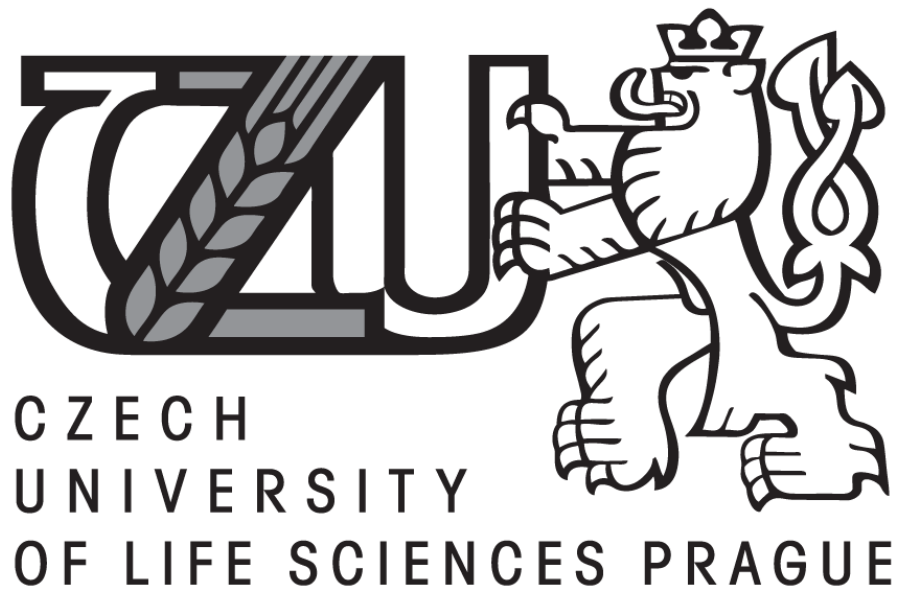


**CZECH UNIVERSITY OF LIFE SCIENCES
PRAGUE**

Faculty of Economics and Management

Informatics

Department of Information Engineering



Diploma Thesis

**Information system for further professional education
portal Andromedia**

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Supervisor: doc. Ing. Vojtěch Merunka, Ph.D.

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DIPLOMA THESIS ASSIGNMENT

Tomáš Velický

specialization of the study: Informatics

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The structure of the diploma thesis:

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3. Information, Knowledge and Learning Society
4. Applications knowledge base human resource development and further education
5. Establishment and functioning of site andromedia, background, structure and operating principles
6. Documentation of technology solution
7. Závěr
8. Seznam použitých zdrojů
9. Přílohy

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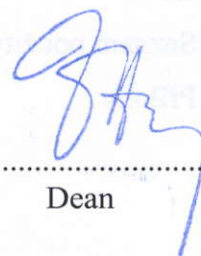
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Deadline of the diploma thesis submission: April 2012



Head of the Department



Dean

In Prague: 4th April 2012

Declaration

I declare that I have worked on my diploma thesis by myself and I have used only the sources mentioned at the end of the thesis.

In Prague on 4th April 2012

Tomáš Velický

**Information system for further professional
education - portal Andromedia**

**Informační systém dalšího profesního
vzdělávání - portál Andromedia**

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Abstrakt

Cílem práce je popis návrhu a implementace databázového systému pro Inovační databanku dalšího profesního vzdělávání - Andromedia. Databanka je budována jako informační zázemí pro oblast dalšího profesního vzdělávání, kde se budou postupně soustřeďovat informace o trendech a analýzách v oblasti dalšího vzdělávání, náměty a postupy, metody, metodické pomůcky, případové studie, testy a další metodické a informační zdroje. Autor zdokumentuje výsledky analýzy problému a návrhu řešení a vyhodnotí úspěšnost implementace databázové aplikace.

Summary

The aim is the design and implementation of innovative database system databank of continuing professional education – Andromedia. The database is built as an information base for the area of continuing professional education, where will gradually collect information and analysis on trends in further education, ideas and practices, methods, methodological tools, case studies, tests and other methodological and information sources. Author documents the results of problem analysis and solution design and evaluate the success of the implementation of database applications.

Klíčová slova

Andromedia, databázový systém, návrh databázového systému, aplikace databázového systému, informační společnost, znalostní společnost, učící se společnost, PHP, MySQL, relační databáze.

Keywords

Andromedia, database system, database system design, application database system, information society, knowledge society, learning society, PHP, MySQL, relation database

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Introduction

We live in the world that is constantly changed by increasing importance of information and knowledge in all areas of life. Generally today's human society is being perceived more and more as the society focused on the information and knowledge. Knowledge is considered as one of the key basic factors in economic success of both companies and even the entire states. In relation to growing significance of using the knowledge we can talk about so-called competence of human knowledge. "It will go about the ability to find knowledge (know it, in which form it is and where it does exist) and to have user imagination, what knowledge is necessary in given situation and how we can use it in such situation." [Personál 2009]

These trends are, with the exception of few deviations, generally accepted and respected. It is interesting to look at how to deal with these trends in real practice, mainly the part which can help to people to prepare using information and knowledge more effectively in all the activities of firms and institutions. With respect to this area is meant area of education and mainly part aimed at adults – professional training.

The author of thesis had the opportunity to participate as programmer on a project about building portal solutions in "Innovation centre of further education", if you like on the part of knowledge database. Submitting diploma thesis tries to cover design and implementation database system for Innovation databank of further professional education – Andromedia, which is built as an information and knowledge base for the area of further professional education.

Conclusion contains portal service experiences from portal Andromedia and recommendation for next developing and knowledge system.

1. Information, knowledge and learning society

If we work on a topic about knowledge databases, first off it is necessary to concentrate why these databases are being created. One of the main reasons is the human need to learn, getting new knowledge and to share it. Learning, knowledge or information societies are terms which are today mainly spoken from many different perspectives. Now one might ask a question - Information or knowledge? EU summit that took place in Lisbon in year 2000 brought an interesting shift already. Documents, related to the eEurope initiative, use term information society while during the summit there has already been talking about knowledge society. “Difference between “information” and “knowledge” is similar to difference between raw material and final product, however with information (like base raw material of the further society) there will be more of it and its cost will become smaller. In contrast, the knowledge and the skills to evaluate information, compare, consider, apply, etc., will be what is going to be increasingly appreciated and what will represent a real value. That’s why it is more convenient to use term “knowledge” than “information in relation to the societies”.” [Peterka, 2000]

1.1 Information society

“At the beginning of the third millennium, human society is at the developmental stage, called the Information Society.” [Vymětal, Diačiková, Váchová, 2005] The authors also claim that assuming of the new knowledge will play significant function in the information society, and therefore we can succeed period information society called as knowledge society and lifelong learning society.

Zlatuška presents that “The information society is characterized by substantial use of digital processing, storing and exchanging information. From processing information is becoming significant economical activity which builds whole new opportunities and activities which fundamentally affect the whole world.” [Zlatuška, 1998]

Characteristics of the information society are also involved in the book First information – Integrating Knowledge and Information Architecture for Business Advantage from Mr. and Mrs. Evarden, where they reported the following as main points characterizing today’s (information) society:

The amount of information – a huge increase in available information and their mass distribution is an exciting and disturbing simultaneous fact.

Diversity of resources – it is clear that huge amount of information goes together with a great variety of sources. Organizations have their own internal resources and access to the internet, and also mainly databases and multimedia materials provided as a paid service.

Products based on information – more and more products and services are based on information or they are very closely related.

Information speed – it is wrong to imagine information source as passive ocean, the more accurate is the imagination that this source is as wild river following continuously to the human senses. In human history is unprecedented with how speed information rush on us.

Dependence on technology – in information and communication technologies (ICT) there have been invested much more than in to the industrial factories or agricultural equipment. In nearest area of each of us, no matter if it is about home, work or complex systems such as transportation or education, they all lead to expansion of computer chips.

Knowledge workers – if we divide workers on white and blue collars workers, i.e. those that regularly use more their brains and those that need more their manual skills, we will probably conclude that the majority needs their brain during their working time.

Information quality – quality of all the sources determines the value and utility rate, it is the same for the information. The information must be correct, reliable, respect, relevant, simple and ultimately valid to be considered as of high-quality. Information tends to wear out during time period.

[Evarnden, Evarnden, 2003]

From information society characteristics is clear that it brings many positive effects and changes such as much greater availability of information, raising awareness in different spheres of private and professional life, the possibility of new forms of commerce, education, financial services, and overall global cooperation.

1.2 Knowledge society

"In the Czech term for the knowledge we have many synonyms as I can, I am able to do something. Knowledge is purposeful coordination of action, knowledge is not information. The difference between information and knowledge is essential and significant. The information is input into the process of knowledge, ie purposeful coordination of activities. Meeting the objective purpose through action (not just on paper) is the only proof or manifestation of practical, usable knowledge. Without the necessary knowledge we are unable to determine the value and importance of information, in other words we cannot somehow information meaningfully and purposefully use“ [Zelený, 2012]

The basic premise of the knowledge society is the ability to navigate in the information sources, to know how to effectively search through them and properly operate with founded information and to build knowledge from them. A characteristic of knowledge society is also the fact that it combines science with technology. Especially information and communication technologies are fated to make the joint out of these. When we talk about developing knowledge society there are three key points which should not be forgotten:

1. The enormous growth of knowledge
2. Developing computers like machines based on knowledge
3. Meeting both above mentioned in cognitive-technical complex at the operational based on knowledge and models of knowledge.

Information influence and importance, awareness of their practical benefits are starting to be in focused not only by respected theoretic of today's information science (Webster, Machlup, Mr. and Mrs. Evarden) but also by management theorists. Already in the 60th of the last century, Drucker, one of the leading management theorists argued that knowledge became the foundation of modern economics. Today it is common to argue that we evolve in the society where the knowledge and their organization are leading creators of wealth.

