

# Problems and solutions of web communications at Czech universities

J. Chromy, J. Sedivy

**Abstract**—In this time, when communication through information and communication technologies are part of the life of each socially and psychologically mature individuals and potential customers, are user-friendly web site quality foundation of modern marketing company. They can also form part of an information system used to control the relations between electronic commerce and customer. This is called CRM - Consumer Relationship Management. On this basis, describes in broad terms the possibility of effective use of websites for marketing research in the specific communication. Also provides research support for two-way communication website, which was focused on the websites of universities in the Czech Republic

**Keywords**— Consumer Relationship Management, Marketing mix marketing research, About four key words or phrases in alphabetical order, separated by commas.

## I. INTRODUCTION

**T**HIS paper deals with the creation of user-friendly Web sites that support two-way communication. It also brings perspective to marketing firms with regard to communication with customers. On this basis, describes in broad terms the possibility of effective use of websites for marketing research in the specific communication. Also provides research support for two-way communication website, which was focused on the websites of universities in the Czech Republic. Consumer Relationship Management (CRM) system is suitable corporate communications strategies to maximize the lifetime value of customers for electronic trading firm [1]. Here we must clarify that, as is a product of its value (price) for the customer, the customer value for their company. It is an economic concept which briefly expressing the high-value customer is a regular customer whose value increases with his loyalty to the company. Marketing is the company to its customer communications to attract and retain. CRM is not only software, but the sophisticated information system that applies to all company employees. This also means that each company employee must be at the appropriate level and familiar with the system according to prescribed rules of course do this simultaneously with the rules of corporate identity. Recommended building of a comprehensive CRM in a company such as P describes in [2]. It is recommended to pay attention to certain areas and proceed as follows:

Selection of the CRM strategy in the company - and determines the plan implementation process, describes what the company wants to achieve and by what means. -

Identification of customers - their contribution to the company, their wishes, needs, forecast their future behavior. - Customer segmentation - segmentation selection criteria with regard to customers and provided range of products and services. Assessment of competitiveness, profitability, risk level, etc. - Building superior customer relationships [3].

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## II. COMMUNICATION TOOLS

One way of building relationships and communication services centers is to provide care for students - (similar to the Customer Care Center). A similar center in the Czech Republic began to emerge in the early nineties of last century when it was first secured responding to customer inquiries via Call Center. With the development of new information technology today is not only necessary communication by telephone. Here we can mention, for example, fast and enhanced communication through ICQ. In this case we can easily show the current possibilities of communication. Communication in the environment can take place ICQ described in terms of the follow ways- Communication between the two pen-participants in the on line mode (immediately). Voice communication with ICQ Phone. Communication through a simple video - video Post similar communication can now provide even other systems such as SKYPE or FACEBOOK. For some enthusiasts, there are also some means of virtual reality such as Second Life, but they are not extended for many reasons (relatively small target market segment and its characteristics, has poor graphics, etc.) Today's information and communication technologies allow for many other activities, greatly simplifying communication with candidates. As an example we can describe something simpler - the telephone number can be identified prior to the call and connected computer can call center workers, more than just lift the receiver, display data phoning, that are housed in a data warehouse. Each worker can communicate instantly know everything you need and can often answer questions prior to placing the customer. For example, the ordered product will be delivered in the exact specific date, or repair is not performed. It is necessary, but that not every customer will appreciate the knowledge. Many of them will be considered an undesirable

intrusion into their privacy. We therefore emphasize the unconditional compliance with laws and relevant regulations. In the Czech Republic is required that the customer is at least familiar with the holding of data about themselves. Must explicitly express consent must be able to request cancellation of archival data relating to him. He must be satisfied in this case. One of the modules used CRM systems are quality systems for analytical CRM - Analytical CRM. The modules themselves are not receiving the necessary data, only process data contained in data warehouses, which was acquired through other modules of CRM or through external sources. It can automatically provide the necessary analysis, such as: customer segmentation, profitability analysis (profitability), monitoring customer behavior, market basket analysis, evaluation loyalty programs and many others. Another module can automatically carry out activities to support marketing - Marketing Automation. It includes such features to select the appropriate customer segment, analyze the effectiveness of a particular campaign, analyze the effectiveness of the communication channel, etc. Another option in the use of CRM module is to support solutions to business cases - Sales Force Automation. This module can be searched for potential customers can be monitored and evaluated the progress of each business transaction.

