LEARNED-CENTERED EDUCATION USING THE FLIPPED CLASSROOM METHOD- GOOD PRACTICE AND EXPERIENCES

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Abstract: The main theme of the study is the use of the flipped classroom method as a possible alternative to learner-centred teaching. The main goal of the flipped classroom method is to make class time as active as possible for the students. In doing so, they learn through their own experiences and active work. This makes the learning environment more learner-centred, which has a positive impact on learners' attitudes, motivation and quality of educational process. The paper summarizes good practice in the application of the method, and the experience and results are gathered. The pilot application has been implemented at the Faculty of Education of J. Selye University in the academic year 2022/23 within the Erasmus+ project "Developing Flipped Methods for Teaching". The aim of the study is to present in detail the steps and elements of the application of the flipped classroom with the focus being on classroom activities. The results of the pre-tests and post-tests, as well as student and teacher feedback, will be presented to assess the application of the method. The main aim of the work is to demonstrate the application of the method in practice as an inspiration to increase its widespread awareness and use.

Key words: learner-centred education, flipped classroom method, psychology, pre-class activities, in-class activities, post-class activities

Aims: The aim of the study is to present in detail the steps and elements of the application of the flipped classroom with the focus being on classroom activities. The results of the pre-tests and post-tests, as well as student and teacher feedback, will be presented to assess the application of the method. The main aim of the work is to demonstrate the application of the method in practice as an inspiration to increase its widespread awareness and use.

Methods: The starting point of the research is the flipped classroom method and its testing. The main method of the research is therefore to map, describe and collect data on the flipped classroom method. Pedagogical application was the main method used for data collection, complemented by tests with an evaluation function and feedback in free and structured forms. Summarization, analysis and evaluation were the research methods used to interpret the data.

1. About the Flipped classroom method

The Flipped classroom method as a teaching strategy reverses the traditional teaching model, students are introduced to the learning material before class with classroom time then being used to deepen understanding through discussion with peers and problem-solving activities facilitated by teachers (Brame, 2013, Berret, 2012). In practice this means that a lecturer makes a material available in form of a video (usually his/her own), which students can watch at home. Students already have preliminary, pre-acquired knowledge of the topic during in-class time, so they are able to work more actively. The lecturer as a facilitator manages the set of in-class activities during the lesson, which are focused on

students' active participation. Based on this active work students can get more familiar with the topic and can also discuss and communicate about the topic. The last stage of the method is the presentation of the students' own results, solutions or elaborations, followed by common evaluation and discussion (Sams at al., 2014). To evaluate the effectivity of the method, the pre-prepared educational material and in-class activities, pre-tests and post-test can be applied. During the whole process four pillars of the method must be considered: F – flexible environment, L – learning culture, I – intentional content, P – professional educator (Lynch, 2015, McLaughlin, J. E., at all. 2014).

2. About the pilot application

The pilot application was implemented at the Faculty of Education of J. Selye University in the academic year 2022/23. A group of 19 students (external form of master study program in Primary Education) from the Department of Preschool and Elementary Education were involved in the testing in course Educational Psychology. During the course 8 topics were presented by using the flipped classroom method. Students were able to learn the principles of the method for the whole semester for each topic - they had the opportunity to watch a video before the lesson, they then completed the pre-tests, participated in activities during the lesson, solved tasks and completed post-tests. Due to time constraints the assessment activities were not always completed. The most important part of the closing of the course was the feedback, during which the students gathered their opinions about the method, the videos they had watched and the in-class activities.
In this paper steps and elements of the method are presented in detail in the context of one chosen topic from the 8 presented topics with a detailed description of the steps and content of the method, as well as the results and assessments of the tests on the topic. The feedback is summed up for the whole course.

