Education Methodology Based on Gamification Principles

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Abstract:
The aim of the work is to present education methodology based on knowledge management, which offers individuals professionally oriented knowledge with the emphasis on time optimization during their achieving. The methodology takes into consideration individuality of the student and develops his tacit and explicit knowledge. Although it is designed for teaching foreign languages, it can also be used in other areas of education, e.g. company courses focused on increasing of internal motivation of employees, improving negotiation skills of sellers, creation of an unforgettable presentation, effective management of meetings, inspiring team leaders, and the like. The target group consists of managers and working adults who need to learn a foreign language or gain other professional knowledge and for whom the standard forms of education represent a burden or inefficiency mainly from the time point of view. It we want the managers and employees to be interested in lifelong education, it is necessary to evoke their inner motivation. This can be stimulated by offering them clear, functional and specific procedures to achieve the set target (in our case to gain knowledge) quickly and with joy. To achieve the stated, we use tools such as mind maps, neurolinguistic programming and gamification. By repeating the functional procedure and subsequent fulfilling of educational aims, students gain the ability to learn how to learn, their interest in lifelong education grows, and that gives them a competitive advantage and important function as knowledge workers. We have elaborated our education methodology based on knowledge management principles and created a specific procedure. The procedure consists of seven steps which will be described in detail. By using our methodology, the company gets a specific procedure of preparation, execution and training examination.

Keywords:
Education methodology, mind maps, gamifying, neurolinguistic programming, knowledge.

1 Introduction

According to Burzan (2013) [1], eras developed in the course of time in the following order: the agricultural era, the industrial, informational, knowledge eras; and at present we live in the era of intelligence. At present the biggest importance lies in development of intellectual capital and innovations; therefore, we can call the current century the century of brain. Thinking is brought to the fore, and it is not only thinking about information and knowledge, but also thinking about thinking. Such a thinking process on the consciously controlled level is typical for people who are able to seek creative solutions of problems, add value, innovate and set new trends. Success of companies depends on successful people. Therefore, people, bearers of knowledge, represent a competitive advantage. Since we live in turbulent environment, the ability to gain and share knowledge is a crucial quality of managers and employees, provided that they can learn faster than their competitors.

In this work, we focus on searching for methods to enhance efficiency and optimization of time in learning, working and doing business. The target group is comprised of businessmen, managers and their employees. We are aware of the necessity to transfer daily large amounts of information into something that makes sense. For this exact step, we need to know ourselves better, to know how to use the human brain for learning and creative thinking. Therefore, in our thesis, we use tools such as mind maps, neurolinguistic programming and a serious-playful tool called gamification. We propose a methodology which we have tested in practice on students who learn a foreign language – the English language. However, our aim is to apply this methodology not only to foreign language education, but also to other specialized courses based on real needs of companies.

Changes in approaches to learning and teaching are connected to scientific findings in the field of brain, and therefore, we classify the proposed method of education under the term "neuro-education" [4]. The human brain is the biggest source of wealth in the world; the problem with it is the same as with solar energy, i.e. the problem is not in the lack of sources but in incorrect manipulation with something that is in fact inexhaustible [2]. It is only necessary to learn to work with knowledge, to know how to store it and create it, how to solve problems creatively, and how to think intelligently about available information. We direct our research activity this way.

2 Education Methodology

2.1 Selection of tools for Education Methodology

As the first tool, we introduce the tool called gamification. The whole Education Methodology is based on this tool. The term gamification can be characterised as using gaming elements in a non-gaming environment [9]. We all prefer to play than to learn seriously. Therefore, the process of education which students perceive as a game can capture their attention and interest for a longer time than standard teaching. Gamification in education is a return to the ideas of J. A. Comenius' "learning via game" [5]. However, its use is also very efficient in business, i.e. as game methodology for either solving various problems in the company or enhancing motivation of employees, efficiency, better sale results, and the like. Supporting the development of students´ autonomy leads to increase of their interest, creativity, and independence. Internal motivation of students and employees is the most efficient driving force and it is long-lasting. The way of gaining new knowledge is crucial since gamification causes that students and employees gain new knowledge fast and with joy.

