

Best Practices for Using Mind Map in the Higher Education

© Erzsébet Mária JÁRMAI & © Diána SZEKERES

Budapest Business School

Buzan and the mind mapping

Tony Buzan was deeply researching the methods of learning and note taking processes and also the connection between the brain functioning and learning, and as a result he invented "mind mapping" (1974)

Gabriel Racle wrote a detailed report about one of Buzan's experiments in his book called *La pédagogie interactive* in 1983. The experiment was made in a primary school in East London and the subjects were children with weak learning performances (some of them could hardly read). He asked the children to make a short composition within 30 minutes and they also got paper and pencils in different colours. The children used only the black pencils, they were struggling with the task and the results were miserable. Some of them did nothing; others made either a simple drawing or a short text. Their performance was despondent and they were disappointed as well. Then Buzan changed the method, he tried to convince them that they were able to do this and they knew a lot more than they think. He read different words to them for a few minutes and the children raised their hands if they knew that word he read them. Then he explained to the children how the words connect and create a whole sentence, the sentences then create a whole text, which would form to a book etc. He compared our brain functioning to a tree, because our brain creates the chain of association of words, pictures and impulses, just as the root of a tree connects to the branches and the leaves. After some practicing, he gave the same task to the children as at the beginning. The children could use the previously showed associations and this time their performance was ten times better than at the first time. They used different colours and they also enjoyed the exercise, they were enthusiastic and self-confident.

According to Buzan the usage of the non-verbal emotional skills enhanced the functioning of the verbal skills. With the activity of the right part of the brain spontaneous thinking, association, intuition can start and they can play a huge role in creativity (Racle, 1983:162). The children stimulated their entire brain with this activity, because both parts of the brain were involved. The invention that the two parts of the brain is asymmetric, changed the epistemology about the brain only in the beginning of the 60's, when Roger Sperry got a medical Nobel Prize for

this. There were some relevant researches done by Robert Ornstein, Eran Zaidel and some others as well. Sperry and Ornstein discovered that the two parts of the brain have different functions.

From a pedagogic aspect, it is very important in this revelation that the learning effectiveness can be increased if we use both parts of our brain (Buzan, 2007:27). The brain can handle information with a greater activity, if it is prepared for the "integration" (Buzan, 2007:127). Other sources also confirm in connection with the information storing that the memory records structures, as in the entire system of knowledge, instead of just unconnected facts. The new data has to be integrated into a coherent system in order to be able record it for long term (Chevalier, 1993:102-125). The Mind Map is a memory-compatible methodological tool in education for processing, understanding, recording and recalling information.

The theory of Concept Map can be linked to Joseph D. Novak and David Paul Ausubel psychologists. According to different views, this is different from Buzan's theory, because it is used for other exercises, but it is undisputable that the basic idea comes from Buzan. Both build to the same thinking process and in the visual system independently whether we start from an abstract or from a specific thought.

Pedagogic proceeds

The advantages of mind mapping from a pedagogic point of view can be observed at the most subjects, because it makes the class more interesting, increases the activity during the class, helps the students with ideas and makes them more creative. As a method, mind mapping helps with thinking in a different way; it helps highlighting the central thought, structures the topic, separates the secondary, less important information, shows the connections and widens the thinking both vertically and horizontally. Through mind mapping the learning process matches the brain mechanisms more, this improves and accelerates imprinting and recalling the memory. Mind mapping can also be integrated to more phases of the learning process and to the improvement of more skills, such as broadening the vocabulary, receiving information, listening and reading or presentations as follows:

- ✓ Collecting the words,
- ✓ Reading and interpreting a text or a topic,
- ✓ Highlighting the essential points of a text,
- ✓ Understanding the content of a text,
- ✓ Structuring a topic or a text from different point of views,
- ✓ Collecting ideas (writing, presentation),
- ✓ Creating ideas in connection with a topic,
- ✓ Solving a problem or a task,
- ✓ Repeating, memorizing words or a text,

- ✓ Presenting a topic in writing or orally,
- ✓ Note taking (of a read or a heard text) etc.

With creating a mind map, every student has the opportunity to take part actively in the class, to present, because they can work either individually or in team, to improve their autonomy and to build their knowledge. The students can find "the creative joy" this way and they can find interest in the given topic very easily, which releases positive emotions during the class. The positive experience and feeling gives success for the students, which increases the self-confidence and develops the performance (Jármai, 2005).