3. Description of the course[1]

Topic of the course: General intellectual ability - intelligence

Background and rationale of the topic

The concept of intelligence is a key term in psychological disciplines, which refers to the mental level, rational capacity, cleverness, acumen. From this perspective a proper understanding of the term, understanding what it means to "be intelligent" is of utmost importance in understanding other concepts, functions and processes of cognition. The concept is closely related to other basic concepts of general psychology and also other applied psychological disciplines, such as the concept of learning, thinking, reasoning, problem solving, creativity, or the concept of emotional intelligence.

Key topics:

The module focuses on defining the concepts of intelligence, intelligence quotient, describes models of intelligence and possible ways of measuring intelligence.

[1] More about the course: https://pk.kre.hu/dfm/wp-content/uploads/2023/06/TG-SK.pdf

Learning objectives: at the end of this module students should be able to:

- Correctly define and understand the concept of intelligence and intelligence quotient.
- Identify the degrees of mental capacity.
- Be guided through the different models of intelligence and the different types of intelligence according to several authors (such as Binet, Spearman, Cattel, and Gardner).
- Students will be familiar with several specific intelligence tests.

4. Pedagogical approaches and activities

Pre-class activity, activities before the class at home

Students will be provided with a video lesson entitled *General intellectual ability - intelligence*, available at: YouTube channel *Flipped Methods in Psychology*[2]. The video is ca 10 min long, developed via application Renderforest – it is an animated video narrated by the lecturer.

Students are invited to complete a pre-test called *General intellectual ability – intelligence*[3]. The test includes 8 multiple-choice questions based on the content of the video material.

The teacher evaluates completed tests both quantitatively and qualitatively, which will enable him/her to prepare and schedule the lesson.

In-class activities, activities during the lesson:

The teacher implements and manages prepared activities focused on the topic of the lesson.

Activity 1: *Discussion on intelligence*

The discussion focuses on the key question of understanding intelligence, whether there is one intelligence or whether there are several different independent types of intelligence.

Focus: The activity focuses on discussion, argumentation, and mutual persuasions. A correct, detailed and multifaceted overview of the topic of intelligence and the different understandings, models of intelligence is extremely important for formulating arguments and leading a discussion. Furthermore, the way in which group members work together, communicate, support each other, resolve conflicts, react to different or opposing views is of key importance.

Aims: The main objective of the activity is for the participants to acquire a deeper knowledge of the topic through argumentation and formulation of opinions, further to be

[2] Educational video available: https://youtu.be/BOXxrZAsT1w
[3] Pre-test available: https://pk.kre.hu/dfm/wp-content/uploads/2023/06/TG-annex-SK.pdf

able to confront diverse information and opinions on the basis of correct knowledge. Another objective of the activity is for participants to understand and to be familiar with the basic principles and process of debate and discussion.

Interactional pattern: group work

Number of participants: 19 students

Materials, tools: none, possibly paper and pen to record notes, that may help the work if we make space for groups in the classroom

Duration of the activity: ca 30 minutes (the duration of each phase is 5 min, the rest of the time for the initial instructions and the conclusion of the activity)

Procedure: The lecturer divides the participants into two groups, the division can be random or systematic based on a certain rule. It is important that the groups have the same number of members. The groups will appoint one speaker who will communicate on behalf of the group. The groups will be given or drawn a topic or position in the discussion, that is, whether to focus on the possibility of single or multiple intelligences, or that there is only one intelligence, or that there are several independent types of intelligence. The group discusses their assigned position, formulate arguments, possible reasoning for their own position. In the next phase of the activity the speakers of the two groups, on behalf of the opinion and arguments of the whole group, try to convince and influence each other, try to assert their own point of view. The other group members cannot participate loudly in the communication at this stage, but they can formulate and make note of other, new arguments. The next phase of the activity allows the groups to discuss the topic further, supporting the speaker with new arguments. In the penultimate phase the speakers have one more opportunity to persuade the other. The final phase of the activity focuses on ending the discussion together in order to release any tension and formulate a common view on the main issue of the discussion that suits both groups.