Another option in the use of CRM module is to support solutions to business cases - Sales Force Automation. This module can be searched for potential customers can be monitored and evaluated the progress of each business transaction. One of the newest areas of CRM systems are modules e-CRM. These modules use the latest information technology, including communication. Examples include providing of interactive communication using the Internet and portal technologies that enable personalization of customer support through web pages - personal web support.

Among the major systems include CRM my-SAP CRM [2006] SAP. To CRM in companies build integrated application systems category ERP - Enterprise Resource Planning. According [4] is defined as an effective tool that is able to support the planning and management of all key internal business processes (resources and their transformation into outputs), and at all levels, from the strategic to the operational. These key processes including: production, logistics, human resources, economics, the senior decision-making processes using data warehouse (OLAP). At present, according to [5] business management systems are also referred to as back-office applications.

Practice has requested the addition of external process that involves customer relationship management (CRM systems) and supply chain management (SCM systems). It is necessary to draw attention to the fact that while the former concept of ERP system fell fully into the management of the business areas to complement that system has full control of partial restriction of ERP systems in the relevant company. This follows from the involvement of other actors in the original, only one firm localized system. Automate all core processes of

the whole company, streamlining its management are prerequisites for reliable operation of a modern management system, planning, etc. Good company leads to a simplification of the system of data communication between centers, and cheaper to accelerate throughout the administrative activities of the company. Among the most important features of ERP systems include:

- Automation of key business processes
- Integration of business processes
- Sharing of data, procedures and their standardization
- Making information available in real time

The simplest systems to support management and administration are common office systems. Possible overall application architecture diagram of information systems and technology business of the company is in Fig.1 Basic office systems also have another function of communication and serves to support electronic mail. They also allow for the provision of general information and instructions, most applications using the company intranet. Important role in this group also have applications for document management and technology management work-flow. An important feature of these systems is also support for the overall integration of information system.

Complex applications that support analysis and decision-making activities of business managers in the diagram in Figure 1 labeled as business intelligence. This includes the management applications that use data warehouses, data marts, data mining, etc. Applications that support the management of the external relations of the company with customers, suppliers, etc. (CRM, SCM, SRM, etc.) are now generally referred to as the application of value-added (value-added) or the front office. It should be noted that the diagram in Figure 1 is only indicative and may be relevant in the specific context of a company take different forms. The diagram shows a simple way only include ERP systems into the overall information system and information technology. Therefore, part of the ERP is marked in this scheme conceived only key words.

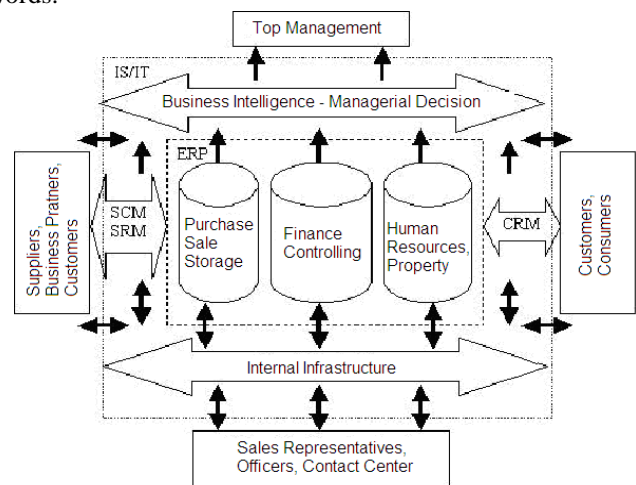


Fig. 1 Possible application architecture IS / IT business firms, according [2]