Mind map application during the class – Higher education

The usage of the mind map matches the material of different subjects; it can be applied as teaching-learning method both at full time and at part time education. The aim of the application can be various depending on what our aim either to make the students repeat or to synthesize the lessons, or the heuristic process of the lessons. The "by-product" is always the development of the co-operative skills during the teamwork, and this works automatically. It is very important that the lesson will be followed by a self-reflective stage, when the students can think over and evaluate what happened and what they learnt about themselves during the class and the teamwork. This is also relevant, because issues that seemed useless or less important at first sight can make sense and be significant. The "thinking about me" stage can be reached with the homework, when students make a summary about their experience during the class. If there is enough time available, this can be done orally during the class as well.

Experiences at full-time classes – Teacher's report

We applied mind-mapping at two classes with different aims. First-year students of the Faculty of Civil Service accomplish general legal studies in two semesters. In the second semester I could have summarized the material of the first semester and taken presentations with slides, where the students could have been sitting in silence and listening. The theme of the legal lessons is quite dry and detailed; it is extremely hard to follow and look through all the little correspondences and connections, the audience can get tired easily.

I achieved a great result with the usage of mind mapping. I divided the group into three parts, so that everyone could actively take part in the class and repeat, practice the material of the first semester. Three mind

maps were made, which is significant, because the material is very massive and complicated to classify according to syllabus. The students could do all of that with mind mapping and they used successfully their common knowledge. It is very important for them to see the structure of the basic material, because the specifications build on the basics. They discussed the topics then they made their own mind maps at home. This meant to be the second thinking about the curriculum, because the specifications had to be built into it with the reveal of the logical correlations. There is no wrong or good answer, because basically everything is related in the law and the connections between the different areas had to be searched and found by the students.

With the application of mind mapping we not only synthesized and summarized the studies, but also the students could think about the deeper correlations.

Mind mapping was applied at the economic legal classes of the second- and third-year students of the Faculty of Economy Management. They have never participated in a class like that before, where they worked with similar methods. As a start we invited a guest presenter and a liquidator, who explained them the liquidation process. At the next class the students had to construe the topic of the "Transformation and termination of the commercial corporations" according to their own point of view and the level of their knowledge, but not following the textbook. This was important, because the presentation covered only a small part of the lesson, which is one-third of the textbook.

The students could use their own notes and the related books from the library, where we were. My aim was that the students could take and understand the key points and they could build up the process. They pictured the liquidation process, bankruptcy and merges etc. with the mixture of the mind map and flowcharts. They could perfectly visualize the differences and creatively look for symbols.

It was even more interesting that the boys and the girls were working in two separate groups and started to compete with each other, which increased their motivation as well. It was not said out loud, but could be seen that they were interested in which group the more creative was and was able to see the key points sooner and easier. They were working with a great enthusiasm. They could not finish the work by the end of the class, so the rest had to be done at home as homework. They organized a meeting out of the class and worked in teams, and they made substantive and meaningful solutions for the next class.

In the self-reflection phase they told that they were keen on this method, because it was easier to process and understand the material, they could discuss it and it was less tiring than just listening to a presentation where they cannot participate actively. They could manage the timing and the working process without arguments; they could ask questions and divide the tasks individually. There was no leader at the girls, so they divided the material equally. At the boys everyone read the

entire curriculum, therefore they were able to see through the whole of it and were able to highlight the key points better. The girls were more creative. The works of both groups were very interesting and special from different point of views.

The pedagogical value is undisputable: their co-operative and organization skills have developed; they enjoyed the work and also learnt the material. It was a great and new experience for me that I could see their enthusiasm and motivation instead of the bored and yawning faces counting the minutes left from the class that I had seen before on the classes.

Experiences at part-time classes – with students' narratives

Part-time classes only consist of consultations 2-3 times per semester depending on the subjects. It makes the organization of the classes more difficult that the participation is not compulsory; therefore it is hard to predict or estimate the exact number of the students at the classes. If the number of students is enough for teamwork, the class can be made more practical. The students more appreciate the interactive classes rather than just sitting and listening to the presentation and its interpretation.

We would like to introduce some views and opinions from students' side, what they think about the importance of teamwork and the application of the mind map.

