

## TEACHING EVOLUTION VIA GROUP WORK. PEER LEARNING AS A TOOL TO ENGAGE STUDENTS AND HELP THEM TO ACHIEVE COURSE OUTCOMES

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### The teaching-learning challenge

Encouraging students to be engaged learners presents one of the biggest pedagogical challenges to lecturers. Designing courses that offer opportunities for peer learning is another pedagogical challenge worthy of addressing in education at all levels. Using a mixed method analysis, I show that teaching anthropology through peer learning contributes to advanced learning by advancing and deepening the level of engagement related to the topic.

During my five years of studying at the Department of Ethnology and Museology from 2011 to 2016, I experienced two teaching and learning formats: lectures that are sometimes followed by discussions and seminars in which assigned readings were discussed and short assignments were to be handed in before class. Only a few courses included activities, such as group work or role-play that promoted peer learning. In other words, the courses did not sufficiently engage students and specifically did not encourage students to communicate and cooperate with their peers.

I have been working at the Department of Ethnology for two years in my capacity as an assistant professor. When I enrolled in the course Effective teaching for Internationalisation, I chose to internationalise the course Introduction to Evolutionary Anthropology, which is closest aligned to my scientific interests. Based on the experience from previous years, the major challenge I identified in the course was to increase the number of opportunities for peer learning. Following Boud (2001), I understand peer learning to be a learning strategy where students learn with and from each other without the immediate intervention of a teacher. In this chapter, I evaluate the outcomes of my innovation by exploring the following two questions: Does peer learning help students to become engaged learners? Does peer learning help students to achieve course learning outcomes?

### Pedagogical method

Prior to the innovation, I did not assign any tasks to students. Apart from facilitating brief discussions and inviting students to ask questions, I taught the course by means of lecturing. The innovation therefore entailed a fundamental redesign of the course. I introduced peer learning in the form of group work in class as well as during two out-of-class activities: a visit to the anthropological exhibition Man through Time and Space in the Natural History Museum and a visit to the Bratislava Zoo to observe the behaviour of apes and monkeys. Before each activity, students received a set of discussion questions via email. These questions referred to the essential ideas expressed in a particular video, article, or out-of-class activity. Discussion questions always used

the format of open-ended questions and were not graded. Their number ranged from five to eight, depending on the length and content of the activity. In four class sessions, students were first tasked with trying to answer these questions individually based on the reading of a text or the watching of a short video during class.

To illustrate, while watching a video, I encouraged students to take notes. Students then listened to my 15-minute mini-lecture and discussed the assigned questions within their group of peers; usually in groups of four. I acted as the facilitator of the discussion. Group work was then followed by a plenary discussion. Students who were relatively silent during the first three weeks of the semester were assigned the role of group speakers. I explained at the beginning of the activity why speakers are given this role. In other class sessions students started by discussing the questions in their groups without first thinking about these individually. The questions discussed in each class formed a corpus of approximately fifty questions. For the final exam, I selected eight questions from this corpus related to core concepts within the evolutionary social sciences. As the topics of the mini-lectures related to the themes of the Bachelor and Master theses of some of the students enrolled in the course, I repeatedly invited these students to comment on certain topics. I strived to always acknowledge student contributions to the discussion. I had observed that immediate feedback and encouragement had an effect on these students and that they would also be more engaged in any activities that followed. Creating a safe place for discussion and a judgment-free environment was one of the pre-conditions for student learning in all the courses that I taught.

During early group work, I allowed students to form their own groups. However, later I usually assigned groups in such a way that those students who proved themselves to be more active were evenly distributed with less active students in each group. This meant that students had the opportunity to work with different peers throughout the semester.

Upon visiting the museum, students were asked to walk through the exhibition halls in small groups and discuss what they observed in the different panels and displays. The subjects of the exhibition were anthropogenesis, primatology, and physical anthropology. The exposition mapped the evolutionary odyssey of homo sapiens and its ancestors. It contained interactive elements to raise the interest of visitors. Before the visit to the zoo, students were again pre-assigned questions. They were expected to observe the behaviour of primates (common chimpanzees and Borneo orangutans) and monkeys (both old- and new-world). I moved between groups and served as a facilitator of discussions for each group. If they had any questions, I readily answered these.

