

# MIND MAPS IN ELEARNING COURSE DEVELOPMENT

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***Abstract:** The paper describes the development life cycle of an eLearning course called *The Internet marketing*. The issue of the Internet marketing is extensive and complex. Some of its areas are design, development and editing of business websites, search engine optimization (SEO), social media marketing, mobile marketing, e-business, e-commerce and e-shopping and also marketing research and analyses. Partial components of the Internet marketing are interconnected. We use mind maps in the course design. They represent not only partial areas and elements of the Internet marketing but also semantic links between them. The eLearning course is especially intended for small and medium enterprises. Owners and managers of these companies appreciate the opportunity of distance learning. The Kirkpatrick's four-level evaluation model was used for the quality assessment of the eLearning course of the Internet marketing. Above all, the participants greatly appreciated the use of mind maps that help them understand the complicated structure of the Internet marketing.*

**Keywords:** eLearning course, mind maps, Internet marketing, evaluation, small and medium enterprise (SME)

## INTRODUCTION

Internet marketing course emerged as one of the theses (Staško, 2012) assigned at our Information and Communication Technology (ICT) department at the Pedagogical Faculty, University of Ostrava. The requirement for the course arose especially from small and medium-sized businessmen who do not have enough time to follow the latest techniques and trends in the Internet marketing. In this sector, entrepreneurs are often narrowly specialized and do not know what possibilities there are in the Internet marketing and keep relegating this activity to the background. Browsing websites and studying literature is so time-consuming for them that they prefer to address a service provider. However, they want to have at least a basic overview of what to ask, what benefits it will bring and how to evaluate these activities. If they know the latest trends and news, they will also have more

accurate, more factual and constructive requirements and during the implementation of the Internet marketing will be an equal partner of the supplier.

Both the design and the development of the eLearning course were based on the Instructional System Design (ISD), which is an educational parallel to software development systems (qtd. in Kapounová and Pavlíček 2003). System lifecycle addresses all phases of the system design.

For the research of business entities and their Internet marketing, the method of qualitative research based on case studies was used. The research of the course quality was then carried out with the help of the Kirkpatrick's four-level evaluation model (Kirkpatrick 2009).

Mind maps also form an important part of the designed course. They aim to help learners facilitate the understanding of complex issues with the help of network graphs, which show relationships between individual elements (Mašek and Zikmundová 2010).

## 1. THEORETICAL BACKGROUND

Before starting work, it was necessary to know the current knowledge in several, seemingly unrelated, areas:

- the Internet marketing;
- small and medium-sized enterprises;
- Instructional System Design for eLearning courses;
- approaches to eLearning courses evaluation;
- tools for visualisation of structures and relationships between information;
- methods of qualitative research.

Gathered information was used in development and evaluation of eLearning course.

### 1.1 Internet marketing

The concept of the *Internet marketing* encompasses all marketing activities on the Internet, whereas *online marketing* extends these activities to the marketing via mobile phones or similar devices (Janouch 2010). The Internet marketing (online marketing) can also be simply defined as the usage of the Internet for the achievement of marketing objectives (Sedláček 2006).

The Internet marketing for the sector of small and medium-sized companies is regarded as one of the key factors that help increase the turnover. For this approach we have adopted the following concept. As small companies have in most cases a smaller turnover, they have to address more people. One possibility of how to do this is through the Internet marketing, whose main task would then be to offer the

customers the product or information they are searching for on the Internet and ensure thus profit. Other tasks may include product support, communication with customers, brand building and others.

## **1.2 Small and medium-sized enterprises**

Small and medium-sized enterprises (SME) form an important sector of the market economy, despite having a low number of employees. The attention devoted to this sector consists in its specific advantages, disadvantages and hence its vulnerability.

Advantages:

- relative flexibility, speed of response (including the creation and destruction of firms) to changes in market conditions;
- relatively high ability to absorb the workforce;
- the ability to fill a gap in the structure of business relationships between large firms (the role of a subcontractor).

Disadvantages:

- more difficult and hence costly access to capital, information and knowledge;
- less ability to eliminate the effects of external influences in the early stages of development (start-up);

Disadvantages from the point of view of the Internet marketing:

- limited resources for promotion and advertising;
- frequent suppression of marketing activities for the benefit of net trade.

## **1.3 Model ADDIE**

The course was design based on the standard procedure for the creation of courses ADDIE. This model represents the general systematic step framework used by educational designers, developers and trainers, whose main task is to ensure that the development of the course and education will not happen in a haphazard and unstructured way (Sedláčková 2011).