The second tool which is being introduced is called mind maps. It is the prominent tool of our Education Methodology. Mind maps are a visual tool in thinking which helps to create new approaches in education, problem solving, organization, enhancing efficiency of everyday activities either at work or in personal life. This technique is useful in all forms of mental work (e.g. learning). A map is a dynamic and organic tool for organization of work, time and enhancing memory, which helps by storing and organizing information [2]. We can use maps for study, planning, getting new ideas, increasing personal performance, negotiation, and the like. Maps enable us to utilize the great potential of the brain and stimulate the spirit of organization. The correct approach to our own knowledge is one of the keys to successful education, personal life and work, which is closely related to the need to learn how to control our brain and mind processes. Mind maps can be created manually or in a computer (free software which can be downloaded from www.myslienkovemapy.com).

Neurolinguistic Programming (NLP) is in fact thinking about thinking. NLP is a tool, a technique of educating ourselves and others, which connects knowledge of the human mind, the brain, with the aim to learn the ability to learn, continuously develop, strengthen own potential and reach extraordinary results in various fields of life, i.e. in education, personal and working life, and business. Among other things, we use it in practice as a tool for education of adults to help us uncover tacit knowledge [6] (hidden in the mind of the person) since with the help of NLP, we can get not only to conscious but also to unconscious elements of our mind, and thus we can identify how we do the things we do. This approach enables us to do the things we really want to do and to reach the set target. For our purpose, we mostly use that part of NLP which is called modelling [8]. It is a process of encoding talent - the means for discovering the ability to excel. If someone else successfully reaches results which we would like to reach as well, we can imitate them or model his knowledge, abilities and skills. And thus, to model means to imitate thinking patterns, language and behaviour. Correct modelling enables us to reach demanded results repeatedly. We can, for example, imitate achievements of an excellent lecturer, manager, seller, or businessman.