### **The course, the students, and the lecturer**

The Introduction to Evolutionary Anthropology course was offered for the second time in the summer semester of the 2021/2022 academic year. The course was designed for Master's stu-

dents in the Ethnology and Cultural Anthropology study programme. The course was offered in Slovak. Eleven students attended the course. Four of them were Master's students of the Ethnology and Cultural Anthropology programme, five studied Psychology (two at the Bachelor's and three at the Master's level) one Religious studies (Master's level) and one Sinology (Bachelor level).

Upon completing the course, students were expected to be able to define the foundational concepts for the study of human diversity and behaviour from an evolutionary perspective, describe the development of evolutionary theory and key terms and concepts in evolutionary social science and to discuss certain topics from an evolutionary anthropological perspective, including evolutionary theory in anthropology, controversies in evolutionary theory, primatology, anthropogenesis, and current trends in the evolutionary social sciences. Requirements for passing the course included the submission of a written assignment: the critical analysis of a scientific paper (50%) and the completion of a written exam (50%). For the written assignment, I allowed students to select their own topics, though I chose the paper.

### **Collected sources of data and methods**

As an ethnographer and anthropologist, I use qualitative ethnographic research methods. An inherent part of this process is the writing of a field diary. Naturally, one of the sources of data for the evaluation of this innovation was the teacher's reflective diary. I took detailed notes after each lesson, recording details such as how many students participated in the activity, the interactions that took place between students during the activity, what specific forms of peer learning I observed and the spontaneous forms of student engagements I noticed.

Another source of data was peer observation by a PhD student from my department who observed the tenth class that was devoted to the topic of primatology and dealt with reflections on the visit to the zoo. The observer was provided with the class outline beforehand and we discussed the aims of the innovation. She completed an observation form during the class. After the class, the observer and I had a half-an-hour meeting to discuss her observations.

Additionally, I used an anonymous student feedback form where students expressed their opinions mostly using a Likert scale (1-5). The value of 5 expressed the highest level of agreement, whereas the value of 1 implied the lowest level of agreement. The final source of data came in the guise of the grades that were attained in the final exam. In the previous year, the exam took the form of closed-ended multiple choice questions whereas this time—in line with the purpose of the innovation—I used open-ended questions. Unfortunately, this did not allow for the comparing of student results.

For the student feedback form, I sought for patterns in student feedback and any responses that did not conform to those patterns. For other sources of data, I wrote a brief summary of what I learnt from these in relation to the two research questions while making notes of any specific

moments during the course that supported or contradicted my expectations. I executed a content analysis to analyse student exams. In the following sections, I triangulate the data from all four sources.

## Findings

### *Engagement*

The observer appreciated the class structure that was composed of different activities, the contributions of all students in the discussions, and the opportunity for students to influence learning activities based on the topic of their interest. She rated the level of student engagement and peer learning medium to high in the case of group work and the subsequent discussion. According to her, students interacted with each other naturally and with ease. They tried to encourage each other to work on the assignment. While working in groups, they asked group members questions, verified the correctness of their answers, and asked fellow members for feedback and further input. She also stated that she felt that the students were used to working in groups in this course. She explicitly wrote: 'Students discussed a lot among themselves'.

The observer also appreciated that I emphasized that I was presenting my opinion, and it was the students' responsibility to formulate their own opinions based on what they had learnt in the course. The observer then noted that students valued the diversity in class in terms of students coming from various disciplines. An essential part of the class, according to the observer, was the debriefing after the activity itself which lasted for about twenty minutes. She also emphasized the inclusive class climate where students helped their peer who was not proficient in Slovak. According to her observations, the students created a learning community during the course. She believed that peer learning helped to accomplish the expected session- and course outcomes. She noted that students discussed the assigned questions referencing the concepts both within the context of evolutionary anthropology and their field of study.

Based on the data from my reflective diary, I concluded that as the semester progressed, I witnessed an increase in student engagement. From the third class onwards, it seemed that the discussions had a natural flow. I no longer needed to prompt the students. From the fifth class onward, there was an increase in the number of questions raised, additionally to the pre-assigned questions. Rather than me answering student questions, I encouraged their peers to respond. Two out of three times the question was answered by another student. By the end of the seventh class, all students had contributed to the plenary discussion at least twice and everyone had spontaneously asked at least one question. One student commented on this in class noting its interactive nature - claiming that this was one of the few courses where she felt that she could actively contribute to the course.