In this activity the lecturer plays the role of moderator, facilitator. He/she manages the course of the activity, supports the work of the groups, and manages the time duration of each phase of the activity based on a predetermined time limit. In the phases of group work, he/she supports the group or suggests points of support and possibilities of argumentation. In the phases of persuasion, he/she manages the communication of the speakers if necessary, reminding the other members of the groups of the possibility of noting down the added ideas, arguments, suggestions. The key moment of the activity is the last, the release phase, when the lecturer has to moderate the communication of all participants in order to balance and establish a common view on the topic of discussion.

The activity gives the opportunity for flexible variation and change of conditions and rules - e.g. formulating the discussion question, changing the time duration, defining multiple groups, the possibility of changing the person of the speaker during the activity, or defining multiple speakers in the group.

Feedback to the activity and experiences

The activity started somewhat passively. Students said they understood the two categories of argumentation, but found it difficult to start the discussion and argumentation. Inspired by the teacher, the group became more active - at the teacher's suggestion, they shaped their arguments by presenting concrete examples and people. The presentation of different arguments and people generated further ideas, which led to a discussion between the two groups. At the end of the activity the students themselves argued that the two groups were not in opposition to each other and the participants themselves highlighted the complexity of the intelligence capacity. On a positive note, the debate was not a matter of disagreement but of consensus bringing new experiences and common knowledge to the participants.

Activity 2: *Known personalities with high IQ*

As was mentioned in the introduction of the video we know several personalities in human history with extraordinary abilities with a significantly high degree of intellect, or geniuses.

Focus: The activity focuses on searching for and collecting personalities, famous people in the past or present who exemplify extraordinary IQ by their performance, achievement or significant activity.

Aims: The aim of the activity is to highlight the importance of IQ and to focus attention on the possibilities of applying an extraordinary, above average IQ. The activity requires the ability to search for relevant sources of information, then to correctly evaluate the person's achievements and activities in terms of mental capacity.

Interactional pattern: individual work and group work

Number of participants: 19 students

Materials, tools: paper, pen, as a source for searching information we can suggest aids according to possibilities (mobile devices, tablets, laptops, computers)

Duration of the activity: min. 10-15 min. (depending on the number of participants we can set 10 minutes for individual work as the duration of the whole activity, including presentations and conclusions)

Procedure: The lecturer will challenge participants to do their own research to find at least three well-known personalities with above-average IQ. Criteria for selection: the person exemplifies extraordinary intellectual ability, above average IQ, is considered exceptionally intelligent, or a genius by his/her work, accomplishments, or activities; the place and time of the activity is not specified (at home or abroad, past or present). Participants may use accessible ICT facilities during the research work. At the end of individual work participants present their results, names and significant personality achievements to each other, as well as can evaluate their results, highlight repeated names, personalities, or define a common list.

For this activity the lecturer is the moderator of the activity, giving an initial example to inspire the members. He/she manages the activity, monitors the time duration of the students' own activity and moderates the presentation of the results. At the end of the activity, he/she determines the conditions and the criteria for the common list of participants, or sets a limit on the number of people on the list.

The activity gives the possibility for flexible variation and change of conditions and rules - e.g. field of activity, nationality, historical period, and number of persons to be found. Furthermore, the method of presentation or the compilation of a common list can be varied - in this case the extent of the list or the determination of the ordering rules can be varied.

Feedback to the activity and experiences

During the activity, students worked in pairs. In order to fit the time frame, the course, and the students' study program the activity was implemented in the following version: in the first round pairs of students had to list only highly intelligent people without any constraints and in the second round they had to reduce the list to personalities related to the field of pedagogy. The experience showed that the free choice process resulted in a wide range of personalities. Variety and diversity was characteristic of the lists. In the second round the lists presented many similar names and the feedback from the students showed that it was a great opportunity to review their knowledge of the history of education.

Post-class activity, activity after the lesson

Students complete a test (post-test) called *General intellectual ability – intelligence*[4]. The test includes 4 open ended questions based on the content of the video and the in-class activities.