Attempts to find the application concept of the knowledge society and make it work at the practice in institutions and especially in commercial firms, leads to the emergence of the concept of knowledge organization (company) and finding ways in

business practice to the best possible use of information to manage results in the concept of knowledge management or managing of knowledge (Knowledge management).

Understanding the importance of knowledge as a productive force then led to the learning society concept, whose founder is considered Chris Argyris. He asserted from the perspective of human resource management a permanent learning process. From this perspective, he was interested in the relationship between individuals and firms. "... success on the market is still dependent on the ability to learn, however most people cannot learn." [Truneček, 2003]

The wide popularity of learning society concept was retrieved in year 1990 by Peter Senge with book *The Fifth Discipline*.

Innovation abilities of learning society by Peter Senge are in managing five approaches that can be defined as follows:

- systems thinking
- personal mastery
- mental models
- building shared vision
- team learning. [Senge, 1990]

Different views and approaches in the learning society concept can be summarized in the basic definition when learning society presents organization in which people can systematically develop their ability of creative thinking and actions as individuals and team members in which they learn together and learn to learn.

1.3 Learning society

According to Z. Palán the learning society is "... a society where it is ensured access to education without any discrimination, where people are motivated to education broadly, encouraged and supported by all public institutions and progress in study is certificated by society and recognized as a fundamental value. This philosophy has the basis in the individual's right to personal development and growth." [Palán, 2002]

Palán considers the learning society concept as an ideal state target for whose accomplishment its necessary to create a learning climate. Implementing learning climate suggest:

- have conspicuous

- developing human resources have to be part of strategic goal
- build monitoring mechanisms (continual monitoring and analyzing)
- motivated to cooperating all departments and staff
- requirements on service discuss with each worker
- creating a participative management system (interest employers in the managing and in business results) develop tools for evaluating the effectiveness of all parameters of corporate business development (cost, productivity, revenue, customer care, etc.)
- develop tools for evaluating the effectiveness of all parameters of corporate development (cost, productivity, revenue, customer care, etc.)
- regularly compare with the bets in the field

1.4 Internet community and knowledge sharing

With the internet development and its mass using people started to use the term internet of on-line community. Well-known promoter of the internet E. Dyson considered the on-line community as “specific complex, where people live, work and play” [Dyson, 2001]. It should be noted that very precise and unambiguous definition of virtual community, online community and so does not exist.

The term community was term used by social psychology for certain social groups types. Even in the sociology there is no exact and a clear definition of the term community. For example The Big sociological dictionary defines community as “social unit characterized by special type of social relations within and between members and also outside the specific position within the wider social environment.” [Velký sociologický slovník, 1996] The traditional concept of community was considered as an important future of spatial affiliation (local communities), in modern community where distance is no longer obstacle to social relation, is being considered as a sign of mental and affinity value.

The Dictionary of psychology community sees it as “... the broader natural community or a group of people in the certain area sharing common interests...” [Hartl, Hartlová, 2000]

In connection with the internet development it has become freely (particularly in publication) using the terms internet community, on-line community, virtual community, on-line network or social network without precisely defining their concept.

The literature focused on the effect on the functioning of the internet links and connections between people raises a whole series of efforts to define more specific futures characterizing the internet community. Prerequisite for inception community is the ability to meet four basic needs:

Common interest (brings together community members and defines themselves to the others)

Establish relationships (common experiences and opportunities)

Transactions (opportunity to exchange values)

Entertainment (in the meaning of emotional experience in addition to the rational utility) ...“ [Veselý, 2005]

According to E. Dyson, each community sets its own rules – formal and informal. Based on experiences with the community functioning on the internet we can come to the conclusion that there exist more general principles, however not following these rules while building the societies can lead to the failure to its demise.

These are the principles that should be followed:

- *“Each participant should have made clear what does s/he gives and what does s/he want to get. In the sum of requirements there should be complementary although it’s deferent for each of them.*
- *There should be also a way to distinguish who belongs to the community and who does not.*
- *Members of the community should feel that they have invested something to it. That’s why they would not desire to leave the community.*
- *In the major communities the absolute punishment is the banishment. Community rules must be clear and the violation might be punishment by a penalty...” [Dynos, 2001]*

Veselý, with reference to other authors, emphasizes an important feature of the community as follows: *“The community is common property which arose from the investment of its members. The more you are involved, the more you get from it.”* [Veselý, 2005]

According Preece is a virtual community composed from following parts:

- **people** (who tend to meet their needs and play a particular role)

- **shared purpose** (interests, needs, exchange information or services that give the community a sense)
- **rules** (in the form of assumptions, rituals and statutes, governing the behavior of the people)
- **computer systems** (support and supply social interaction)

Virtual community itself, of course, does not arise and does not work, someone has to take care of it. “Members must have somebody who solves issues, sets the tone, looks for sponsors and collects contributions. Someone has to maintain a database or other software for processing reports. Someone must deal with suppliers which communicate or support community and by the community interest must determine or change the rules. On-line communities are very various. Some operators of communities are successful and others unsuccessful. The members lay down “success” criterion by themselves based on how critical mass even from those that remain and those that leave. If community does not operate for the benefit of its members, no matter for who,, simply it cannot survive...” [Dyson, 2001]

So what do we have to deal with while building communities? Successful and living community does not arise during one day. To successfully build community is normally required to go through the following three phases, each lasting about month.

Phase 1 – Attract attention

In this phase, the most important is the rapid emergence – the community must be able to be fully operate in short-time period. It is necessary to get a potential member “inside system” – engage him/her and create a sense of belonging. Creating greater awareness about the community is as important as to obtain a partner for getting these members (must have a strong brand, distribution channels or unique content).

Phase 2 – Concentration of attention

This phase is about the increasing members’ involvement, broadening offering and value extraction (based on members’ profiles).

Phase 3 – Insurance of attention (lock)

At this phase is about to promote long-term active participation in community life. Typical features are the establishment and development personal relationships between members, content storage and organization formed by community members, add function of community (such as covering other thematic areas or crating sub community).

The function of online communities has not only social aspect. Allowing them work also requires technical basis, the maintenance and the development and some financial funds. The issue of the functioning servers' community including the search model for their economic operation is described on example Antoš. The form of community on today's internet is very diverse. If we take a key moment as sharing interests we find that in the internet case there is a really broad spectrum of interests – from hobbies and leisure time to exact scientific questions. So what really differs is the form in which communities exist on the internet. Generally we can distinguish communities on the internet between three types:

1 Chat and instant messaging services

The least formal community is instant messaging service. It is about the communication in real time on themes from entertainment and leisure which take place through the given website or specialized programs. Tentative “conversation” concerns such as movie, music and dating (for example <http://www.xchat.cz>).

2 Usenet

User forums are one of the oldest types communications in an environment of USENET (USER NETWORK acronym) which began to emerge in 1979. In contrast instant messaging services are precisely defined themes and contributions which are for the whole forum. The manic width is really varied - there are groups, sharing and exchanging information about repairs and maintenance work at home, as well as groups focused on linguistics, chemistry and information technology. Such a forum serves literally as a "marketplace of ideas" where a user enters the problem and others are trying to find a solution. The success of good solutions is high and it is no wonder that USENET won the respect in the various professional groups (e.g. IT).

3 specialized projects

The most valuable sources of information are generated by close cooperation of the community in specialized projects. Professional plan is usually implemented with the support of a sponsor that provides the necessary technical infrastructure (server, internet connection) and the resulting community of people who create its content.

The best-known catalog of community projects include the Open Directory (<http://dmoz.org>), Internet Encyclopedia (<http://wikipedia.org>), software projects (<http://sourceforge.net>), Czech literary or server that supports amateur art (<http://pismak.cz/>). Although that there exist different opinions about the Wikipedia, its mode of operation based on the involvement of a huge number of people showed the

power of information sharing and the word "WIKI" has become synonymous with sharing information and knowledge. Purposefully created online communities, or if we can say online networks, are now not only a tool for development and learning, but also they represent the solution of specialized problems, they become a tool of business. Don Tapscott says, and on many examples he tries to prove that more and more companies are coming out, that is better for them to seek new ideas and strategic advice outside their organization. Due to this fact they use a key instrument - *the second generation of Internet*, cooperation of its users, and open software. Tapscott names this new business phenomenon as the term "*wikinomika*".

For practical use of community, the work results based either for the purpose of solving specific problems or to share and develop knowledge about a certain issue, are important to be prepared (and technically reliably resolved) system for collecting, categorizing and structuring of common resources and information. A similar requirement is of course necessary for knowledge management in companies and institutions. In most cases, the systems for collection, management and use of thus obtained and shared knowledge are called knowledge databases.

2. Application of knowledge databases for human resources development and training

As it has been mentioned in the previous chapter on the various concepts of knowledge and understanding of concepts in terms of company information science theory and management theory, it will be like very similar with the notion of knowledge base, where are also reflected technological views.