The model consists of the following stages (qtd. in Kapounová and Pavlíček 2003):

- analysis;
- design;
- development;
- implementation;
- evaluation.

Yet, the principal evaluation criterion is whether the program actually teaches what it is intended for.

#### **1.4 Kirkpatrick's evaluation model**

When evaluating the effectiveness of training, a model created by Donald Kirkpatrick in the mid-twentieth century is often used. This model was originally designed for the evaluation of adult education, particularly in the business sector. It encompasses four levels of evaluation:

1. reaction;
2. learning;
3. behaviour;
4. result.

Each higher level depends on mastering the level before, which can be visualized as a pyramid. Kirkpatrick's four-level model was revised after 50 years (Kirkpatrick J. and Kirkpatrick W.K. 2009). As with the original version, its key concept is the interconnection of teaching with practice. Yet, the main indicator of the educational value is the Return On Expectations (ROE).

#### **1.5 Mind maps**

A mind map is a diagram used to visually outline the structure and relationships between individual pieces of information. It is often created based on a central term, category or thought, from which sub-branched and derived entities emerge.

Mind maps can be used for:

- representation of structures and relationships;
- representation of procedures and processes;
- problem-solving;
- collaboration, team building and synergy creating activity, etc.

Apart from these examples of usage, mind maps can also be analyzed using classical methods for obtaining information or used in expert systems and search engines.

#### **1.6 Case studies**

The assessment of the value of the eLearning course was carried out according to the "multi-case study" by Yin (2009). In the selection of cases, a replication strategy was applied, which is based on the implementation of several case studies, where the cases are not selected according to the logic of statistical survey and do not represent statistical units. Yin points out the analogy with experimental research and assumes that each case actually represents a new experiment, which is used for the verification or refutation of current knowledge. Yin recommends studying a limited number of carefully selected cases. Subsequently, the conclusions derived from

these examples will enable the confirmation or modification of assumptions or a structural or content-related modification of the course.

## 2. INTERNET MARKETING COURSE

The Internet marketing course has been prepared for managers and employees in the sector of small and medium-sized companies. It gathers information about the Internet marketing from different sources – websites, journals and books. The course not only provides a comprehensive overview, but also tries to show the best possible strategy in the development of a company website. For a better understanding of the information contained in the course, mind maps showing the relations between different parts of the Internet marketing are used. A particular care is devoted to a better understanding of the issue as a whole. As examples of good practice, case studies are provided.

The course is an asynchronous version of eLearning, which is less demanding and does not require a permanent connection to the computer network. Communication between tutors and learners is realized through emails, social networks, etc.

### 2.1 Course structure

As already mentioned, the course was developed on the Instructional System Design (ISD) principles. It goes through system development life-cycle phases: Analysis – Design – Development – Implementation – Evaluation.

#### *Analysis*

Analysis consists in the identification of the problem, determination of educational needs and estimation of costs. At present, the SME sector has to face the problem of insufficient awareness of possible usages and ways of the Internet marketing implementation. This should be solved by our educational tool. The development of such a tool, while maintaining low or zero prices for students, is conditioned by the ability to find resources aimed for the support of small and medium-sized enterprises. The overall price includes the costs connected with staffing, development, implementation, maintenance and promotion.

What is the interest in eLearning course? We used a SWOT analysis (Strengths – Weaknesses – Opportunities – Threats).