Even a very similar company (from the outside view) may have different goals, different defined organizational structure, another type of control, other established methods of internal and external communications, and many other differences. This all leads to the fact that ERP systems are rarely the same. To be complete ERP system quality, to the firm effective and brings the desired results, it is necessary complicity customer of this company realized as an appropriate form of marketing research at the planning and implementation of the ERP software company specialized. The aim of an effective and efficient ERP system is definitely not to change everything in the entire organization running the company according to newly acquired ERP system. But can't be fully excluded. The basic rule is that what is a seamless, efficient and effective, not only because of the importance of change that established an electronic system. Analogously, we can change a meaningless compared to the relief of wickets thrower's because instead of passing teammates always nets the ball into the opponent's goal. From this it can be deduced that the basis of the previous entry requirements for the ERP system must be a thorough analysis. Setting goals and priorities, defining efficient organizational structure and the areas they relate to the ERP system.

In case you need a center companies have established their smooth and efficient management system, the situation can be addressed by these individual systems will consist of subsystems (modules) of the newly introduced system. ERP system throughout the company can then enclose individual subsystems and solve particular communication and transfer of information between these subsystems. This way you can deal with the situation where the high cost of ERP systems exceeded the firm's possibilities. With good input analysis can be prioritized in the implementation of entire systems and establish a time schedule and cost of acquisition. This solution also relates to distributed systems. The trend in the software industry for quite a long time leads to a shift from a structured approach to the object. They develop distributed systems whose base can be seen by [3] in purposeful distribution of data and software resources on interconnected servers, representing subsystems.

Insufficient analysis and preparation requirements for the acquisition of an ERP system can lead to substantially higher costs and overcharges entire investment. A related phenomenon is also additional costs that were not originally planned. The creation and implementation of internal information and communication infrastructure is important for any business purpose. Teamwork, sharing and transfer of accurate and timely information at the right time and place significantly increase the productivity of individual employees and thus the performance of the whole company.

### III. UNIVERSITY MARKETING COMMUNICATIONS

Marketing mix forms one of the cornerstones of marketing. In practice, we must continue to build on the target market segment on which we focus. For this reason are using two

types of marketing mix. They are called 4P, which is compiled from the perspective of the seller, and the 4C, which is compiled from a customer perspective (target market segment), see below.

Marketing mix from the perspective of the seller consists of four main elements:

- Product - presents certain characteristics, range, quality, brand, product life cycle.
- Price - closely related to the utility value of the product, the product position in the market is related to the life cycle of a product.
- Place - expresses the availability of the product, sales opportunities, logistics and supplies.
- Promotion - is closely related not only with the other elements of the marketing mix, which provides for all necessary transfers of data and feedback from the target market.

If we have dealt only with the actual product, price, distribution and communication focused only towards the target market (e.g. advertising), we lacked the most basic information about whether one of our products (any tangible and intangible - a service) is not on the target market interest. Probably in this case we would not have the slightest idea who our target market is. In the best case we could somehow anticipate market oriented, but without proper quality assurance of the feedback received during our communication. Therefore, the marketing mix in the diagram in Fig. 2 completed target market, although it is not explicitly mentioned as part of the 4P. From obvious reasons it is at least implicitly. The target market is mainly related latter composition marketing mix - from the customer's perspective.

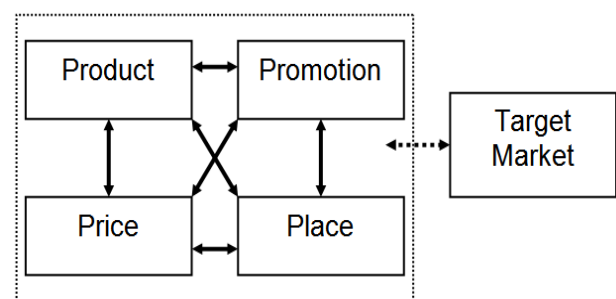


Fig. 2 Scheme of the marketing mix

Marketing mix is based on thorough knowledge of the market and good quality. Market knowledge is obtained only two-way marketing communications. The target market while we work available media resources.