Czech terminology database library and information science (TDKIV) defines the knowledge base (knowledge base) as an "expert system components, which are usually in a separate file or in multiple files containing explicitly expressed special knowledge representing the general system of rules (often in the form of heuristics) which could be used to solve the chosen problem. Creation of knowledge-base includes knowledge acquisition process, the selection of suitable artificial language for the encoding process and knowledge of representation. Knowledge is taken over by an expert, automatically derived from databases or indirectly derived from other knowledge". [Báze znalostí, 2012]

Other approach to the selected definitions is given by Sklenák. It is based on his interpretation of the concept of Knowledge Management, which distinguishes between the concepts of knowledge management and management of knowledge, which is not considered as a synonymous. Management of knowledge, in the concept of "knowledge management as an object, then the knowledge management, is primarily management in terms of management organization based on knowledge". [Sklenák, 2009]

The concept of knowledge-base is understood in the spirit of this concept and interpreted by "This term, that has a dual use, in simply speaking, depending on whether we are moving in the realm of knowledge management and knowledge management in the area:

- View oriented knowledge base that is used to store knowledge in a formalized form, i.e. suitable for following processing. This usually holds some form of concluding or derivation.....
- Knowledge Base (also called a base of knowledge) oriented on a person is used to store knowledge in a form which is then applied directly to the search. The concepts are often used as a supplement /resource for services such as helpdesk, or for sharing knowledge within the company. Usually it is the knowledge concerning the management of critical situations, or learning type materials, answers to frequently asked questions (favorite FAQ), instructions, manuals, etc. For orientation in the knowledge base there can be used some form of classification or a specific search engine". [Sklenák, 2009]

the knowledge database are also referred to different types of databases based on the systematic processing of articles, periodicals, statistical data, etc. as *ProQuest*, *PCI*, etc. Sometimes it also refers to a library database which is meant as companies selling database sites, libraries, research centers and universities that provide access to their own databases. The ERIC is considered as the largest "knowledge" database for educational purposes.

From the point of view of this thesis and the implementation database system for a particular system focused primarily on the development of human resources, it is the most concise concept of "*knowledge-base oriented to the man.*"

Instead of learning technologies in terms of concept learning society it can be represented in the following scheme.

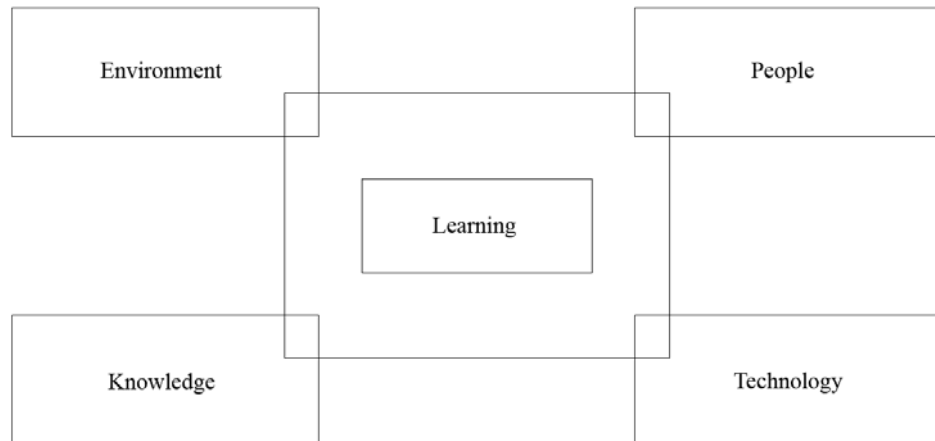


figure 1: *Location technologies in learning process in terms of a learning society*

2.1 Possibilities and limits of knowledge database for knowledge sharing and learning

In creating and using knowledge databases it can sometimes lead to the disappointment from their final effect. It is sometimes due to failure of meeting the basic principles to start up learning organization or community. The second moment is reevaluation of the possibility of information technology from a view of knowledge management.

Theory of knowledge management is used when working with knowledge of the basic data concepts, information and knowledge. In connection to these terms other terms like wisdom and enlightenment follow. Using data, information, knowledge, wisdom and enlightenment explains the intellectual potential of human, his/her ability to capture, understand and explain phenomena and situations that take place around him/her and the ability to feel empathy with the world, where s/he belongs.

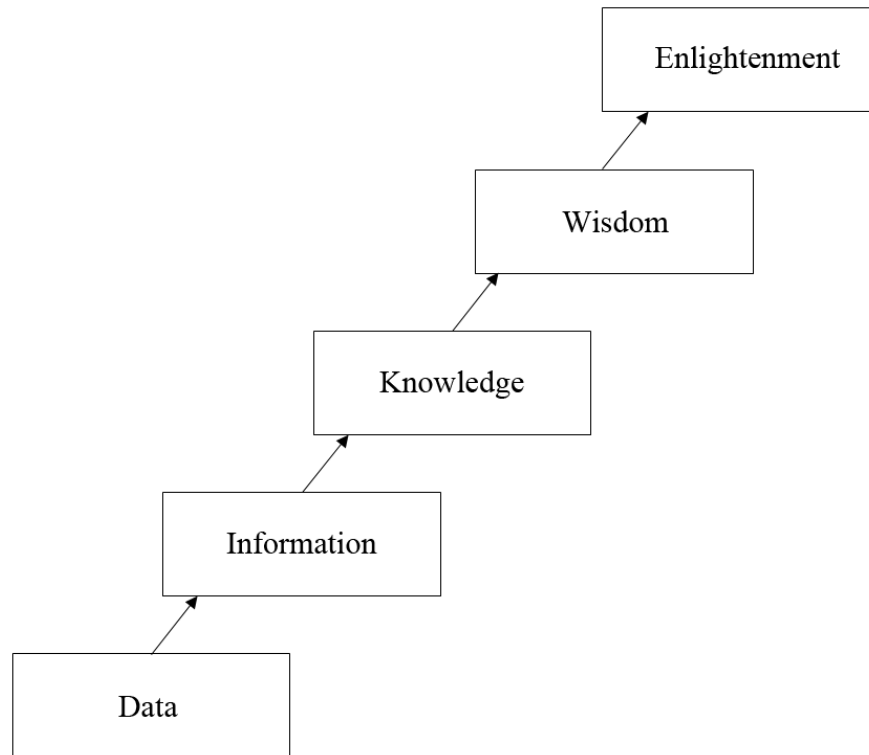


figure 2: *Basic categories of the knowledge management*

Data – that is all we can monitor with our senses, i.e. smell, taste, see and hear. These are objective facts about events or sequence of characters.

Information - data which the user assigns importance in the interpretation and meaning.

Knowledge - it is information plus, what information in the human brain interacts, i.e. previous knowledge of human, his/her skills, experience, mental images, relationships, values, principles by which we live, is what we believe, etc.

Each knowledge-element is consisted of two dimensions, the explicit and tacit dimension. "Explicit knowledge is information, so that we cannot work with it as with the information. Explicit knowledge can be formally expressed using the language, image, font, or digital recording of musical notation, formulas, specifications, instruction manuals. We can store it, transmit it without problems, and communicate among them but also to steal it. Explicit knowledge is stored in information systems. We can combine them together and create the new knowledge based on two new explicit knowledge elements. For example, accountants, who under the status of various accounts of the Organization, draws up financial statements by combining explicit knowledge ". [Mládková, 2005]

There are no big problems with organizing and storing explicit knowledge. According to explicit knowledge people can learn to work from an early age and current technology offers us a large amount of resources that our work with explicit knowledge makes much easier (computers, Internet, mobile phones, software for drawing/editing pictures, etc.). The situation is more complicated with organizing and storing tacit knowledge. "Tacit knowledge is a complex skill, experience, intuition, rules, principles, ideas and personal mental images of a particular person or group of people. It is created with physical, cultural and social conditions of their lives. Tacit knowledge is always connected with the activities, procedures, routines, ideas, ideas, values and emotions of a particular person or group. " [Mládková, 2006] Formally, it can be expressed only with great difficulty, some authors even believe that it is so tied to personality of its carrier and activities carried out, and during attempt to formalize, i.e. transcription in explicit form, that it could be destroyed it.

This division of knowledge explains why it is very difficult to convert part of the knowledge formalized system (knowledge base) and why is the knowledge base about to cover the whole breadth of knowledge collected over many years in the firm or generated and transmitted within certain areas of human activity. This is one of the restrictions that the knowledge base portal Andromedia has also experienced already.

3. Establishment and operation of the portal Andromedia, the reasons for creation, structure and operating principles

3.1 The reasons for the creation of Portal

According to the ideas of market mechanism it can be applied even to the education that the efficiency and quality of further education in the market economy are influenced by supply and demand. However this basic assumption in pure practice does not really work. As it's been revealed in the most recent analysis of the situation in the field of further education in the least developed countries and recently in our country "many educational institutions cannot afford to carry out extensive analytical and research activities either not invests in the development of new processes and methods. Therefore it is necessary for public funds to support initiatives and activities that would enable the development of this training. " [Mandíková, 2006]

The Association of Adult Education o.s. (AIVD) that serves as a voluntary association of educational institutions operates in the Czech Republic from the beginning of the 90's. This association seeks to improve the quality and effectiveness of adult education yet for a long time. As part of its activities it realizes also research carried out by occasional state of continuing education in the Czech Republic. The extended research realized in 2005 and similar research conducted among independent instructors of management of Association of trainers and consultants o.s. resulted in interesting findings:

- Educational institutions and independent instructors expect from professional associations or similar external organizations information and incentives for innovation of existing educational practices in the area of methodologies
- Need of information on innovative trends in adult education to be able to offer their adequate respond.

Next research, that AIVD o.s. realized among the Prague institutions of adult education in 2006, brought further detailed information describing the situation in the market for continuing professional education such as:

- 70 percent of institutions does not provide training methodologist, lecturers and consultants in the field of innovations in the adult education methodology
- 64 percent of institutions admit that they have no capacity and resources for researches, development and rapid application of new educational approaches, methods and technologies.

Adult education institutions see the concrete possibilities for improving access to the innovations in the adult education methodology:

- 82.3 percent of surveyed institutions in the creation of an information system about the new methods
- 70.6 percent of institutions in advisory and methodological assistance from AIVD
- 58.8 percent of institutions in increasing the supply of education lecturers and methodologists

[Krohe, 2006]

Based on these findings and other facts and comparison and experience in education and human resource development, the Association of Adult Education initiated, together

with other major institutions working in the field adult education training project of the Innovation Centre for the Development of continuing professional education (InCDV), "activities for coordinating the flow of information and activities to increase quality and innovative behavior in further professional education". (Request for financial support from the JPD 3, No. CZ.04.3.07/3.2.01.02). The most important part of InCDV was supposed to become the specialized portal called inspirational databank.