**Table 1.**

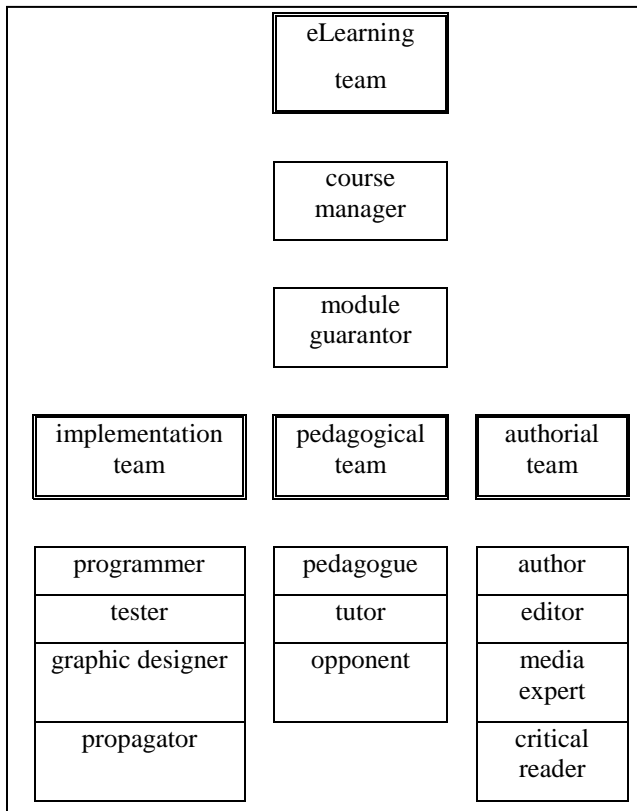
#### SWOT analysis of demand

	Helpful to achieving the objective	Harmful to achieving the objective
internal origin structure of the organisation	<b>Strengths</b> <ul style="list-style-type: none"> <li>▪ experienced team</li> <li>▪ up-to-date content</li> <li>▪ superior marketing</li> <li>▪ uniqueness of the project</li> </ul>	<b>Weaknesses</b> <ul style="list-style-type: none"> <li>▪ limited budget</li> <li>▪ small workforce</li> <li>▪ lack of personalization of content</li> </ul>

external origin attributes of the environment	<b>Opportunities</b> <ul style="list-style-type: none"> <li>▪ use of social networks</li> <li>▪ publications in e-zines</li> <li>▪ interest from sole traders</li> <li>▪ heterogeneity of competitive projects</li> </ul>	<b>Threats</b> <ul style="list-style-type: none"> <li>▪ development of a competitive course</li> <li>▪ course acquisition</li> <li>▪ lowering of interest</li> </ul>
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### *Design*

In this phase a detailed design of the course is prepared. The ideas of the authors are transformed into a concrete form shared among the members of the solving team.



**Figure 1. Staffing**

Apart from the prototype mentioned above, also the timeline of the course preparation is planned. And tasks, their order and time demands are specified. Basic questions are answered, such as the following:

- Who is the course aimed for?
- What are the specifics of the target group? What is the age range of this group? What is the level of education in this group? What is the profession of this group?

- What is the expected input knowledge of the participants?
- What is the objective of the course? What is the supposed output knowledge of the participants?
- What is the context of the course realization? Why should the participants undergo the course? Is it a mandatory course within an educational institution or at work? Or is it a course of interest?

The staffing is managed by the course manager and has a certain hierarchy. The personal structure can be depicted graphically as follows:

For the effective definition of targets, we have chosen the SMART method:

- specific;
- measurable;
- attainable;
- relevant;
- time-bound.

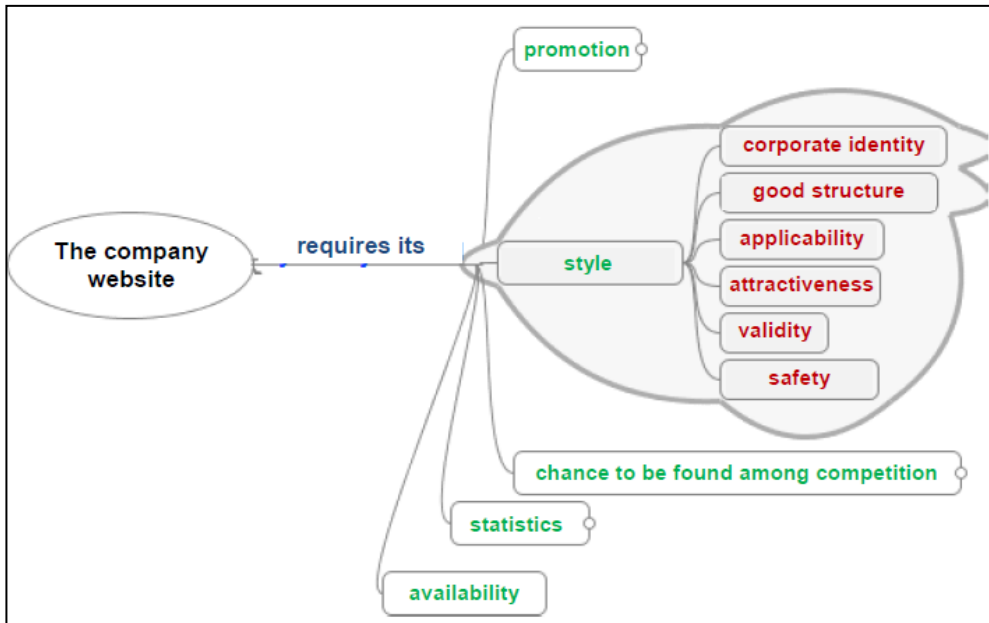
### *Development*

The development phase is the most time-consuming and capacity-demanding part. Having been finished, a pilot testing of the created course should be carried out. Possible imperfections have to be sorted out and eliminated before the next phase.