Given that we focus on research in the field of marketing communication universities, now let's look at individual components of the marketing mix [4].

First, from the perspective of high school, as seller (4P - Product, Price, Place, Promotion):

- Product is presented in the case of education as a service. The educational institution provides the

target market segment (consumer). This service is characterized by a degree course, which offers educational institutions to study [5]. Field has its specific characteristics and properties, as approved in the case of universities the Accreditation Commission. It is usually determined by a particular market segment, which can be defined as an intersection of sets of the age, psychological characteristics, social capabilities, expertise in certain population groups. To some extent the product (service) associated with "corporate" identity, educational institutions. A simple example might be a famous university, whose completion can play for example, introducing a greater role than specific subject studied (a graduate of Harvard or Oxford).

- Price - If education is to study the possibilities offered by field of study, especially as it is given its market position and product life cycle. For some fields for the customer price is quite difficult to quantify financially. The relevant school would cost relative to one student clearly knew how to calculate, but not publish it. These courses of study are offered exclusively by public universities. Due to the uniqueness of their menu is missing comparisons. Examples are some courses of medical faculties. Studying these subjects in public universities is then relatively free, but usually there is also seen significant excess of demand over supply. Cheaper product (service) will receive the customer (student) on non-economic basis of their ability (talent, long-term interest, knowledge, etc.) that in these difficult cases replaced definable way express the price in money. For fields that offer also (or only) private higher education services is the price expressed in money, and there is noticeable and the share of non-economic, which is given by the admission procedures, entry requirements for students, etc. While we are discussing whether price in terms of money is real or not, but we must realize that it is part of hard competition. If the relevant school requires a higher price, it should be supported by service levels, provided a certain luxury. The higher cost of services is justified. If the school your equipment, necessary for study, and providing other services comparable to others, should be comparable to the price of the courses offered. One can argue that in terms of equipping schools often offer studies at a substantially lower price. But it certainly not a dumping price. It is necessary to look at the marketing mix from a customer perspective, see the following section. Price studies usually also associated with the life cycle of a product. For studies of attractive fields of study have not yet reached maturity stage (in terms of product life cycles), will require a higher price than for the study of the very

industry that is already on the contrary for the phase of maturity, and specialist market is saturated [6]. Of course, the information contained in this document may be interpreted dogmatically, we can admit that the significant differences.

- Place - The school allows students to study in a particular place. For example through distance learning using e-learning site reflects the availability of product (services). In the case of e-learning, etc. can be available studies, such as services, a way to characterize the distribution of study materials (Internet, sent by a carrier with recordings, etc.). Distribution is also related to other components of the marketing mix. For example school located in a remote village with transport and accommodation will be hampered by difficulties in the preparation of the product (for example, will choose e-learning) or will have to take into account its location with the price.
- Promotion - (communications) provides all the necessary data transfers for all elements of marketing mix, including the transfer of feedback from the target market segment. This is an important example for understanding the target market segment response to other components of the marketing mix. Schools are also other important "ability" communication - ensuring promotion. We could here go into the analysis leading to the communication mix, and analyse its effectiveness. But that would have exceeded the scope of this article. Allow yourself to one comment. Private schools use the opportunity to advertise in a much larger scale than the public.