The basic idea of the project is actually very simple. If the reader generally respects the previously described concept of the knowledge society and as a major factor in the prosperity, those we consider as innovations, and so logically the innovation behavior must inevitably contribute to an innovative approach to education. After all, national innovation strategy takes as a precondition for the innovative development of identifying changes needed in systems of lifelong learning. Given that the concept of the Innovation Centre was relevant to the area operational support program JPD3 and fulfilled the requirements priorities. The development of lifelong learning and further education development measures were possible to apply for grant funds for implementation of this plan. According to the application for funding the content of project support areas was the establishment of system to support innovative research and development activities in the field of continuing professional education activities and fulfill in:

- the network creation and development for innovation and research in the area of continuing professional education
- analysis and evaluation of innovative potential of educators and other relevant organizations involved in the continuing professional education realization
- develop a cooperation model with selected institutions, associations and professionals in the development of innovation and research activities in the area of continuing professional education
- establishing an effective information system for the expansion of innovative activities and product research and further professional education
- best examples from practice and know-how transfers in the field of continuing professional education.

As long as it was possible to successfully to obtain financial resources the project implementation started in 2007.

3.2 The concept of the portal Andromedia

The concept of the project InCDV and in particular the portal Andromedia from the start was based on the principle of cooperation and exchange of shared experience and know-how transfer. The whole project is based on the concept of innovation as a creating something new and valuable, so in other words the skills that allow people's new ideas to turn into new products or services. From the perspective of further education the qualitative changes are in goals, contents, methods and forms that lead to increased efficiency of the educational process. However the important is that the innovation must go hand in hand with an emphasis on its quality.

“The areas with the greatest potential for innovation in further education are:

- forms and methods
- contents and goals
- diagnostic methods used in further professional education
- information (usage of information sources) „ [Palán 2006]

It is also important to realize that a support for pro-innovation behavior of educational institutions does not mean only to enhance the prestige of the institutions themselves, but also the education as an area, the growth of its prestige as a whole, and the fact that it also brings significant social effects.

While the concept concretization of innovation center in education was created, the research team attempted to define the most common problems of projects funded using grant money in order to prevent them beforehand. Among the generally weakest points of the grant projects and thus the potential weak points InCDV, including the portal, have been identified the following factors:

- lifetime of the projects is only defined for a certain period
- results can be used only to opponent project; they have no practical benefits
- investment of money and labor remains often without continuity

After long considerations and discussions, the prevailing view on the research team was to establish innovation center in such a way that the community could receive the professional tools that can be used in everyday practice. The core of the project has thus become an Internet portal, which contains information, which is attractive to the community serving in the adult education and also acts as an "*open forum*" for communication. The project work was summarized into three steps:

1. build the technical infrastructure (portal on the Internet)

2. involvement of professional community (identifying needs of the community and their reflection)
3. motivational program for sharing know-how (involvement of experts in the information sharing).

The contents of the Custom portal are divided into three sections. The most important part of the portal is a database of resource inspirational materials for the innovation in education. This database contains both comments and links to Internet resources, as well as their own texts of various methodologies and procedures related to adult education. This database was fulfilled by the project creators at the beginning of the project, but its further development was directed by the community model (see more detail. in chap. 1 of this thesis). The basic motto of access to the information in the database is the „*sharing knowledge*". This means not only to acquire requested materials, but also to share their own materials. This principle is treated also technically for the available know-how for everyone who joins. Everyone who loads his/her material in the database will automatically obtain the permission to download anyone else's material within the specified time period. Annotation and search for materials are available to all registered users of the portals. Due to various quality materials which are uploaded by registered users, all the documents before they are being added into the database, are reviewed and by reviewer's approval opinion and after that they are visible to public. This is done to ensure a supervision of quality levels of materials. This principle offers to use the Andromedia portal by teachers and students for andragogic and educational fields. Easily accessible source helps to students that study at distance and or to those that are part of combined study process in their seminar, bachelor or diploma thesis. On the other hand, the number of students in distance and in combined studies represents the people with rich experience and arising work in their studies far beyond the usual quality of daily attending student's work. For this type of work there are an inspirational databank opportunities and their publication can receive feedback from other colleagues in the field.

3.3 Portal functional requirements and files system

In order to meet the objectives of the project solvers the portal requirements of the structure and function were finally defined as follows:

General requirements for the Internet portal operating

- Possibility to generate dynamic pages
- User-friendly content management (preferred WYSWYG editor)
- Support for saving documents in other formats into the data warehouse (repository)
- User authentication
- Automatic control of links functionality

Management of the content

- content management system for publishing, editing and downloading news
- database management system / directory (checking links, checking duplicates, the form for entering documents, the possibility of mass data import)
- promote cooperation with data warehouse, FTP web interface, system for evidence documents - automated allocation of identification codes for documents
- user rights administration (administration registered users)
- the "credit system" (grant higher user rights) for active users

3.3.1 Publicly accessible part

Searching

- Full-text search (part of the text string, operators AND, OR, NOT). It is possible to consider free services including search engines (e.g. Google)
- Search limited to classification system for the databank (links and full texts of documents):
 - a) the combo-box - all subject categories offer (e.g. adult education) - indexation
 - b) limited by the category of searched keywords for each entry (document) - indexation

User Forum - Chat

- the possibility of publishing the various contributions
- a breakdown of contributions to the threads and themes
- Identification of contributors by IP addresses
- the possibility of entering new themes for registered users

Web-based library catalog UJAK

- the possibility to search through the catalog or other services depending on the used library system
- e-mail form with the possibility of sending a proposals to purchase a new book

3.3.2 Users' Part

Registration

- Automated user registration for access to users section. Based on the completing an registration form, the system sends an e-mail with password for enter to system
- Function of sending forgotten passwords (fill in control questions during registration)

Administration and addition of documents

- User-friendly adding files into databank
- "*Guiding*" to complete the record structure for inserting into databank (see below 4.3.2 Adding a new document database)
- The possibility of updating older documents
- registration of visitors documents (username, frequency of visits)
- Automatic data indexing: the title, author, subject category and keyword when inserting /changing document
- Send notification of new material to the administrator who subsequently assesses the material and than can be approved for publication

Other options

- Commentary to individual documents
- Creation of own discussion topics only in the users forum, which will not be available for non registered users

User rights

Except the category "system administrator" the creation has three categories of users:

- a) passive user - anyone registered in the system
- b) active user - active member, who adds his/her own materials
- c) the controller - a special category of active members, who can significantly influence the content and function of the whole portal.

The aim is to create motivational system that will support the creation of new documents (methodologies, case studies, etc.) by registered users. The more active users there will be, the more rights on the system will get access to the most valuable documents in the databank (methodology).

After the documents have been added, which will be approved by the administrator for publication, the contributor will receive time-limited access, during which s/he can view the most interesting materials. This option will be limited

(probably to one month) after the expiry of this period necessary to insert additional material and get access again. In the case of particularly active users the special category would be able to include them in so that they could have a special user rights for access to materials.

Databank - the records structure must contain

- **Name** - unique name of the document
- **Author** - name of the individual author / institution
- **Link address** - link to full text - the link to full text of the document to the users section / web
- **Annotation** - brief description of the document contents
- **Assignment to subject category** - the name of one subject category (automatic indexed)
- **Assign keywords** - author keywords that best describe the contents of the document (automatic indexed)

3.4 Create the organizing system of portal

An important question for each specialized portal is how well is designed the chosen system structure and the content of their organization. Under the conducted research of innovative potential one of the goals was to discover, which types of information from the field of further education institutions operates in the area of further education lack and to what extent they are willing to engage in activities based on the principles of sharing not only general information but also specific procedures, methodologies and materials. Project researcher tried to use a community principle already in the portal preparation. That is why during its realization there were more than ten large workshops and small discussion groups in which participated more than sixty Prague educational organizations. The important objective of these meetings was to determine the structure and the content requirements for portal areas and classification that would best suit to potential users. Despite some conceptual misunderstandings eventually managed, the results were finally derived in consensus on wide content focus which led to the proposed Information structure in the databank. The first level seven thematic areas were finally selected for the purpose of databanks:

1. Range of **Adult Education** - Includes strategic documents addressing the problems of adult education, research and analysis describing the status and trends in adult education, captured legal status of adult education.
2. Range of **Management methods and the organization in adult education** - focuses on approaches, methods of mapping documents preparation, conduct and evaluation of educational activities, including their classification in social context
3. Range of **Teaching methods in adult education** - is the area which gathers information showing the methodological diversity of adult education including various advice and recommendations for working with didactic technique.
4. Range of **Education and standards of lectors** - includes information on requirements for performance of the profession in the adult education, whether it is the standard which is defined by legislation and or by other norms
5. Range of **Education at a distance** - includes the issue of distance education and e-learning in terms of methods, organization and technology.
6. Range of **Consulting in the adult education** - summarizes consulting approaches and the methodology for different areas of the adult education
7. Range of **The reference resources** - brings the most important characteristics of dictionaries, encyclopedias and magazines for the adult education, whether in traditional form or available online.

According to each thematic area there will also be the possibility of placing examples of good practice.

4. Technologies used to create the databank

4.1 Relational Database

A relational database is based on the relational model. This term often denotes not only the database itself, but also its specific software solution. The term relational database was defined by Edgar F. Codd in 1970 in his article "A Relational Model of Data for Large Shared Data Banks".