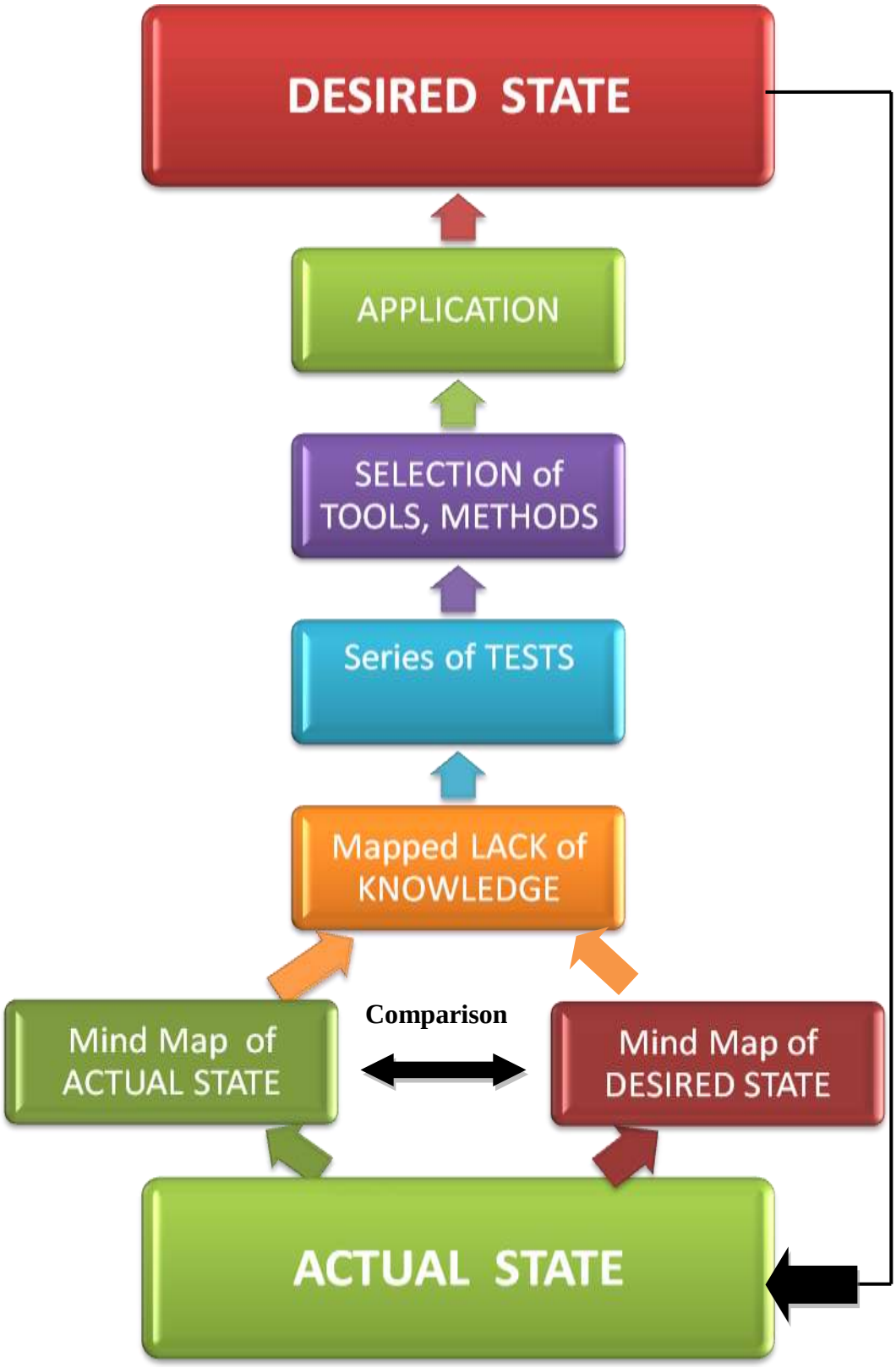
In our previous works, we introduced the above mentioned tools in a really deep way. Because of extensiveness of this topic, in this work, we state only the basic characteristics of the tools. The aim of this work is to present the Education Methodology, so we focus on the 7 steps and describe them more closely.

2.2 7 steps of Education Methodology

We elaborated our education methodology based on knowledge management principles into the specific procedure, which is shown in the Scheme 1. The procedure consists of seven steps, which are described in detail under the picture of the Scheme.

By using our methodology, a company gets a specific procedure of preparation, execution and training examination.

Scheme 1: Education methodology



Description of education methodology based on the order of its implementation follows:

Step 1. Actual state. In the first step, a student identifies a specific focus of study. He is further asked to identify his actual state of knowledge, to clearly formulate the target of his study and particular knowledge that he needs to gain to achieve his educational target. Whether the student manages to formulate it or not, the function of this step is to guide the student to thinking about himself regardless of the testimonial value of his answers. The correct formulation of the student´s answers and their useful testimonial value represent the aim of further steps. The first step is called the actual state since in this step we reveal the student´s ability to see or not to see his actual state realistically and his future targets in the present moment.

Aim of the 1st step: I personally meet with people, mainly busy managers, who are interested in the study of a foreign language, but when I ask them what they would like to achieve, I often get a response that contains a lot of words, and at the end the client realizes that "he does not have an idea". Who does not have an idea of what he wants to achieve does not have orientation points how to achieve it and does not know what it gives him when he achieves it. Such a person will most likely never achieve his goal. The brain does not think in an abstract way but concretely. Vague ideas versus concrete ideas represent one of the differences between unsuccessful and successful people [8]. One of NLP techniques named modelling of successful people (we take an example from those who have achieved something that we would like to achieve as well) states that it is important to think in a certain order. According to Sue, the first step is vision, then realistic thinking about sources, followed by the point where possible hindrances are considered; then we continue in realization and finish with feedback. For this reason, in the 1st step we lead the student to understanding the importance of realization of his actual state together with the realization of the desired state and the importance of a procedure which leads him to achieving his goal. The student is, in fact, "initiated" into the procedure which will follow with emphasis on his inward identification with the following procedure. If the student understands the importance of the education process which he starts, the probability of his success increases since adaptive methodology demands active cooperation of the student.