Marketing mix from a customer perspective: Without the customers (students) would be all the communication activities of each school unnecessary. It is therefore important that schools are trying to satisfy the customer, i.e. it gives him the maximum value you expect. At the same time schools must meet their basic communication objectives that are in the case of private schools are more commercial. Objectives but must be established as a responsible and compatible with the requirements of the Accreditation Commission. That logic is not interested in profit or school funding, but the quality of education. Marketing mix customer-oriented and thus communicate with it will therefore have some other form. Marketing mix oriented to the customer will include so-called 4C (Customer value, Cost, Convenience, communication). For the customer a high school student is a potential for a 4C marketing mix as follows:

- Customer value - a price that the study itself for the customer. It can also be expressed financially, such as the amount that a potential student willing to give their studies. The sums do not necessarily reflect tuition only. They also enumerate certain way such as lost wages for the period of study. High school student can calculate how much of the study period comes to wages and earnings compare with her after

graduating from university. Even in the case of a public university can found a sort of equivalent amount of tuition to private schools at the actual tuition will increase. Much depends on the amount of expected earnings after graduation [7]. Mostly, in the case of public universities almost overwhelming, the value represented also acquired knowledge, skills and competencies, and professional opportunities for students. From the perspective of this school is included in the profile of a particular field of study, the profiles for the same fields of study at different schools may vary slightly, as the focus of the field. For the student it is important that the profile is a graduate of the first criteria that Accreditation Commission assesses each application for accreditation. And it may also, if necessary, to return, if it finds any irregularities in the implementation study. You can argue about the quality of implementation of the study area, which until the seriousness of the external auditors is subject to educational institutions.

- Cost - These costs can include costs associated with commuting, accommodation at the school, etc. It also includes the cost of required equipment, such as computer, Internet connection, purchase textbooks, etc.
- Convenience - in the case of education in this folder are included in terms of availability of school transport, or accommodation options in its range. For combined or distance study especially the level of the study support the ability to access, textbooks, etc. can be crucial to consultation, testing, etc. at the time and ways of meeting the needs of the students
- Communications - the quality of communication today plays an important role. What is important is the possibility of using communication technologies, which prefers the customer, a student. Communication must be fast, high-quality two-way transmission model as defined in the phase of communication with the applicant for introductory information, a potential student [8]. This course is especially for private schools. It can be assumed that the potential student gets some idea of their potential during the study and decides that the educational institution ultimately chooses. In this context, we can use a wide range, all of which provide Internet services, the target market segment and provide continuous updates dynamically or statically presented. Suitable examples may include the study materials, eLearning, etc. However, it must be a demonstration implemented in full, not a single some educational institutions [9].

#### IV. FORMULATION OF RESEARCH

Our research, we established at the intersection of information and communication technologies for electronic communication in higher education. The present text shows a broad outline of the issues that is suitable for further research not only to the extent that we present here. We can assume that private schools perceive this problem and at various levels and in different ways to deal with it. Public universities have tended to be based on studies of free and do not pay too much attention to the issue. Often seems to assume that those interested in studying a particular field of study is primarily attempting to study free of charge. It must recognize that the role played by the extra-services that can offer a private school. Last but not least, public schools in this Article to a large drive the crisis and discussed the introduction of tuition fees in the Czech Republic, which, sooner or later one will.

The research included 256 respondents and students interested in studying at the University of Hradec Kralove, Liberec Technical University of Liberec and the University of Hotel in Prague. The age composition is predominantly 18-21 year olds. Composition is: 56% of women and 44% of men.

**Communication with the university research and access to information**

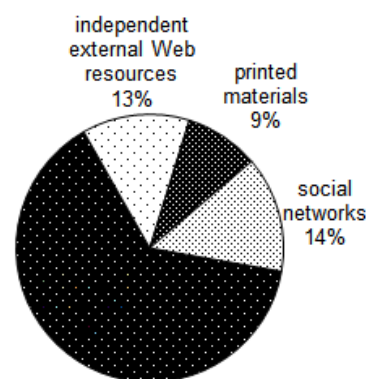


Fig. 3 Graphical presentation of part 1 of research (access to information)

In our research, we examined the assumptions two-way communication with feedback. Among other things, we consider whether the web pages of all Czech universities contain any of the following components or links to connect to a specific form of communication outside the college website.