"The teamwork with the others was very exciting, but a bit strange, because we did not know each other. There are students, who I do not know at all, because we do not meet at the part-time classes. I think that this kind of activities at the classes would bring the students closer, it is a great opportunity to know each other a bit more..." (Bernadett B. part-time student)

"I really enjoyed the class, I liked the teamwork. I liked the most that we made not only the mind map together, but we presented it together as well. We agreed on who tells what about the topic. The other groups usually chose one person who took the entire presentation, but we thought that we had to present together once if we made the mind map together as well." (Bernadett B. part-time student)

"...I have already met Tony Buzan's method about the mind map. I also tried this method and found really useful, so I would definitely use it for my studies." (Gabriella T. part-time student)

"I think the mind map is very helpful, especially if I add graphics to it, because I am a visual type of person and I can recall and remember the pictures at the exams a lot easier. (...) The teamwork was also

very useful, because the students could know each other a lot better. I was the leader of our team. The others were not very active at the beginning, but they became very enthusiastic and opened as soon as we got to know each other a bit better." (Adrienn H. part-time student)

"I think that despite the fact that we did not know each other very well, we could co-operate as a real team; everyone could tell and add their own views and opinions to the presentation. Nobody felt restricted and everyone could share the work equally. We divided the material equally and we presented our work together as well." (Réka K. part-time student)

We introduced the mind map at the "Learning- and Research Methodology" part-time classes, which is a skill developing subject. We prepared two types of class choreography, because we did not know, how many students would take part in the consultation. The number of students were enough for the teamwork, so after a short theoretical introduction, we started the actual teamwork. The teacher had to be inactive and observe the formation and the work of the teams, and if they saw some difficulties than the teacher should help with clever questions to overstep the problems.

*1*We would like to introduce the method of mind mapping through the reports and talks of the students, because it can be clearly followed step by step, how they lived and what they experienced during the entire process of the teamwork. They wrote not only about their experiences, but also about their opinion and thoughts, how they came to certain consequences, why the class and the new method were useful and what they learnt.

Detailed descriptions of the mind mapping process

1st Report. "It was not important how we create the teams, because nobody knew each other. With the teamwork we had the opportunity to get to know each other. I was a bit nervous at the beginning, not because of the task, but how the team members could work together. We divided the tasks according to who would draw the mind map and who would present it. Before the final mind map, we discussed the topic and the content of the mind map; we collected the material and the thoughts together. We listened to each other's opinion, collected the common thought about how to plan to build up the topic. While listening to the others, it was easy to recognize what is important to the others and share the expectations. *This task was a perfect starting point to know the team members better. This exercise was not only about creating a mind map and a presentation, but also*

about to accept and to adapt the others' thoughts and opinions, because we were a team and it depended on us, what the presentation would look like. This is not easy to accomplish a task with people, who we hardly know. Even it is a challenge to work with people who we know. During the teamwork we could know the strong and weak points of the others. It was clearly seen that those people became leaders, who are dominant characters in real life as well, and they strongly kept the team together. The mind map was a great reflection of the team, we could gain lots of information from it regarding the characteristics of the team, the structure of the *mind map*, the colours all referred to the team. Since it was teamwork, the chance of the individual work was very small, but everyone did their best to perform well. The exercise required us to co-operate, to adapt, to be understanding with the others and to be able to listen to the others. After drawing our mind map, we had to present it, which also showed the difference between the other teams with regard to creativity, evaluation and thinking. We could gain great ideas from the other presentations such as what was missing from our *mind map*, what else we could have used. We were paying attention carefully to the others, because their mind map was a kind of reflection of their personality as well. The class was very effective and useful to get to know each other." (János B. part-time student)

2nd Report. "I would write a few words about the class exercise as well. I was in the same team with a boy, a man and a girl. First I thought that it would be a bad idea. *We did not even take the task serious at the beginning, we were just giggling the whole time.* Then we realized that the other groups started working with a great enthusiasm, and then we started to work as well. We had no idea how to start the whole thing, we just wrote the word "learning" in the middle and slowly everyone had the first few thoughts. Anyone had an idea, the other 3 persons added something to it, so we could do it step by step and we helped each other. *It was that point when I realized, how enjoyable is to work in a team.* We had such ideas that I would have never ever thought by myself. It was a lot better than to create something individually. It was very disappointing that we did not have enough time to finish it, because I had so many ideas that I could add that that enormous piece of paper would not have been enough to write them all. I would honestly like to say thank you for this great experience and for drawing our attention to the importance of the teamwork, because it is a lot easier to learn and we can also help each other. I hope that we will have the opportunity to do this at other classes as well. Unfortunately part-time courses do not give the chance for the students to sit together and to work and think in a team, to spend more time together and to get to know each other better, because of the lack of the time." (Renáta P. part-time student)