The basis for relational database is database tables. The columns of these tables are called attributes or fields, and have determined its specific data type - domain. The lines in table are records. The line is cut through tables' columns and it can be used to store data. The specific table is a subset of the Cartesian product that realizes the potential of all data columns - relation. In addition, Dr. Codd defined 12 rules for other relational DBMS:

- Un-logged user
- Registered user - standard user
 - only contributes and has access to information
- Registered user - standard user
 - activated access to download full records, including the full texts of documents
- Registered user - reviewer
 - Unlike standard user also reviews the contributions
- Registered user - super reviewer
 - Unlike the reviewer may also add and edit terms in the dictionary
- Registered user - administrator
 - complete system administration, access to all functions.

4.2 Technologies used for create the

4.2.1 Relation database

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„1. Information rule

All information in a relational database is expressed explicitly in a single way of the logical level - by values in tables.

2. Certainty rule

All data in a relational database is guaranteed to be accessible in combination of table name with the values of primary key and name columns.

3. Systematic handling of null values

Zero values are fully supported in relational DBMS for representing information that is not defined independently on data type.

4. Dynamic online catalog based on the relational model

Description of the database is expressed at the logical level in the same way as customer data, so authorized users can apply the same relational language to their own query as the user when working with the given data.

5. Sublanguage extensive data

A relational system may support several languages and various modes used in the terminal operating. However, there has to be at least one command language with well-defined syntax, which supports extensively data definition, view definition, data manipulation both interactively and program, integrity limitations, authorized access to the database, transaction commands etc.

6. Rule of creation views

All views that are theoretically possible are also producible by the system.

7. The ability to insert, delete and creation

Ability to maintain relational rules for primary and secondary relationships are maintained not only by looking at the data, but also in the intersection operations, adding and deleting data.

8. Physical data independence

Application programs are independent on the physical data structure.

9. Logical data independence

Application programs are independent on changes in the logical structure of the database files.

10. Integrity independence

Integrity constraints must be given the means to define a relational database or its language and to be able to save in the catalog and not in the application program.

11. Independence distribution

Relational DBMS must be able to implement on the other computer architectures.

12. Database access rule

If a relational system has low-level language, then this level can be used to create integrity limitations and it is necessary to express a relational language of higher level.“ [Stephens, Plew, 2004]

4.2.2 Scripting programming language PHP

PHP programming language was created in 1996. Shortcut PHP originally meant Personal Home Page. Because since 1996, PHP has passed through major changes, now it is stated as the abbreviation of PHP Hypertext Preprocessor. PHP is a programming language that runs on the server side, the result of activity is transmitted only to the user. The principle of using PHP is similar to SSJS (Server Side JavaScript) and ASP (Active Server Pages). In contrast to them, however, the product is distributed as freeware - that means it is free of charge. Another advantage of PHP is its platform independence. PHP are now available for UNIX version and also for Windows. PHP is not tied to any particular server and it can run on any server, anyway as the best connection is usually labeled the Apache server.

Benefits of PHP

- PHP is orientated in website
- Multiplatform (especially Linux, Windows)
- Supported by the hosting services - PHP is a de facto standard that can be found everywhere
- Good quality of documentation
- Excellent, very freedom license - freer than GPL
- Large number of projects and codes which are free to use (WordPress, phpBB, etc.)

Disadvantages of PHP

- inconsistent naming of functions and non-uniform order parameters
- PHP is never defined, there is only described its implementation
- After processing the request it does not keep application context, it always creates it again
- although the language perfectly supports exceptions, the library is rarely used

4.2.3 MySQL database system

MySQL database system was created by Swedish company MySQL AB. It is considered as pioneer of successful dual licensing. It is possible to use MySQL free of charge via GPL license but also under a commercial paid license. MySQL is a database platform that communicates with the SQL language. It is popular for easy implementation (we can install it on Linux, MS Windows, as well on other operating systems).

„Why choose MySQL?

If we are looking for a relatively inexpensive system for management of relational databases, there exist a few of them: MySQL, PostgreSQL, freely available, but unsupported machines commercial dealers, etc. If one compares the MySQL to other database systems, then s/he might think about what is most important, whether it is performance, technical assistance, capacity (compatibility to SQL, extension, etc.), license conditions and limitations and also price. These are all factors to be taken into

account. With these considerations one will find that the MySQL has many attractive features:“ [DuBois, 2003]

- Speed
- Easy usage
- Capability
- Connections and security
- Transferability
- Small size
- Availability and price

Freely available items MySQL is the ideal candidate if someone decides for any database system. You can try it without spending any money. Even its installation and configuration takes less time than that of many other systems.

4.3 Composition and navigation structure of the portal

4.3.1 User roles

Category 1: User

For using this type of account is not necessary to register.

Permissions:

- Searching in the list of documents and access to their annotations
- Viewing of selected full-text documents in the DEMO section and download their attachments
- Access to andragogic dictionary
- Communication with professionals through discussion forums

Category 2: Registered User

A user who wants to have permission to use these following databank functions must first register using the registration form. On the applicant provided e-mail address will come authorization e-mail with registration data, which must be confirmed for the successful registration and activating new user's account.

Permissions:

- Searching in the list of documents and access to their annotations

- Viewing of selected full-text documents in the DEMO section and download their attachments
- Access to andragogic dictionary
- Communication with professionals through discussion forums
- Browse all full-text documents (but can not open or download attached documents)
- Entering contributions into discussion groups
- Inserting own contributions , documents
- After approval of the new contribution access to all documents in the database

Category 3: Reviewer

Registered user as a reviewer becomes an Andromedia.cz team member. Is necessary to have agreement from administrator of the databank for become on this position.

Permissions:

- Searching in the list of documents and access to their annotations
- Viewing of selected full-text documents in the DEMO section and download their attachments
- Access to andragogic dictionary
- Communication with professionals through discussion forums
- Browse all full-text documents (but cannot open or download attached documents)
- Entering contributions into discussion groups
- Inserting own contributions , documents
- After approval of the new contribution access to all documents in the database
- Writing and inserting news
- Is authorized to approve documents which waits to be included in database
- Ability to edit assigned contributions and make them changes.

Category 4: Super Reviewer

This user rights category is reserved for selected experts.

Permissions:

- Searching in the list of documents and access to their annotations
- Viewing of selected full-text documents in the DEMO section and download their attachments
- Access to andragogic dictionary
- Communication with professionals through discussion forums
- Browse all full-text documents (but cannot open or download attached documents)
- Entering contributions into discussion groups
- Inserting own contributions , documents
- After approval of the new contribution access to all documents in the database
- Writing and inserting news
- Is authorized to approve documents which waits to be included in database
- Ability to edit assigned contributions and make them changes.
- Ability to design and edit entry in the andragogic dictionary

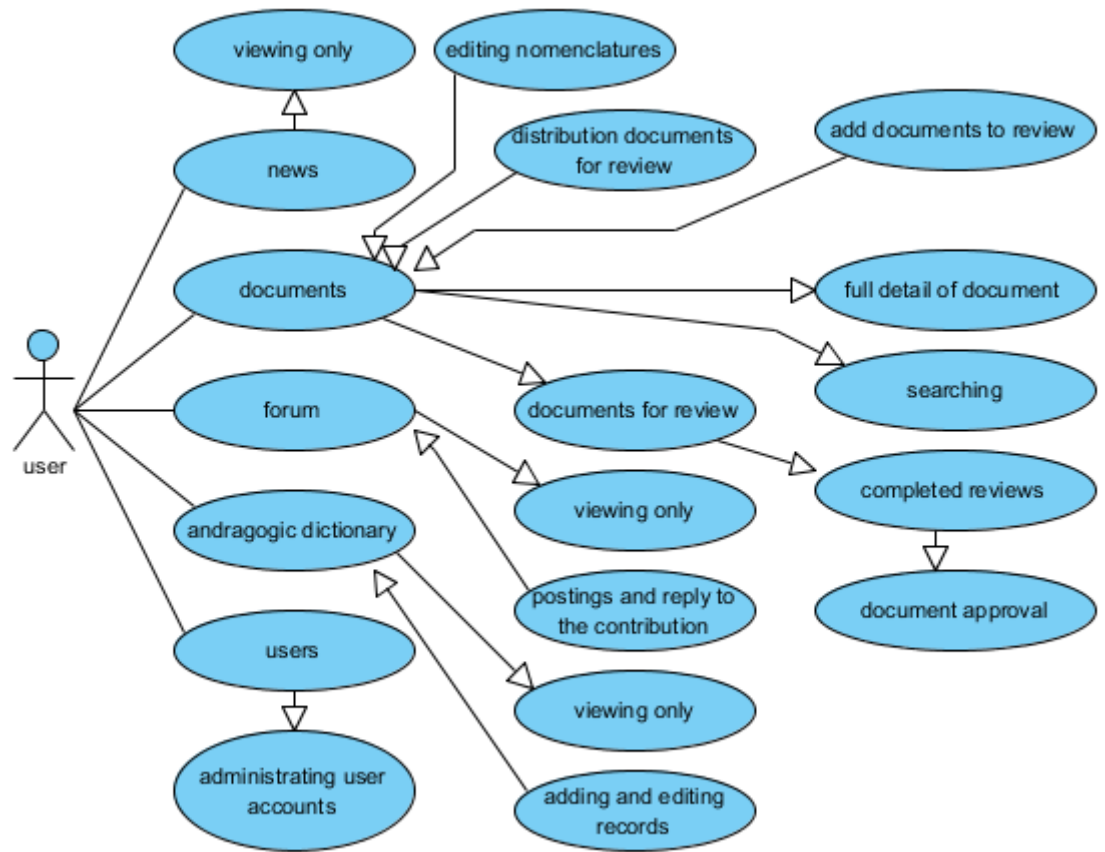


Figure 3: *Diagram of all functions available for registered users of the portal Andromedia*

4.3.2 Adding new document to databank

Registered users can contribute new documents to databank. When user successfully add new document using the form for new documents, document is waiting for assign reviewer by administrator for review.