**Respondents recommended communication resources**

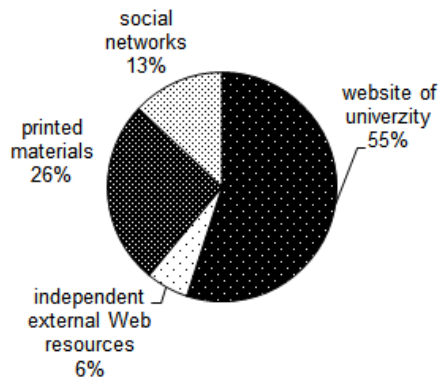


Fig. 4 Graphical presentation of part 2 of research (recommended communication resources)

We evaluated of existence or quality of counter visits, guest books, chat and questionnaires. We evaluated too of existence of a link to communicate through ICQ, Skype, Facebook, Second Life and similar tools.

**Trust in information and communication resources**

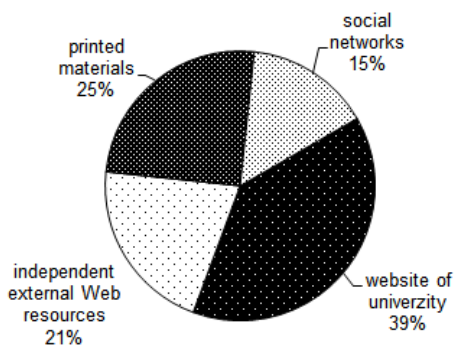


Fig. 5 Graphical presentation of part 3 of research (trust in information resources)

**V. COUNTER OF VISITS, GUEST BOOK AND CHAT.**

Counter visits to the website visitors only meaningful in that they can understand what is on the page and thus the offered product (product or service) interest. Although the companies (in the case of our research universities) do not realized it too, can be carried out on the basis of interesting research. Just imagine for example, high school websites and promotional materials therein fields of study. If a subpage for each field visits your counter, you can also read what sectors (products of the school) are the largest and the smallest interest. Already according to the management can decide whether the college

will continue at all a product (the study of the field) to sell, because it is not interested. If the counter is a high number of visits and number of registered students is low contrast, indicates that a given field of study is indeed interested, but for some reason I bought it (study) few visitors (generally customers). This may be as high tuition costs, lack of product specifications, on place of further promotion. We see that this is related to the above terms of marketing mix of companies (4P). We see that in a simple principle can bring interesting-counter data, without the visitor aware of the website. Our hypothesis is that the-counter on the main website [10]. That does not mean that visits Web sites can be monitored secretly, or by using external services. If a company decides to measure and verify the traffic to your website is often before deciding which of the many tools used. Differences between the different modalities of data are quite substantial. We will show the examples of the most transparent, and to compare Counter or Google Analytics. Both free and work through javascript on the site, only the monitoring results are different. Counter-counter offers only different from text to full color graphics. Google Analytics, however, offers an entirely different set of statistics. We will not discuss their advantages and disadvantages. More complex dynamic web sites are to count page views in own database.

Guestbook formerly formed part of the most professional website. Its implementation is usually the addition of a simple script such as PHP, JavaScript, etc. may or may not link to my database (e.g. data warehouse) via the programming language and databases such as SQL, MYSQL, etc. Main features guest books is that the reader. There are express their views, recommend some changes that would welcome. It can also publish your question, which may be relevant to other website visitors, but the relevant question is not challenged. On the other readers can respond and then the discussion can occur on a certain of topic. Then of course welcome any worker responsible for the running of the site. In marketing the guest book even very essential. It can be used for marketing research. The operator can use the Web site guest books at minimal cost to obtain free views of the target market segment. Make it more difficult to send unwanted information and links can proceed in two ways. One is a visitor registration, which may discourage the customer intends to convey his, often interesting views for publishers. The second method consists in placing the character keys (numbers and letters) in the form of images, rather than just text, copy to be. The reason is simple. URL's can sign the key text to identify and include the guest book incredible inadequate information and hyperlinks. Filtering incoming is challenging burden is not just a computer and probably can never be wholly successful. Even with the strict filter settings lose important messages. The last method is a kind of censorship, book guests, which is too expensive that it must be constant supervision by a sort of trustee. From a serious point of view are the visitor guestbook problematic. In our research universities website, we evaluated their existence, and if appropriate security. The basic hypothesis of the