The eighth class was notable in terms of student engagement. One student spontaneously commented on the interactive nature of the classes observing that this was one of the few courses where she felt that she could actively partake in the course and where she always learnt something new from her colleagues. Other students expressed agreement with her evaluation. I encouraged the students to contribute to the course from the vantage point of their respective disciplines. Students of psychology presented fascinating pieces of knowledge such as Zimbardo's and Milgram's experiments. Also, other students mentioned examples from their fields of study referring to various authors and their publications. These were often new to both their fellow students and myself.

The last class that discussed the visit to the zoo showcased how engagement and learning outcomes went hand in hand. I could observe students in all groups engaging in lively discussions. They provided each other with feedback on what they uncovered during their observations at the zoo. In one of the groups, they discussed, for example, what the term phenotype meant. In another, they jointly checked the accuracy of what they learnt about mating and social systems. They searched for additional online sources to provide more complex answers. I invited those previously less active students to respond to discussion questions. These students' responses were of a similar level of complexity as those of the more active students and indicated the achievement of the expected learning outcomes. During that class, each of these students who were typically silent at the beginning of the semester spontaneously asked one or more questions. Overall, I could observe peer learning in nine out of ten classes. There was no peer learning in the fourth lesson for which I had no activity prepared and I only lectured and students had an opportunity to ask questions.

In the anonymous student feedback questionnaire that was completed by all students, the students self-rated the level of their own engagement at 4.22 out of 5 (the highest possible value of agreement), which indicated that they perceived themselves as contributing in class very frequently. They believed that group work had helped them to maintain attention during class, as indicated by an average rating of 4.34 out of 5 and they indicated that they enjoyed the group work (4.73). Finally, they acknowledged the opportunity to be an active part of the learning process and not a passive recipient of lectures. One student expressed their opinion in the following way: 'The course was ... cool, I learned considerably more from it than from any other course this year, and this was mainly due to the various activities and discussions'.

As for the achievement of course outcomes, students mentioned in the feedback questionnaire that the activities helped them to remember the content, and they got to know new perspectives from their classmates. To illustrate this, one student wrote: 'When one works on something or experiences it, I think the student remembers it better than if the student learns it solely by means of memorization'.

### *Learning outcomes*

These student statements nicely illustrate the connection between engagement and learning outcomes. According to students, group work encouraged discussions with peers from other disciplines, and this allowed them to look at topics from new perspectives. The second most significant point identified was that the group activities helped students to better prepare for the course on a week-to-week basis. Students moreover appreciated the feedback that they exchanged during group work together with the opportunity to formulate and present their opinion on behalf of the group during plenary sessions. Group work was perceived as useful to maintain attention during class and served to increase their levels of interest in the curriculum. Some students reported that because of the group work they were not afraid to present their own opinion and felt more responsible and motivated to work on the pre-class assignments.

Students further pointed to the importance of linking mini-lectures with activities. The variety of activities, according to them, increased their motivation to attend the course and prepare for the course each week. The visit to the Zoo was believed to result in putting 'theoretical concepts into practice'. The most highly appreciated course components were the discussing of questions and the watching of videos; unanimously identified as effective by all eleven students. To summarise the students' points of view, because of peer learning, they did not regress into a humdrum routine, they looked forward to the classes and prepared for each activity.

The rating for having learnt new knowledge from classmates was 3.73, which indicated that students learnt some new knowledge from their classmates. The lower value compared to other measurements may be the result of several factors. Students might acquire less knowledge from their classmates, because four weeks out of ten, class sessions were held online due to Covid-19 restrictions. Also, students were not used to group work, and the notion of peer learning was new to them. As pointed out by Padrtová (2018) who introduced a similar innovation, diversions from previously experienced learning methods may be sometimes counterproductive to student motivation and learning. Finally, the result could also mean that students simply did not recognize the amount of peer learning that they experienced throughout the course. Other sources of data demonstrate clearly that peer learning took place.