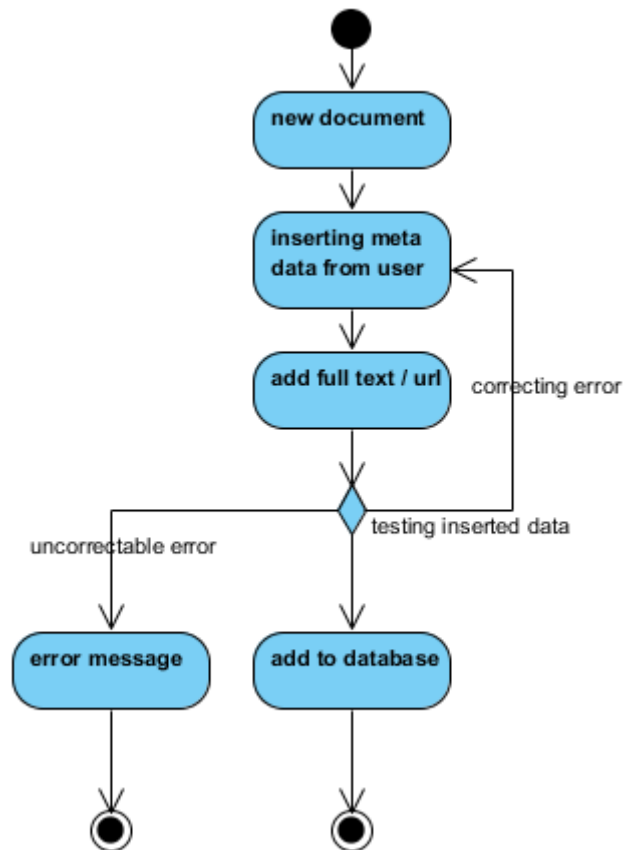


Figure 4: Activity diagram of adding new document

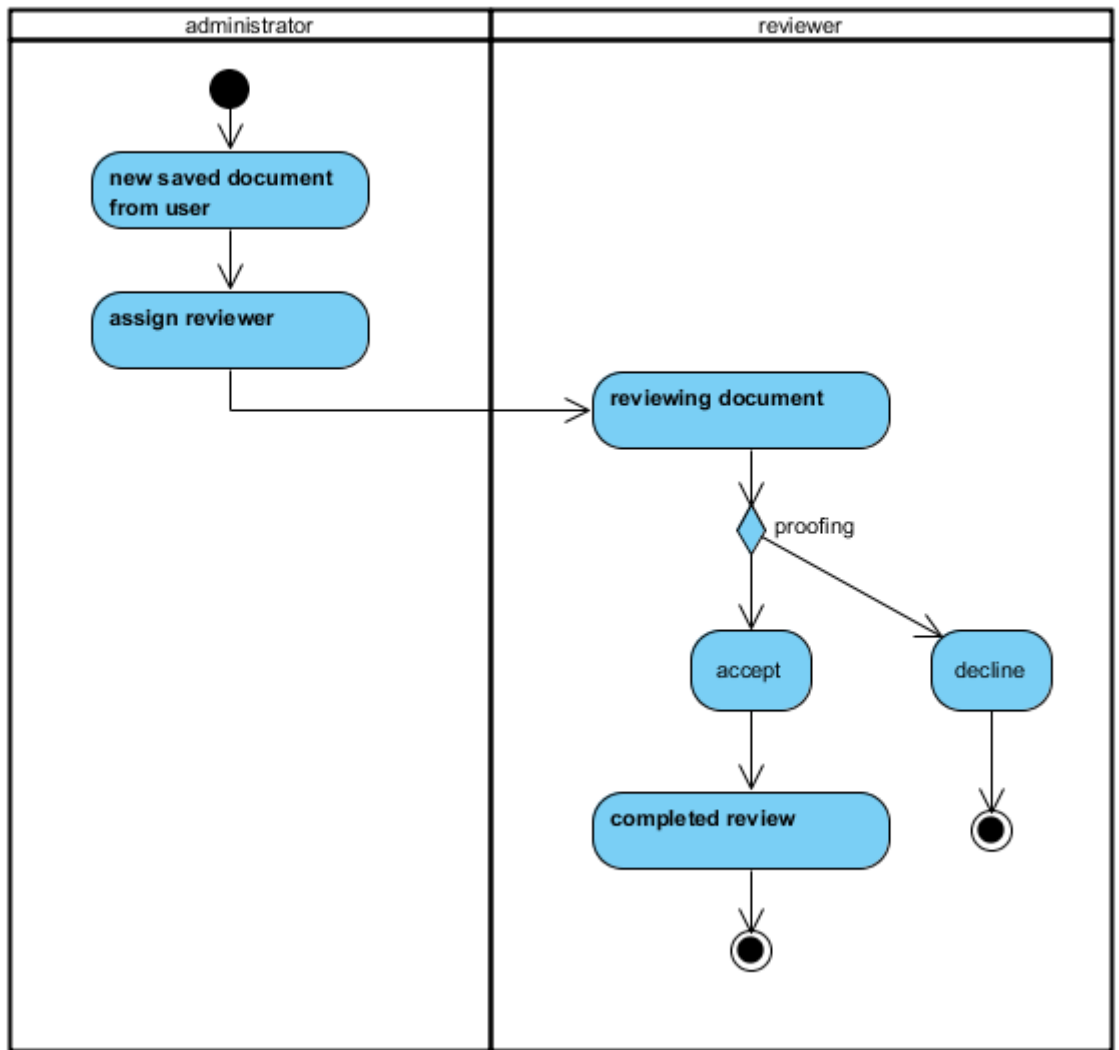


Figure 5: *Activity diagram of completing review*

After completing review of new document by reviewer administrator finish adding process of new document by making document visible in databank list for all users or makes document hidden in database. User who contributed new document received time limited period for downloading full details document from databank and will be aware of this fact by email.

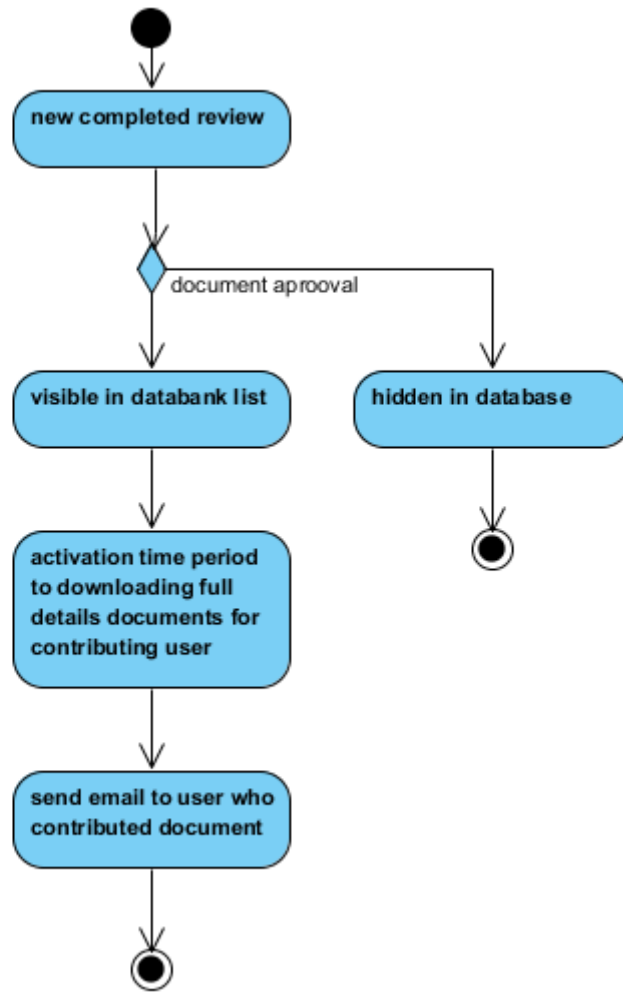


Figure 6: *Activity diagram of document approval*

4.3.3 Portal layout

The portal structure is divided into three main parts:

- portal header
- navigation menu
- portal active page part

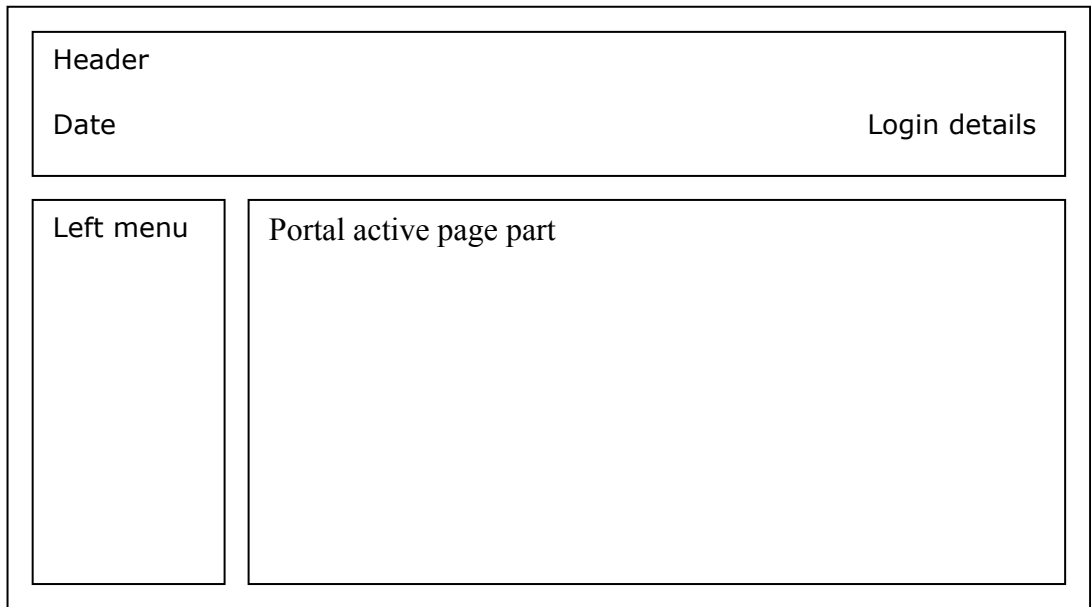


Figure 7: *Site Layout Design*

The following diagrams show the menu items for different user roles and their appropriate files stored on the FTP (File Transfare Protocol) server.