guestbook College website is a website visited by a solid, intelligent and educated people. Their views are certainly interesting and college websites can move towards higher quality. Chat here we understand and use writing as a conversation between two or more people through a program that is written in the text visible to everyone. Apply here the same conditions as in the guestbook. The only difference is that it does not continue smoothly only forward, but those interested may communicate with and respond to returning back to the appropriate view or respond to the reaction. Secure messaging is basically the same as security guestbook, which we have already mentioned. Later, chatting via text added the ability to transmit sound, or even painting. We're talking about the audio or video chat. Hypothesis for the evaluation of chat on the website of college is the same as a hypothesis for the evaluation of the guestbook [10].

Next research was conducted at three universities in the Czech Republic. Its aim was to map the potential conflict between the demands of students and teaching experience (opinions) teachers. The first hypothesis was that students will prefer learning with the use of certain Internet services that enable more "dynamic" and online communications, such as Facebook. The second hypothesis was that teachers will prefer more "static" form of communication that is based on pedagogical principles. It is also easier to create learning materials. [8]. For this occasion, we also conducted benchmarking exercise against the interest of students and teachers of learning using mobile devices (mobile phone, iPad). The third hypothesis was that students would prefer the monitors. Teachers will hesitate between iPad and non-use of mobile devices in teaching. The results of our research show various tables and graphs.

Table. I Preference forms of communication in the classroom - students (standard error of the estimate is 3.74)

E-book	11,6%
Mailing list	0,4%
Newsgroups	0,8%
Skype	2,9%
Facebook	83,2%
SecondLife	1,1%

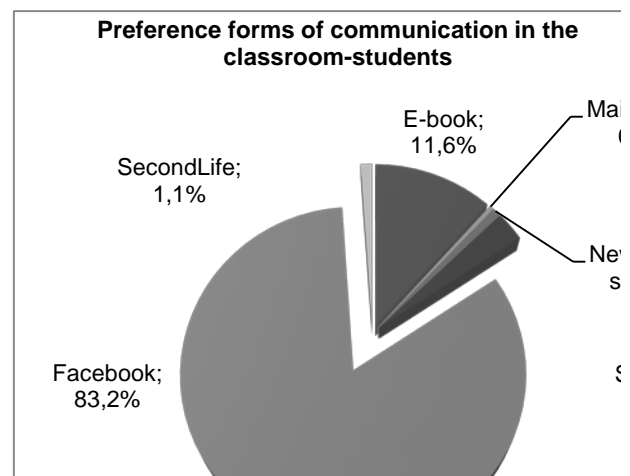


Fig. 1 Graphical presentation of results of own research

Table. II Preference forms of communication in the classroom - teachers (standard error of the estimate is 3,59)

E-book	84,8%
Mailing list	4,5%
Newsgroups	5,8%
Skype	0,4%
Facebook	4,4%
SecondLife	0,1%

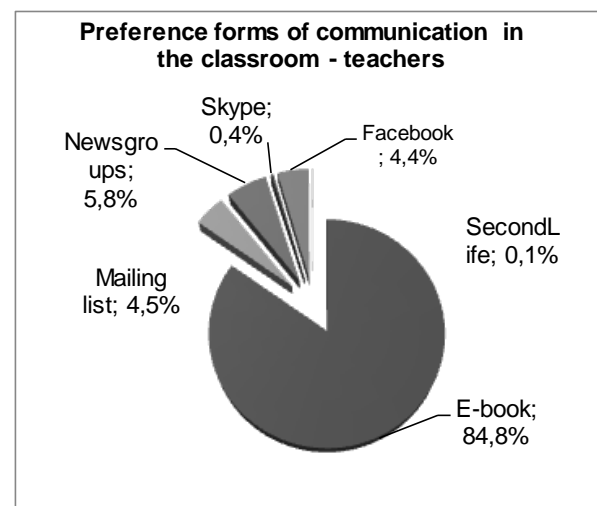


Fig. 2 Graphical presentation of results of own research

Table III Preference of mobile devices in education - students (standard error of the estimate is 3.69)