The teacher evaluates the completed tests both qualitatively and quantitatively to reflect on the lesson.

5. Assessment & Recommendations

A post-test for the topic is used to evaluate the acquired knowledge. For the conclusion and summary of the topic with the aim of reflection and providing feedback, it is therefore useful to propose a task, a less formal activity in the spirit of creative work.

Activity: *Notice board on the topic of IQ*

At the end of the course participants are recommended to create a notice board on the topic of IQ. The conditions and rules of creation can vary flexibly based on the possibilities. The main criterion is, first of all, the correctness and relevance of the information provided on the notice board, and further, that the notice board provides a comprehensive overview of the topic and contains all the basic and necessary information on the topic listed in the curriculum and in the video. Furthermore, it is important that all participants of the course

[4] Post-test available: https://pk.kre.hu/dfm/wp-content/uploads/2023/06/TG-annex-SK.pdf

or lesson cooperate in creating the notice board, so that the final product is the result of the group's mutual cooperation. The criteria for the formal arrangement of the notice board can also be flexibly adapted to the possibilities – the notice board can be a classic wall form or created through an online application, for example, free web applications Padlet, Spiderscribe, CorkBoard, Lino, Popplet (Tóth-Bakos, 2018).

In this activity the teacher has a management role, within which he/she determines the criteria for creating the notice board adapted to the current conditions and circumstances (time duration of the activity, form, basis of the bulletin board – an empty bulletin board or the surface of a web application, makes available the materials for content creation, etc.)

6. Results of pre-tests and post-tests

Students were given access to the tests online as the tests were created in a google drive test format. They were given the pre-test after watching the videos and the post-test after the lesson. The instructor could follow the progress of the tests and the results almost in real time. In all cases, all 19 students completed the tests. In the present study the results of the tests focusing on the topic of intelligence are presented.

For the pre-tests the results were very variable. Even though the questions in the tests were based on the video material the tests can be scored per question and per student. For the test questions the following results were obtained:

Of the 8 questions in the pre-test there was no question that all 19 students answered correctly. The most successful question with 18 correct answers was the sixth, which focused on the innate or acquired origins of intelligence. Students were similarly successful (17 correct answers) in the question on average IQ. Students were also successful (15 correct answers) in marking the fifth question on the first intelligence test. The first question was immediately the worst (only 6 correct answers), in which case, interestingly, a further 11 marks were awarded to the option that was deliberately misleading. The third question was equally unsuccessful with only 6 correct answers. The seventh question, which focused on the definition of intelligence, was interesting from an evaluation point of view, with 10 good answers, but a further 9 marks were also correct as the marked option is a characteristic of intelligence. The remaining questions received an average of 14-15 correct answers. The evaluation of the students showed that out of the 19 students who completed the test, 1 was correct, 4 students made 1 mistake, 3 students gave 2 incorrect answers and 5 students gave 3 incorrect answers. 4 students passed the test with a semi-satisfactory result, i.e. 4 error points, and 2 students made 5 error points.

Post-test results show much more consistent and better results. There were 14 correct answers to the first question, with the remaining answers being incomplete, i.e. partially correct. The second question received 16 good answers, 2 incomplete or partially correct answers and one completely incorrect answer. The third question received 18 correct answers and 1 incorrect answer. The final, fourth question received 17 correct answers and 2 incomplete, but partially correct answers. On a per-student basis, 14 correct tests were obtained, a much higher rate than for the pre-test. The remaining tests also tend to be

characterized by incomplete answers to a question, i.e. not all the information given in the question. For the 19 tests there were a total of 2 completely incorrect answers.

Comparing the results of the pre-test and post-test, the post-tests achieved much better results with fewer error points. This means that the video, classroom activities and tests together made the teaching process more effective.