3rd Report. "At the first Learning- and Research Methodology class we had a nice surprise. The teacher encouraged us to participate in teamwork instead of just listening to the dry material. Since the very first class was at the beginning of the semester, we did not really know each other in the group. At the beginning everyone in our team was a bit shy and impeccable. Then suddenly one of us – who was not me – started to motivate the team saying that we are able to do this. After a while everyone started to be much opened and less shy. Everyone told their opinion, thoughts, ideas, so we had enough information to build up our own mind map. I think, everyone expected from each other to add their idea, but we never argued. I am very happy that I participated in this and that I got to know the other 3 people in my team, however I have never seen one of them at the next consultations. In the high school where I used to go it was a kind of compulsory task to work in a team. Probably that is why I have always been against it. But now thank to the teacher, I have a completely different point of view about learning with others, and I truly believe that it's a great lesson and experience for everyone for the future. I really enjoyed the teamwork even if it seemed very strange at the beginning. Since that time I have had the opportunity to learn together with one of my classmates, which was also a very useful experience." (Cintia Cs. Part-time student)

4th Report. "At the latest class we had the opportunity to *work in teams.* Basically I support teamwork or learning in a group, so I was happy with the idea. The task suited the teams, everyone had the chance to express their own opinion, views, to share their thoughts, so we could approach the topic from different point of views and we could discover idea that the other would have never thought about. The result was just as we expected: it reflected the attitude of the team, it was colourful and interesting and we exchanged a lot of ideas that we could use. It was very interesting to co-operate with my classmates, who I had not known before. We had not talked to each other and I had a very positive opinion about them. The form of the teamwork helped with the communication as well. At the beginning everyone was a bit shy, they did not know what to do, how to start. They were very sceptic and showed less interest. Somebody was needed to be initiative and to motivate the others to start the common thinking. I think, I was this initiative person in our team; however it was completely unconscious. I just thought that this first negative attitude was a bit embarrassing and I felt that the others are waiting for me to show the way, because nobody wanted to do the first step. After all everyone took part in the work actively and enjoyed it. As a summary, it was a great experience and I would be happy if we had more similar opportunities like that at the classes. We can get to know each other a lot better. It is true that we are part-time students, but still we meet a few times during the semester and this is a perfect

time to speak with each other and it gives the chance to work together in the future as well." (Eszter T. part-time student)

Summary

The reports below highlight the fact that any type of subject can be connected to the competency-development simply with organizing the work and using simple methods. The European framework determines the competencies as the combination of knowledge, skills and attitudes within the appropriate context. The European states build the key competencies determined by the reference framework in different ways into their national education system, but the preparation, views and thinking of the teachers is that basic condition without which the competency development cannot be successfully achieved. The knowledge is beyond knowing just the facts and the subject material, it includes the 3 dimension of knowledge, thinking and acting (see Lindqvist, 2011; O'Shea-Dempsey, 2011). According to the results of researches accomplished in more countries the teachers accepting and applying the methods of competency development state that this kind of approach in education is more effective and makes both students and teachers happy and enthusiastic. Mind map is a simple practical tool, it does not require special preparation and it is perfectly suitable for the improvement of the key skills.

References

- Buzan, T. (2007). *Une tête bien faite: exploiter vos ressources intellectuelles*. Paris: Éd. D'Organisation.
- Chevalier, B. (1993). *Méthodes pour apprendre*. Paris: Nathan.
- Jármai, E. (2005). *Hagyományok és kihívások az idegennyelv-oktatásban: az érzelmek szerepe a gazdasági szaknyelv-tanulásban*. PhD thesis. Budapest: ELTE PPK.
- Racle, G. (1983). *La pédagogie interactive*. Paris: Edition Retz.
- O'Shea, M., & Dempsey, M. (2011). Kulcskompetenciák a középiskolák végző osztályaiban. In Vágó Irén (Ed.), *Az európai polgár kompetenciái. Az implementáció kihívásai és lehetőségei az oktatás világában* (pp. 61-75). Budapest: Oktatókutató és Fejlesztő Intézet.
- Lindqvist, U. (2011). Egy folyamat közepén. In Vágó Irén (Ed.), *Az európai polgár kompetenciái. Az implementáció kihívásai és lehetőségei az oktatás világában* (pp. 45-60). Budapest: Oktatókutató és Fejlesztő Intézet.