not to use mobile devices	11,4%
Mobil phone	0,8%
SmartPhone	4,1%
iPad	83,7%

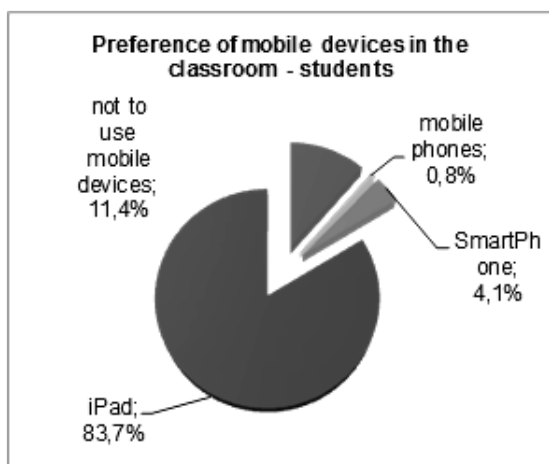


Fig. 3 Graphical presentation of results of own research

Table IV Preference of mobile devices in education - teachers (standard error of the estimate is 4,97)

not to use mobile devices	42,3%
Mobil phone	0,0%
SmartPhone	2,1%
iPad	55,6%

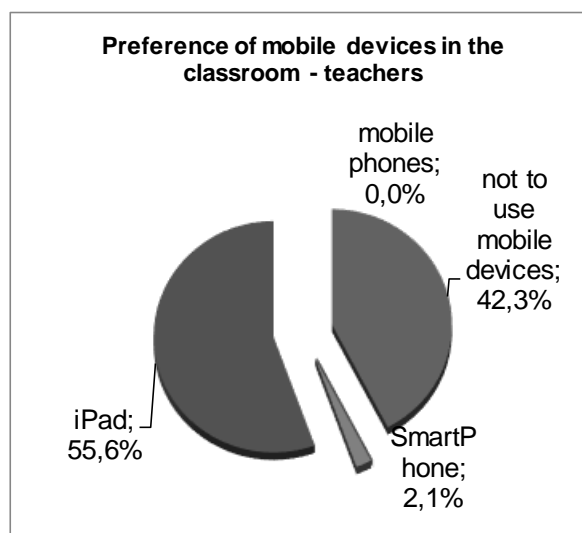


Fig. 4 Graphical presentation of results of own research

Standard error is shown with 95% reliability. In addition, the table lists by percentage the average share of time spent by each teacher who performs this activity regularly. The total period of activity for each teacher for the activities mentioned above is 100%. Statistically, these calculations are verified using variable coefficients. Overview of the frequency of activities carried out by individual teachers in %, and an overview of the average % of the share in relation to other activities. All activities are always 100% of time spent by each teacher identified in the survey.

## VI. CONCLUSION

To the person who selects the communication environment in relation to information about higher education, approaching the theoretical tools of marketing and commercial communications. The principles are the same. Research Hypothesis: we assume that the resources used, thus communications environment that selects candidates for access to information is identical to and consistent with what the candidate himself to his social environment recommended as a suitable communication channel. At the same hypothesis assumed that the use of communication environment, trust in the communication environment and its own recommendations to be identical. Just do not. Here is reflected in empirical experience obtained through use of the communication environment. Well sort of pre-selection, the candidate's own partial study of communication. Recommendations and trust in the communication environment may be affected by various aspects of communication. Technical level design environment and at the same level of content, esp. content quality. Here we assume the possibility of further research.

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