Output of the 1st step: Identification of the particular focus of the study, e.g. learning the English language or gaining other knowledge (successful negotiation skills, presentations, etc.) and the student inwardly identified with the following course of study.

Step 2. A mind map of the desired state and a mind map of the actual state. At first, the student creates a mind map of the desired state which he wants to achieve, and then the mind map of his actual state in which he is now. The student is lead by coaching questions [3]:
"Why do you want to achieve this goal?"
"Who will you be (identity) when you achieve your goal?"
"How will it probably influence your life?"
"What will you perceive?" What will you see? What will you say? How will you feel when you achieve your goal? How will others react?
"Which of our values and beliefs can help you to achieve it?"
"Which strategies do you need to achieve it?"

Aim of the 2nd step: The student is coached with the help of questions with the aim to clearly see the target position to which he wants to get and to realize his current position. The coach leads the student to specific answers to the questions. General, abstract answers "do not excite" the human brain; however, specific answers on visual, auditory and kinaesthetic basis of ideas and images have effect on sense centres in the brain, and the student feels power of motivation. Individual branches of the mind map have an organic shape which enables the student to develop the idea of his state (desired or actual) and he subsequently writes them in the map (plotting). The student can gradually divide and complete individual thoughts since the map allows him to jump from one idea to the other, which presents a big advantage as opposed to a standard process of taking notes in a notebook. Many times the student does not have previous experience with mind map creation, and after its completion, he is surprised that he could do it. During the mind map creation, the student is in so-called flow [3]. It is the flow of his thoughts, intensive immersion into the performed activity when a person does not realize the passing time, and this immersion is characterised by creativity.

Output of the 2nd step: Complete mind maps prepared for comparison.

Step 3. Mapped lack of knowledge. By comparison of the mind map of the desired state and the mind map of the actual state, we get the complex of "lack of knowledge", which we need to improve to achieve the desired state.

Aim of the 3rd step: A mind map is a visual tool which clearly shows us flow of thoughts, and thus comparison of two mind maps is rather simple. For example, in case of learning the English language, the student draws a branch with a key word "meetings" in the mind map of the desired state, and this branch is divided into other branches with key words "questions", "ask what I want", "creation of the right questions" and the like. On the other

hand, in the mind map of the actual state, the student draws a branch with a key word "meetings", which leads to the second level branch with a key word "questions" and further levels of branches "I don´t ask, I don´t know". It is obvious that the student needs to learn how to create questions. Another example can be the same branch called "meetings", but it leads to another branch called "presentations". In the mind map of the desired state, it leads to a branch of another level with the word "spontaneously", and in the mind map of the actual state, it leads to a branch with the word "mugged up". It is clear from the stated that the student at present uses sentences learnt by heart, which obviously burdens him, and his target is spontaneous presentation.

Output of the 3rd step: Step 4 contains series of tests which are selected from the point of relevancy to the list of lack of knowledge. Mapped lack of knowledge represents the list of the things in which the student needs to improve. For example, language tests can be general or focused on that area of language which the student needs to improve.

Step 4. Series of tests. Complex testing of the student´s knowledge in the target field, gaining of the student´s language profile, expert and psychological points of view.

Aim of the 4th step: Complex testing of the student in the form of general as well as specific language tests focused on the area which the student wants to improve. This area was identified in the 3rd step with the help of knowledge mapping. It is further followed by analysis of his lifestyle, working and personal habits. This analysis can be performed by creation of other mind maps, the topics of which are determined based on the list of the things the student wants to improve. For example, if the student needs to improve e-mail communication, he elaborates a mind map which reveals with whom he communicates the most, what he communicates about, which vocabulary and phrases he uses, and where a problem in the communication usually arises. Further testing is focused on psychological characterisation of a student and on characterisation of the student from the point of using of the senses (visual, auditive, kinaesthetic).