The left menu structure for unlogged user

User – menu items	ID form / page
Registration	registration
Login into system	login
News	news
Discussion forum	forum
Searching in information resources	(non active text)
Bibliographic database VD	list_bib_datab
Andragogic dictionary	dictionary
UJAK library catalog	catalog_ujak

Table 1: *Menu items for unlogged user*

The left menu structure for logged user – standard user

User – menu items	ID form / page
Logout from system	logout
News	news
Discussion forum	forum
Searching in information resources	(non active text)
Bibliographic database VD	list_bib_datab
Andragogic dictionary	dictionary
UJAK library catalog	catalog_ujak
Add document	(no active text)
Bibliographic database VD	add_bib_datab

Table 2: *Menu items for logged user – standard user*

The left menu structure for logged user – reviewer

User – menu items	ID form / page
Logout from system	logout
News	news
Discussion forum	forum
Searching in information resources	(non active text)
Bibliographic database VD	list_bib_datab
Andragogic dictionary	dictionary
UJAK library catalog	catalog_ujak
Add document	(no active text)
Bibliographic database VD	add_bib_datab
My documents for review	for_review

Table 3: *Menu items for lodged user – reviewer*

The left menu structure for logged user – super reviewer

User – menu items	ID form / page
Logout from system	logout
News	news
Discussion forum	forum
Searching in information resources	(non active text)
Bibliographic database VD	list_bib_datab
Andragogic dictionary	dictionary
UJAK library catalog	catalog_ujak
Add document	(no active text)
Bibliographic database VD	add_bib_datab
My documents for review	for_review

Table 4: *Menu items for logged user – super reviewer*

The left menu structure for logged user – administrator

User – menu items	ID form / page
Logout from system	logout
News	news
Discussion forum	forum
Searching in information resources	(non active text)
Bibliographic database VD	list_bib_datab
Andragogic dictionary	dictionary
UJAK library catalog	catalog_ujak
Add document	(no active text)
Bibliographic database VD	add_bib_datab
Andragogic dictionary	add_dictionary
User list	list_user
New documents allocation to the review	doc_allocation

Table 5: *Menu items for logged user – administrator*

4.3.4 Design of screens - graphic form

User roles for screens

Role label	User role description
-	- anyone
U	- logged registered user
T	- time limited access, during this period can download materials, including U
R	- reviewer, including T - without time limitations
SR	- super reviewer, including R and T - without time limitations
A	- administrator, including S, SR and T - without time limitations

List screens and determine roles

Role label	Screens
-	Logging page
-	User registration
-	Document list
-	Limited document detail type "annotation; file list ", visible only annotations and file names
-	Limited document detail type "annotation; file list; url link", visible only annotations and file names and links to web source
U	Adding document for review
U	File upload to added document for review
-	Forum – contributions list
U	Forum – new contribution / reply to contribution
-	Forum – contribution viewig
-	News list
-	Andragogic dictionary - a list of words. Offsets by clicking on the letter
-	Andragogic dictionary – word detail

SR	Andragogic dictionary – new word / edit
T	Full document detail type "annotation; file list ", with list of downloadable files
T	Full document detail type "annotation; file list; url link"
R	List of documents for review
R	Completion of review
A	List of users
A	Edit / new user
A	Nomenclature category - edit
A	List of news
A	Edit / new news
A	Distribution of documents to reviews

4.3.5 Ordering documents system

Category name	Consultancy in Further Education
Short description	Topics related to all aspects of advice on the issue of further education
Connected category	<p>Consulting in firms <i>Description of content</i> <i>It contains information regarding the counseling activities associated with the implementation and development of education in firms</i></p> <p>Consulting for the unemployed <i>Description of content</i> <i>It contains procedures and methodologies aimed at developing the unemployed to provide them with employment opportunities, ie all consulting activities leading to employability, including methodologies, processes and various tools for guidance practitioners in this area</i></p> <p>Consulting on universities <i>Description of content</i> <i>It contains procedures and information used for counseling the orientation of university students in further education</i></p> <p>Forms a methods consulting work <i>Description of content</i> <i>It contains general procedures for the advice on further education, including information on further education consultants.</i></p>

Table showing the ordering documents system is merely a sample. The whole ordering system is in Appendix No. 1

4.3.6 Database design

Table access_counter

Colum	Data type	Default value
access_count	integer	not null

Access user account

Table user

Colum	Data type	Default value
id_user	integer	not null,
password	varchar(100)	not null,
user_role	integer	not null,
name	varchar(100)	not null,
surname	varchar(100)	not null,
email	varchar(100)	not null,
student	integer	not null,
worker	integer	not null,
adult_education	integer	not null,
lector	integer	not null,
human_resources	integer	not null,
techer_hs	integer	not null,
teacher_us	integer	not null,
other	varchar(255)	null,
sources_accessible_till	datetime	null
primary key (id_user)		

Detail of table entries:

- role
A distinction is made only when a user logs into the system
1 ... standard user
2 ... reviewer
3 ... super reviewer
10 ... administrator
- sources_accessible_till
If registered user add new document and reviewer proof it, in this moment this variable has value [actual date + X days (X will be defined later)] and user will receive information email. Till this date expiration user has granted time limited access to full documents records in the databank. This field is used only if user_role = 1.
- student, worker, adult education, lector, human resources, teacher hs, teacher us
will be filled by boolean 1/0 as number

Records users logins in the system

Table access_log

Colum	Data type	Default value
id_access	integer	not null,
id_user	integer	not null,
login_time	datetime	not null,
ip_address	varchar(20)	not null,
primary key(id_access) foreign key (id_user) referencing to tab. user		

Forum

Table theme

Colum	Data type	Default value
id_theme	integer	not null,
id_user	integer	not null,
theme		
primary key(id_access) foreign key (id_user) referencing to tab. user		

Table contribution

Colum	Data type	Default value
id_contribution	integer	not null,
id_theme	integer	null,
id_document	integer	null,
id_user	integer	not null,
type	integer	not null,
title	varchar(100)	not null,
text	text	not null,
level	integer	null,
id_up_cont	integer	null,
primary key(id_contribution), foreign key(id_theme) referencing to tab. theme foreign key(id_document) referencing to tab. document foreign key (id_user) referencing to tab. user		

Detail of table entries:

- type
Is used for distinguish the individual use of forum.
1 ... standard forum
2 ... discussion for the document

3 ... discussion for the entry from the andragogic dictionary

- level
For the main topic level posts is on level = 1. Reaction to a specific post is level = level +1.
- id_up_cont
If level is bigger than 1 than id_up_cont is equal to id_contribution of the post where is this contribution replaying.
- id_user
Is user ID who entered the contribution. Discus can only register users.

News

Table news

Colum	Data type	Default value
id_news	integer	not null,
title	varchar(100)	not null,
text	text	not null,
date_from	datetime	not null,
date_till	datetime	not null,
date_create	datetime	not null,
primary key(id_news),		

Detail of table entries:

- date_from
Date from news should be visible
- date_till
Date when news should be hidden
- date_create
Date when news was inserted

Andragogic dictionary

Table dictionary

Colum	Data type	Default value
id_word	integer	not null,
word	varchar(100)	not null,
first_letter	varchar(1)	not null,
text	text	not null,
date_create	datetime	not null,
date_edit	datetime	null,
id_user_create	integer	not null,
id_user_edit	integer	null,
primary ket(id_word), foreign key (id_user_create) referencing to tab. user foreign key (id_user_edit) referencing to tab. user		

Detail of table entries:

- first_letter
When you save the password here will automatically save the first letter of the name converted to uppercase
- id_user_create
ID of user who entered the word
- id_user_edit
ID of user who last edited the word

If super-reviewer A enter the word, super-reviewer B the word cannot change it. It can only be changed from the administrator (in case of dispute, super-reviewers make agree with administrator and he will change it).

Documents and their files

Table document

Colum	Data type	Default value
id_document	integer	not null,
id_category	integer	not null,
type	integer	not null,
active	integer	not null,
proved	integer	null,
id_reviewer	integer	null,
title	varchar(255)	not null,
annotation	text	not null,
fulltext	text	not null,
date_create	datetime	not null,
date_edit	datetime	null,
id_user_create	integer	not null,
primary key(id_document), foreign key (id_user_create) referencing to tab. user foreign key (id_user_reviewer) referencing to tab. user		

Here can make changes only the user who inserted the document or the administrator.

Detail of table entries:

- id_category
ID of the category to which the document is classified
- active
1 ... the link is on the website active
0 ... the link is not on the website active (it can be find by automatic detection control 4xx and 5xx error pages or manually by admin. In both cases result inactive has to be set by admin.
Default value is for the new record 1.
- proved
0 ... waiting for proving from reviewer – not published in databank
1 ... reviewer proved document – is published in databank
2 ... reviewer declined document – is not published in databank

- type
1 ... "annotation; file list; full text"
Full text. In this case, searching for text is in the column "full text" in the table "document"
2 ... "annotation; file list; url link"
Link to a web resource. In this case, the up to date document control is applying. This feature is available to administrator. In case that is not active, administrator can set the "active" to 0 and the source appears to be out of date or it will start to be invisible and only administrator can see it.
- id_user_create
ID user who posted the document. Document can be edit by this user only.

