochures or newspapers of the university before making decision, with this they can get an overall picture about their future institutions. Marketing aspects have to predominate in the system of academic publications. Multi-faceted presence of media, media foundation has primary significance since the university can direct and influence the delivery of its communication messages, therefore it can also speed up, clarify and unfiltered its way to the target group. Due to the continuous change of youth media consumption, lifestyle role of media and consumption habits of audience has also changed – especially today's young generation. However its importance cannot be underestimated, because it still plays an important role in reaching the target group. Another Central European university had a successful marketing campaign co-operating with the local radio, a lot of potential students could collect information

from the existing programmes and specializations. From programmes organised by universities and colleges, recruitment exhibitions, open days, visits to the secondary schools and other programs could be all effective information sources in convincing potential students. Beside exhibitions, open days and webpages university programmes are one of the most popular source among the tools of recruitment marketing. Whether we talk about printed media, TV, internet radio or other communication tools the picture in the mind of potential students is important about the given institutions. Marketing means an automatic appearing picture, notion under image that is created in the consumer created by a sign. In higher education image creating factors can be educational, knowledge standard, institution size, atmosphere, physical sites, and the role of known lecturers, professors and former students. Furthermore traditional tools are leaflets, billboards and brochures in recruitment. Although their usage is usual, but their innovative, interactive application can contribute to the effective promotion of the higher education.

5. QUALITATIVE RESULTS

Focus group interview was carried out in November 2013. During the interview 10 BA students specializing in marketing management were interrogated about their university choice. When choosing the interviewees, it was important to have a survey with such students, who had the latest experiences about the application. One of the goals was to complete the marketing communication tools to reach potential students mentioned by the read international professional literature. We get to know from the respondents that it is nearly impossible to reach them though traditional communication media, like TV (except news, educational programs, music TV), radio, certain newspapers, print media. They neglect advertisements. Most often visited homepages on daily basis are community websites, news portals, blogs, Youtube. Although internet plays an important role in their lives, a lot of students have filters on their PCs, so they can escape from internet advertisements. Most important information sources on application, admission to the universities were Admission Handout, reference group – friends, acquaintances, family- open days of the universities, secondary school teachers, information by college/university lecturers, career exhibitions, career guidance, internet – felvi.hu, university homepages, and search engines (for example Google). Furthermore focus group interview also covered intensity of information search. Students had to describe the intensity of their information search in a graph on a sheet of paper. Horizontal axis depicts their last year at secondary school from 1st September to 31st August, next year. Vertical axis shows the intensity of information search on a scale 1-10. Although the school year ends in June, we should not forget the importance of summer, since admission scores are announced in July and another information search starts (enrolment, loadings) (see *Figure 1).*
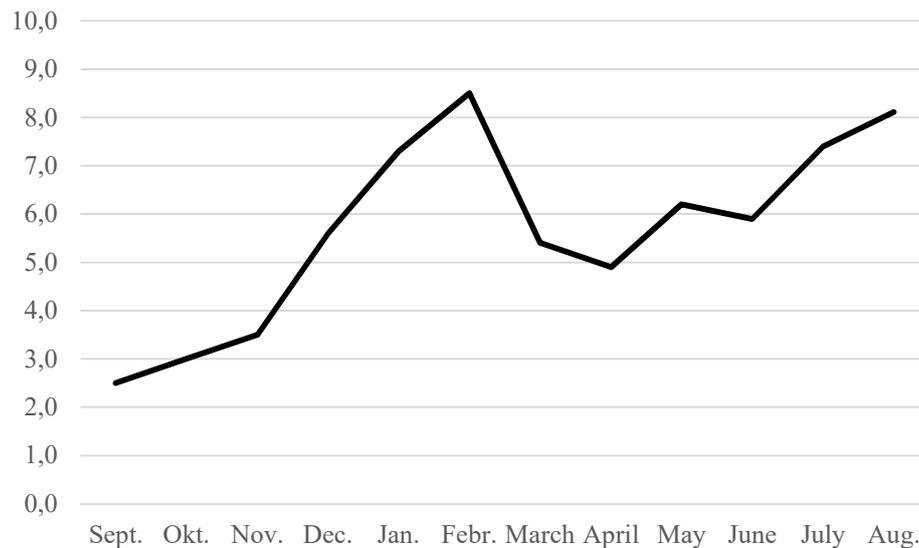
Figure 1
Standard deviation of the intensity of information search

Lowest level of information search intensity was in September when students only reached 2.5 on average on the scale 1-10. Most intense peak was in February when was the deadline for submission of application forms (8.5). August was another peak (8.1) but it was a bit lower than in February.

6. IMPLICATIONS

A more effective use of recruitment marketing requires a continuous monitoring of the needs of potential students. Institutions having conscious marketing strategy that have innovative, creative ideas and that are ready to realize these ideas, without doubts will be able to have an effective campaign in order to have adequate student number and to attract suitable students to their universities, colleges. It is either possible to communicate effectively with the existing marketing tools, if we do it in an innovative way. Another important criteria is to use its creative, innovative ideas as pioneers. Furthermore the tertiary educational institutions should involve its expert teams – specializing in recruitment- when creating an overall marketing strategy, so with the adequate knowledge and creativity they could collect viable ideas for an annually renewable, effective recruitment marketing campaign.

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