Output of the 4th step: Based on language and specialized tests - determination of the knowledge level of the mapped lack of knowledge. Identifying in which specific work or personal situations the mapped lack of knowledge emerges, with the use of lifestyle mapping and mapping of working and personal habits. Visual, auditive, kinaesthetic types of student from the point of using of the senses.

Step 5. Selection of tools and methods.

Aim of the 5th step: At this point, we recommend to the student specific tools and methods of education or a specific type of course based on information gained in the previous steps. We focus on such tools as neuroliguistic programming, use of mind maps and a serious-playful tool of education - gamification. In the previous steps, the student gained a list of his mapped lack of knowledge and its level, identification of real situations in which he needs to use them, as well as his psychological profile. Recommended education tools can vary depending on the individual lack of knowledge. We can state an example. By mapping the lack of knowledge, we found out that the student needed to improve skills in conversation about family, sport, and world events. His level of knowledge is pre-intermediate. By further analysis of his working habits, we found out that the student, together with his colleagues who communicate fluently in a foreign language, goes for lunch with clients. During this lunch, he is expected to communicate at least about general topics. After evaluating the type of student from the point of using of the senses, we recommended a suitable tool to him. In this case, we chose the tool gamification. The education itself will be conducted directly in a restaurant, with a lecturer, via general discussions.

Output of the 5th step: Recommendation of a specific study method, selection of suitable tools for fast gaining of necessary knowledge while respecting the individuality of a student.

Step 6. Application

Aim of the 6th step: Specific tools and methods of education are applied in practice. The student actually studies the recommended course with the use of selected methods of education.

Output of the 6th step: Mapped lack of knowledge changes into mapped knowledge or skills.

Step 7. Desired state

Aim of the 7th step: The student reached the demanded target state which he had determined at the beginning of the study. It is possible to gain some knowledge faster than others, or other areas which need to be improved emerge during the study and thus the desired state is modified, i.e. it is not exactly the same as when the student determined it at the beginning of the study. Furthermore, it is possible that he did not gain some knowledge on the needed level and, therefore, it is necessary to revise it again. Detailed feedback is provided when the student goes from the 7th step into the 1st step again.

Output of the 7th step: Feedback by returning to the 1st step starts with the process of comparison of the actual state and the desired state. The student can determine a new desired state and then continue in education. It is not necessary to do all initial tests in the 4th step, only the tests modified according to the needs of the student. Our aim is to achieve that the students are willing and able to learn, minimize the time necessary for education and maximize the benefit of gained knowledge.

3 Conclusion

Education focused on the student is a trend which is significantly influenced by humanistic pedagogy and psychology with the emphasis on creative potential of every human being and the ability of self-change [7]. The teacher is perceived as a facilitator and organizer of a student´s learning, as his advisor or assistant. Such a role of a teacher corresponds to the lecturer in our bean methodology, where his main function is to provide help with building knowledge and skills.

Gamification represents the latest trend in the field of education and business. Therefore, we found its use in our Education Methodology as highly up-to-date. By using tools such as mind maps and NLP programming, participants can realize which kind of knowledge they need at that real moment, which kind of knowledge is relevant to their present work project or task. In this way, the lecturer is able to offer just and only that information which is sufficient for students. Students directly influence the amount and character of information which is provided by the lecturer. The amount and quality of offered information is equal to the real needs of students. Some needs are obvious and conscious but some needs are subliminal and hidden. Our aim is to identify both.

The mentioned methodologies are applied in practice and continuously monitored. Up to now, we have output in the form of questionnaires where students state their opinions on efficiency and particular benefits for their everyday practice. There are also controlled discussions with students, where they can express their views on usefulness of the method with which they study. All students agree that the used methods are untraditional and not ordinary, but their evaluation is, so far, very positive.

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