The company website requires its promotion, style, chance to be found among competition, statistics, availability, corporate identity, good structure, applicability, attractiveness, validity, safety.

The course is divided into five chapters:

- Introduction – motivation of students and answers to questions like “What makes the Internet marketing specific? What benefits does it bring? and What are its drawbacks?”.
- Company and customer – specifies customers’ requirements and relates them to company activities.
- Internet marketing components – the main component of the Internet marketing is the company website. As this chapter is the most extensive one, it is further divided into subchapters.
- Internet marketing implementation – a possible procedure of implementation in company including individual phases of implementation.
- Case study – practical demonstration on a real life subject.



**Figure 2. Example of the course mind map**

Apart from the main topics of the course, other parts providing further information are included (dictionary of terms, literature, autotests, course navigation, contact with the tutor, etc). Tools for testing are also available – pre- and post-questionnaires.

The web-based interface was made using the PHP and MySQL technologies, which sufficiently cover the necessities of the course. The course can be found on <http://lambdacomp.cz/moderni-web>.

### *Implementation*

Implementation is relatively easy, once you have chosen appropriate webhosting. The access to the course is ensured via the Internet and the learning process is run in the form of a self-study. Study materials are supplied by the author, who follows the news and updates the course if necessary. The course is available 24/7.

We mustn't forget public relations either. Promotion is carried out via Facebook social network and also by addressing people who might be interested in this course and who could pass the information about the course on to other people.

### *Evaluation*

According to Sedláčková (2011), there are two types of evaluation: formative and summative. Formative evaluation is carried throughout individual development phases of the course. Its objective is to prepare the course as well as possible before its actual launch. Summative evaluation is run after the implementation of the course and brings direct observations from its participants.

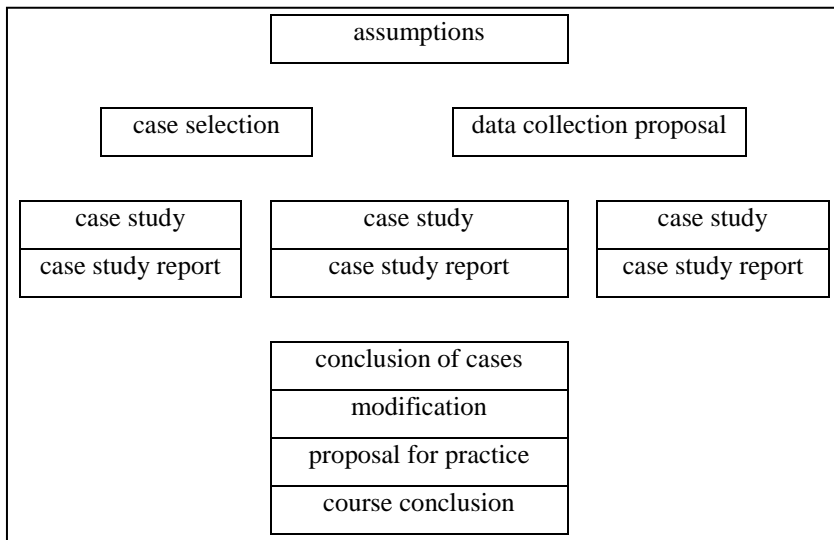


### 3. SURVEY

The goal of the survey was to find out how is the interest in the Internet marketing course in small and medium-sized enterprises and how it is evaluated by its participants. Based on the analysis of the survey results, appropriate adjustments of the course were carried out.

#### 3.1 Preparation of the survey

##### *Method*



**Figure 3. Structure of survey**

The procedure derives from the scheme of the “multi-case study” according to Yin (1994). Replicative approach to multi-case studies means that each case study stands for a separate study. We work with similar cases, where we can expect similar results. Each case is investigated and assessed separately.

##### *Assumption*

We expect that the sector of small and medium enterprises will be interested in the course and also that they will try to use the components of the Internet marketing learnt in the course. At present, every company has its website. However, it is doubtful whether they know the possibilities offered by the Internet marketing. We want to demonstrate the importance of the eLearning course for the given target group and show that the knowledge gained in the course is useful and that the respondents can use it in practice.