The content analysis of the student exam answers that I had undertaken suggested that all students had achieved above-average results. They all answered the questions at a level that I rated as 80% or higher. Students described specific theoretical concepts with reference to the information they had learnt during the activities. They referred to their own observations in the zoo, their visit to the museum, and the activities associated with reading the texts and watching the videos. This indicated that peer learning had helped students to achieve the course learning outcomes.

### **Replicability in a different context**

The type of innovation that I had executed could be applied to almost any course and in virtually

any context. Nevertheless, there are a few issues that other teachers drew attention to in case of a similar innovation. First, in their feedback questionnaires, students were asked to describe a concept, theory or approach they found most interesting during the course. Students identified certain concepts and based on these I will modify the topics for the next academic year and increase or decrease the duration of certain activities. Although a student's interest is not the main criterion in selecting course topics, I suggest not to overlook it during the course design. Student interest helps to increase engagement in the learning process.

Second, in the case of group work, I recommend ensuring that students are divided into groups during the activities appropriately, considering their strengths and weaknesses as learners. This should be done as early in the semester as possible. Third, I advise not to strive to have each student contribute to class discussions with a similar frequency. I believe that we, as teachers, need to respect the diversity of students: an introverted student may engage in activities to a lesser degree than their extroverted colleague. Instead, we should look at whether the level of activity progressively increases for a student or not.

Fourth, based on student feedback, I also suppose that lectures should be maintained as one of the teaching and learning methods. Students indicated that lectures that are too lengthy do not allow for the maintaining of attention. I would only utilize these in the form of mini-lectures. Also, in case other teachers plan on including a museum visit or a similar activity, a short lecture or commentary on the exhibition seems appropriate prior to the actual exhibition.

Finally, the general thematic outline—i.e., the number of topics comprising the course—might need to be reduced in the case of similar innovations. After completing the first three class sessions, I came to the conclusion that almost half of the themes needed to be excluded in favour of group work and follow up discussions. The focus on fewer topics led to deeper learning.

## **Conclusions**

Through my innovation, I aimed to help students to become more engaged during the course and better achieve their learning outcomes. This was to happen through peer learning, more specifically group work and plenary discussions. Based on the analysis of the data, I concluded that peer learning occurred in a meaningful and significant way during the course. In this course, peer learning helped students to become engaged learners and to achieve the learning outcomes. One of the unintended results of the innovation was that the students learned as a community.

My innovation had similar results to those by Awuah (2018) or Padrtová (2018). Awuah found that group work increased student participation in class and facilitated the achievement of learning outcomes. Padrtová suggested that active learning stimulated student interest in the curriculum, and thereby better promoted learning. According to Awuah, group work moreover improved students' abilities to communicate in a foreign language. In this course, the improvement of communication skills in Slovak occurred in the case of a student of Russian origin. Awuah also men-



tioned that student participation in his course promoted a focus on meaning and understanding of the curriculum rather than the passive reproduction of knowledge. I believe my innovation to have had a similar outcome, as evidenced by the students' responses in the final examination. I believe that peer learning should be one of the most widely used methods in education in general. Studies into peer learning undertaken elsewhere confirmed the effectiveness of this method (Boud et al. 2001, Cornelius-White 2007; Din and Wheatley 2007). If students are encouraged to participate, there will likely be moments in which peer learning will be present in almost any social and cultural context. In the spirit of evolutionary theory, we can say that people are social animals and learning in collaboration with others and through others is natural for them (Boyd et al. 2011; Henrich 2016).

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### Summary

In this chapter I described the innovation that was executed in the course 'Introduction to Evolutionary Anthropology'. Based on the experience in previous years, the major challenge I identified in the course was to increase the opportunities for peer learning. I evaluated the outcomes of



my innovation by exploring the following two interconnected questions: does peer learning help students to become engaged learners and does peer learning help students to achieve the course learning outcomes? I introduced peer learning in the form of group work in class as well as during two out-of-class activities: museum visit and a visit to the Bratislava Zoo. Students had to complete a set of questions based on reading a text or watching a short video during class. Students then listened to a mini-lecture of about 15 minutes and discussed and compared their answers to the questions as a group. Based on the triangulation of four sources of data, I concluded that in this course, peer learning helped students to become engaged learners and achieve the learning outcomes.

### **Keywords**

group work, student engagement



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