7. Feedbacks

At the end of the course students were given the opportunity to give feedback both verbally and in writing. The verbal evaluation was in the form of a free discussion and the written evaluation was in the form of pre-prepared sheets of paper where they could anonymously record their opinions. In both cases they were able to evaluate separately the pre-prepared video material, in-class activities, and tests. The overall common feature of the students' opinions was positive feedback. There was a strong positive feedback from everyone for all elements. There was no negative or even neutral feedback at all. In assessing the feedback we have compiled the feedback into the list below:

Feedback on videos:

- It's great that it's animated and not just audio, but also visuals to add colour to the learning material.
- The length of the videos is just right, it is easy to follow along.
- The content of the videos is relevant, organically related to the topic and focuses on the most important knowledge and information.
- The video material itself is conversational and a lot of information can be memorized without narration.
- It is very good that it can be stopped at any time and repeated as many times as you like, which helps learning and note taking.
- After watching the video I wondered what we would do in the lesson.
- It's great that the video can be watched at any time, so I can adapt my preparation for the lesson to my own schedule.
- The content and the implementation are interesting - much more enjoyable than reading it all out of a book.
- I can imagine putting this into practice, I'm sure the students would like the content in some details.

Feedback on activities:

- It's great to finally not listen to a lecture and take notes.
- It was a useful and quick way to pass the time.
- I was able to actively participate in the class, not just as a passive student.
- During the exercises we got to know each other better.
- We also learnt from each other during the activities and it was useful to work together.
- It was a rich learning experience.

- There was a fun and creative atmosphere during the lessons.
- It was exciting and interesting.
- I remembered the material much better than in other classically organized lessons.
- We became a better team throughout the course.
- Everyone had the opportunity to actively participate, no one was invisible or unnoticed.
- I will be able to use the activities in the classroom in my teaching practice.

Feedback on the tests:

- Content was closely related to the content of the videos.
- They were not too long or exhausting.
- It was good that they included several types of questions.
- I occasionally re-watched the video after completing the tests.
- They were also for repetition, learning and deepening knowledge.
- They were not too difficult, they focused on the material in the video, so I got a sense of achievement from answering them correctly.
- I could imagine similar tests as exams.

8. Conclusion, summary

The good practice presented in this study was implemented within the framework of the *Developing Flipped Methods for Teaching* Erasmus+ project. The aim of the project is to raise awareness of the flipped classroom method and to gather data on its use through research. The research showed that the biggest benefits of the method in the countries surveyed were that respondents reported that students were more engaged, adaptable and collaborative when using the method (Zsigmond, I., Vaz-Rebelo, P., Tóth-Bakos, A., Papaleontiou-Louca, E., Zecheva, V., Demetriou, C., Szilágyi, A., 2013, Knežević, Županec, Radulović, 2020). These responses were strongly supported by our own experience. The course has been given a new impulse with the introduction of the new method, which has led to a noticeable increase in student enthusiasm. They showed interest in the course material, the videos and the tests and completed everything without any extra encouragement. During the class activities, as mentioned in the feedback, it was a little difficult for the students to get active at first, but this quickly improved and later on they were very active and cooperative even without any encouragement or motivation. The feedback from the students is also very informative, their positive feedback all confirming the validity of the method. Feedback also confirms that video materials, tests and active work all play an extremely important role in the learning process. The research did not specifically measure learning outcomes, so the results of course completion are not the focus of the research. However, it is clear from what was observed in the examination that students almost all mentioned their experiences in the course, their active experiences, and details from the videos. From these experiences it can be concluded that the use of the method had a positive impact on the students' knowledge and effective learning. All feedback clearly suggests that the method has a proper place in university teaching. The positive feedback from lecturers and students clearly indicates this. In fact, the preparation of the course requires a lot of time, energy, creativity and new approaches, experiences that

are also in line with the research findings. Nevertheless, it is worth the investment, as the materials produced are available to the teacher at any time in the future. Overall, the experience of using this method has been positive. Thus, we encourage university lecturers to use the flipped classroom method in their teaching as often as possible. They should also share their experiences and materials for inspiration and further information.

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