##### *Selection of subjects*

The survey was carried out in six companies characterized according to their size and business sphere.

**Table 2.****Characteristics of participating companies**

<b>Company</b>	<b>Size</b>	<b>Sphere</b>
Elmax	medium	goods, electronics, white technologies
Autobártek	small/medium	goods/services, car repairs
Kamenictví Karásek	small	goods/services, stonemasonry
Restaurace U Hučky	small	services, gastronomy
Foto Mročka	micro	services, photo studio
Fa Záviš	micro	services, safety doors

**3.2 Experiment description**

At the beginning of the experiment, we assessed the current state of the company's website (structure, clear arrangement, availability and validity), whether any analytic tool (e.g. Google Analytics) has been implemented, what the structure of links is and how the possibilities of electronic communication with customers are being used. A validator of HTML code (<http://validator.w3.org>) and a tool for SEO on-page factors check (<http://seo-servis.cz> a <http://www.seotest.cz>) were used.

**3.3 Case studies**

The data was obtained from questionnaires filled in by the course participants. When needed, the information was specified in interviews with the respondents.

Before taking the course, the participants filled in a pre-questionnaire. Its purpose was to find out basic information about the company, its size, focus, their investments in and attitude to the Internet marketing. Their acquaintance with the topic was investigated in the form of a test containing 24 questions.

A post-questionnaire was given to the participants after the course had finished. It was divided into two parts and on the whole it consisted of 31 questions. The first part was focused on the first level of the Kirkpatrick's model, i.e. on the reactions to the course, namely what the participants think and feel during the course. The second part of the questionnaire was concentrated on the second level of the Kirkpatrick's model, i.e. on the influence of the course on their opinions, skill improvement or knowledge perfection. The analysis of the obtained data showed what effect the eLearning course has on the change of attitudes and whether the ability to apply the strategy of implementation of the Internet marketing in the company has increased. The necessity of the course for the sector of small and medium companies was proved.

**3.4 Survey results**

The pre-questionnaires demonstrate clearly that almost all addressed enterprises have a company website today. The amounts, which they are willing to invest in the

Internet marketing, rise proportionally to the size of the company from 10 to 50 thousands of CZK. The objective of most company websites is mainly to display their products. However, in all cases they do not meet their owners' expectations mainly due to their poor structure, old-fashioned design or bad accessibility. All addressed companies were keen on improving their online presentation and expected the course will provide them with basic information about the possibilities offered by the Internet marketing.

Post-questionnaires showed that:

- no course participant had a major problem with the navigation in the course, which was evaluated as user-friendly and comprehensible;
- mind maps in the course were accepted enthusiastically and the participants appraised them as a very useful tool for understanding the complicated structure of the Internet marketing;
- the dictionary of terms was used rather sporadically and the good structure of the text was appreciated;
- the help of the tutor was rarely used, the course was led by the participants themselves and its structure and other elements helped them understand the content of the course easily;
- all respondents like to apply the gained information in their companies;
- the respondents mainly from micro and small companies can do only with a basic introduction to the topic, as they want to have their Internet marketing taken care of by an authorized company;
- the respondents should like to have more case studies in the course;
- the respondents stated that their communication with customers is on a low level, and one half of them would welcome the use of social networks in public relations sphere as well as for the feedback from their customers.

## CONCLUSION

After the evaluation of the case studies we can state that:

- the companies were not familiar with all possibilities that the Internet marketing offers and they focused only on the designing their company websites;
- the eLearning course was beneficial for the companies in making them realize that a company website is only a part of a more complex system of the Internet marketing.

The evaluation of the course used the first two levels of the Kirkpatrick's model of evaluation.

The first level of evaluation – reaction: The participants responded positively to the course, because it satisfied their needs and managed to attract their attention. A powerful motivating factor was that this was a course of interest. There was a positive reaction to mind maps. These structured overviews in a graphic form served especially well at presentations of complex units, their components and relations to other parts of the Internet marketing. Case studies describing the application of individual items in a real-life company were also received positively. More cases of this kind were demanded.

The second level of evaluation deals with the progress rate in skills, knowledge and attitudes. The course has changed attitudes and understanding of the Internet marketing of all participants. Mainly, they established the concept of the Internet marketing as a complex system, in which all its components are somehow interconnected. The participants improved their analytical skills and ability to measure, and they learnt how to apply and set the elements of the Internet marketing. The analysis of questionnaires shows the increase in knowledge by 50 % on average.

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