Table category

Colum	Data type	Default value
id_category	integer	not null,
main_category	varchar(200)	not null,
detail_category	varchar(200)	not null,
primary key(id_category)		

Table file

Colum	Data type	Default value
id_file	integer	not null,
id_document	integer	not null,
title	varchar(255)	not null,
anotation	text	not null,
path	varchar(255)	not null,
date_create	datetime	not null,
date_edit	datetime	not null,
primary key(id_file), foreign key(id_document) referencing to tab. document		

Files already attached to the document cannot be deleted, just upload the new updated version of the file.

Detail of table entries:

- id_document
ID of the document to which the file belongs

- path
Relative path to the file system application to where is saved the document.

Document review

Table review

Colum	Data type	Default value
id_review	integer	not null,
id_document	integer	not null,
date_review	datetime	not null,
id_user_review	integer	not null,
text_review	text	not null,
primary key(id_review), foreign key(id_document) referencing to tab. document		

Detail of table entries:

- id_user_review
ID user who made the review

After looking at review the administrator approve the publication = flag "approved" is set in the table "document".

Conclusion

The described solution of the Andromedia portal had been gradually created during year 2006 and since April 2007 was initiated its use. Experience with its operation can be divided into two main stages. The first phase finished in 2007, when the public funds support was brought to the end. The second stage has been fully functioning from January 2008 until now.

In the first stage of the project a professional team worked with the exactly assigned roles and tasks. Then the project was popularized (articles, leaflets, posters) and ran a direct communication with the target group to create a professional community. Despite the proclaimed interest and willingness to share information with other peers already at this stage, there appeared some restraint guided by fear "not to offer more than I could get". An interesting phenomenon is overestimating the value of their own knowledge and practices in comparison with others. (Paradoxical example of the whole concern was to provide into the database "unique" activity for practice group problem solving. After it had been reviewed it showed that this activity was not only generally known, but in several versions in Czech they were published on the Internet.) However, based on promotion and communication, there has been created a small community progressively fulfilling the part of the portal knowledge base. During analyzing the behavior of site visitors www.andromedia.cz, it showed that most visitors were using parts of the site which did not require registration, especially andragogic dictionary, eventually they downloaded freely accessible examples of methodological materials. Visitors often increase access to the databank during the exam period at the universities.

Another group of participants represents registered users. They usually try to get to the other materials, but they rarely become active contributors. Even if the database yet during the year 2007 contained a large amount of high quality and elsewhere unpublished methodological materials (approximately 4 500 standard pages) this work would result in relatively small community (about 20 contributors). While evaluating this phase with regard to today's experiences we can say that the main weakness was the underestimation of the role of community moderator (animator), whose role is to motivate them to higher involvement in the community operations, to communicate with contributors, to encourage active participation in discussion forums, etc. Given the fact that adult education in our country is largely carried out by commercial operators

and highly competitive environment, therefore it is unable to create an atmosphere of trust for important community projects.

The second stage occurs at the end of financing from public funds. As with majority of projects, despite the commitment to sustainability and concluded contracts in this spirit, some partners immediately lose interest in further activities. Andromedia now fully operates on the basis of volunteer work, either in terms of content as well as in technical maintenance. Currently updated section is nowadays used widely. The publication of contribution occurs three to five posts per month in the main database. In the databanks surroundings there has been created a small group of professionals from the sector who keep it and use it together. However any efforts to create a wider professional community are still unsuccessful.

At present the project has functional solutions, which should be optimized for search engines, thereby ensuring better accessibility of the content databank via a web search portals.

The databank contains methodological quality materials and a small group of contributors. The most problematic issue seems to be the unwillingness of the methodologists and teachers to share their knowledge and to inspire the others towards the progress in their field.

Given the permanent updating, the existing knowledge base and the timely acquisition of new information represent the foundation of effective practice, along with creating new ideas and sharing experiences determines present portal administrator of Association of Adult Education in order to continue in operating the databank and to try to mobilize its membership base to more intensive use of the possibilities of this portal.

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List of attachments

Attachment no. 1: Ordering system (tables)

Attachments

Attachment no. 1: Ordering system

Category name	Adult Education
Short description	Topics related to the broader context of adult education in the CR and other countries.
Connected category	Strategic documents <i>Description of content</i> The fundamental documents of strategic character of the area significantly affecting the AE. Includes documents multinational type Memorandum on Lifelong Learning documents and national character of the "Human Resources Development Strategy CR". Research and analysis <i>Description of content</i> All information and documents from research, surveys and analyzes showing the relationship of people to education, trends in education and training needs in the CR and other countries, for example. Educations survey in accredited institutions MŠMT also the survey. Ministry further research in Europe projects, research UIV NUOV, ČSÚ, etc. on the AE Law in EA <i>Description of content</i> Provides information on legislative standards of AE in the CR and other countries and other information related to this issue as the interpretation of legislation, binding on the tax system, etc.in Education of specific groups <i>Description of content</i> All of the training focused on individual areas of AE. such as adult education in schools, further professional training civic education, leisure education, skill training, requalification training, normative education. It also includes information on business education, education for specific groups such as senior education, ed. nation of minorities, immigrants, graduates, physically and mentally handicapped, working in over 50, etc.. Examples of good practice

Category name	<p>Methods of management and organization of AE</p>
Short description	<p>Topics related to the preparation, implementation and evaluation of training and workouts.</p>
Connected category	<p>Preparation an organization <i>Description of content</i> The issue of preparation, planning education, etc. For example in Methods of Analysis ed. needs (including, Development centers, personnel audit) procedures for project creation ed. programs, including information on accreditation include examples of "model" programs, courses and seminars</p> <p>Realization <i>Description of content</i> Everything that relates to the training, support materials, including ... (such as scripts and tools for participants, support materials, teacher-slide, etc.) A description of what it means to the realization of the educational process.</p> <p>Evaluating the effectiveness of education <i>Description of content</i> Everything what is about how the survey results and effectiveness of ed. activities. For example in different methodology, evaluation questionnaires, research methods, models, assessment centers - AC / DC</p> <p>System mechanisms <i>Description of content</i> Everything related to systemic measures of AE. For example in information systems (information for the supply and demand, ie, inf. of ed. projects, institutions, programs) and guidance systems (balance diagnostics, career counseling) and services Methods of financing in Systems on the quality of AE. (institutions, programs and lecturers) - especially in terms of comparison of requirements and standards of individual countries, links to legislation. The links between elements of AE.</p> <p>Examples of good practice</p>

Category name	Teaching Methods in AE
Short description	Specific methods and methodologies in adult education. This includes teaching methods. This area is fairly widely understood in
Connected category	<p>Basic methods <i>Description of content</i> This subcategory includes basic educational methods such as: interactive interpretation, group work, complementing the text. model situations, case studies, video training, etc.</p> <p>Activity methods <i>Description of content</i> Specific activation methods such as: individual, dialogue and group activities - such as brainstorming,</p> <p>Innovation methods <i>Description of content</i> Newly used methods such as: the use of coaching in the development and working Browse education., Mentoring, motivational workshop</p> <p>Working with didactic technique <i>Description of content</i> Practical tips for working with didactic techniques such as advice on how to behave when communication problems data projector NB, principles for working with the moderation board, etc.</p> <p>Examples of good practice</p>

Category name	Education and standards of educators
Short description	Includes all the information related to education experts in AE. This is qualifying requirements, courses, publications ...
Connected category	<p>Training managers <i>Description of content</i> Everything related to education managers ed.. That is, different courses and publications from the organization and management of educational support such certif. course AIVD,</p> <p>The development of teachers and educators <i>Description of content</i> Everything that concerns the development of teaching skills of the individual. Information about courses, qualification requirements, certifications, trainers etc For example. courses and certification AIVD and ATKM, systems, training of trainers in other countries</p> <p>Certification ed. institutions <i>Description of content</i> All certification schemes for specific ed. institutions such as ISO Qfor, EFQM, professional certification AIVD, outputs of the project quality system in AE, etc.</p> <p>Lectors Certification <i>Description of content</i> It provides information on the certification of teachers in the CR and abroad. Requirements, preparation for cert. - Type of diploma or certificate.</p> <p>Examples of good practice</p>

Category name **Education at a distance**

Short description Topics related to the preparation, implementation and evaluation of distance education...

Connected category

Distance learning

Description of content

It contains information regarding the nature and development of distance learning, distance learning approaches, principles for the creation of study materials in distance learning, demonstrations of study materials, etc.

e-Learning

Description of content

It contains information regarding the nature of e-learning., approaches to the creation of courses, organization and management studies etc.. links to freely available e-courses or parts thereof, essential information technology (IT Companies not advertising).

Combined learning and multimedia technology

Description of content

The content of information about the nature of comb Browse education, examples of combined ed. programs
The reasons for using this form educations. Using information technology in a combined study.

Examples of good practice

Category name	Consultancy in Further Education
Short description	Topics related to all aspects of advice on the issue of further education
Connected category	<p>Consulting in firms <i>Description of content</i> It contains information regarding the counseling activities associated with the implementation and development of education in firms</p> <p>Consulting for the unemployed <i>Description of content</i> It contains procedures and methodologies aimed at developing the unemployed to provide them with employment opportunities, ie all consulting activities leading to employability, including methodologies, processes and various tools for guidance practitioners in this area</p> <p>Consulting on universities <i>Description of content</i> It contains procedures and information used for counseling the orientation of university students in further education</p> <p>Forms a methods consulting work <i>Description of content</i> It contains general procedures for the advice on further education including information on further education consultants.</p>

Category name **Reference (information) sources**

Short description

Connected
category

Dictionaries

Description of content

Encyclopedia

Description of content

Magazines

Description of content

Internet

Description of content