

## CHAPTER 5. DOES ACTIVE LEARNING WORK? THE EXPERIENCES OF BRNO AND TEHRAN PSYCHOLOGY STUDENTS

Stanislava Kováčová, Masaryk University

**Coach:** Agnes Simon, Masaryk University

**Keywords:** active learning, comparative study, group work, lecturing, psychology, social contact theory

### Introduction

As a psychology student, the teaching approach I have experienced the most during the course of my higher education studies has been teacher-centred. My teachers have been the main authorities in class, while the students' role has been to receive information passively and to demonstrate what was learnt at the end of the semester during the final assessment. I have personally missed the social aspect of learning and the opportunity for self-expression. Moreover, I often felt I could not show my full potential if I was expected to interact with the teacher only once at the end of the course.

The teacher-centred approach has been subject to criticism on a broader scale as well. According to critics, if students are only expected to listen, they may miss important facts. Students' attention declines to a great extent after the first ten minutes of class (Hartley and Cameron 1967). Furthermore, teacher-centeredness does not empower students' independent study skills and eventual development of lifelong learning skills (Trilling and Fadel 2009: 38). Psychology, as a modern scientific discipline that borders on various other fields, requires its graduates not only to master the theories, but also to develop skills such as critical thinking, problem solving and effective communication. Therefore, psychology students would benefit from the employment of active learning methods in class both in the short and long run.

In this chapter, I challenge the traditional teaching approach by comparing lecturing with student-centred teaching at Masaryk University and the University of Tehran. Contrary to my expectations, students did better after the lecture than after active learning. However, the differences were not statistically significant. I reflect on the possible reasons for this result in detail at the end of the chapter.

### Institutional contexts and innovation

I implemented my teaching innovation at two locations: the Department of Psychology at the Faculty of Social Studies, Masaryk University in Brno, Czech Republic, and the Faculty of Psychology and Education at the University of Tehran in Tehran, Iran. At the Department of Psychology in Brno the majority of classes are teacher-centred. Lecturers usually use PowerPoint slides to present the content to their students. The situation regarding the prevalent teaching approach

at the Faculty of Psychology and Education in Tehran is very similar. Teachers lecture to groups of students. The difference is that, instead of PowerPoint presentations, teachers rely on the oral dissemination of information. Bromley et al. (2011) have confirmed that the formerly communist countries of Eastern Europe and the Islamic countries of the Middle East score approximately the same on a scale measuring student-centeredness. The scores of these two regions are lower in comparison to, for example, Western and Latin American countries.

A growing body of literature points to the need to rethink the traditional teacher-centred approach and move towards student-centeredness. Being aware of the institutional contexts at both universities, I developed a teaching innovation in which I compare levels of student participation while learning, knowledge of the topic and engagement in the class after lecturing versus after the active learning part of the class. The innovation was used at both universities for a class on the topic of intergroup contact theory. The aim was to find out if the student-centred approach is more effective, or, more precisely, if it benefits students at the Department of Psychology in Brno and the Faculty of Psychology and Education in Tehran more than the teacher-centred approach. In addition to comparing the effectiveness of the teaching innovation at the two institutions independently, I compare students' levels of participation while learning, knowledge of the topic and engagement in the class between the two locations to find out if there are any differences in student responses in Brno and in Tehran. A comparative study of this kind between a post-socialist country and an Islamic country is unique.

The topic of the class taught at both universities was intergroup contact theory. The lecture part consisted of a presentation on individual forms of contact between different social groups defined, for example, by nationality, religion, age, lifestyle or social status. The active learning part of the class consisted of two exercises completed in groups of three. First, students were asked to close their eyes and imagine their own social contact experience with a person from a social group they did not belong to, and consequently to share this experience and their impressions of it with their group. The second exercise consisted of reading about examples of contact theory applications and identifying optimal contact conditions in them. I chose to implement the lecture and active learning exercises in the same class rather than devoting an entire class to each approach because of my limited teaching assignment. A combination of the two approaches within one session was the only possible way to compare the effects of active learning and lecturing in the given circumstances.

The first measured indicator of teaching effectiveness was participation while learning. It has been shown that learning improves when students are curious, or interested, and tends to suffer when students are bored, or disengaged. Evidence shows that students' participation can be enhanced by employment of active learning exercises in class (Bonwell and Eison 1991: 6). Thus, I hypothesized that *students at both Masaryk University and the University of Tehran will participate more while learning during the active learning part of the session than during lecturing (H1).*

The second indicator of teaching effectiveness I focused on was knowledge of the topic. The student-centred approach challenges students to develop skills such as the ability to frame, investigate and solve problems; to acquire and evaluate information; and to collaborate effectively with others (Zhao 2012: 165-185). Active learning thus is expected to result in improved knowledge retention and create a deeper understanding of material than passive learning (Littlewood et al. 2013). Therefore, I predicted that *students at both Masaryk University and the University of Tehran will display higher levels of knowledge after the active learning part of the session than after lecturing* (H2).

The last measured indicator of teaching effectiveness was students' engagement in the class. The students I taught belong to the Millennial generation of individuals (born between 1982 and 2002). Unlike previous generations, Millennials have lived through a period of great technological advancement, which has, according to Prensky (2001), resulted in their decreased tolerance for lecture-style dissemination of course information. Incorporation of active learning strategies into the classroom is therefore critical in order to attract Millennial students' attention. Consequently, my expectation was that *both Masaryk University and the University of Tehran students' engagement with the class content will be higher after the active learning part of the session than after lecturing* (H3).

Finally, based on the above-mentioned research findings that Eastern European countries score approximately the same in student-centeredness as the Middle Eastern countries, I further hypothesized that *there will be no difference between the students' participation while learning, knowledge of the topic and engagement in the class either after lecturing or after the active learning exercises at Masaryk University and the University of Tehran* (H4).

### Research design, data and methods

In order to collect data on participation while learning (H1), first I asked one fellow PhD student in each location to observe class activities. They tallied how many students raised their hands and asked a question during plenary discussions that took place at the end of each part of the session. Second, I decided to collect notes that students took during both parts of the sessions and compare them. Note taking represents a means for students to understand the class content effectively.

To measure students' knowledge of the topic (H2), I used a minute paper (Angelo and Cross 1993: 148-53). After each part of the class students were asked a content-related question that consisted of two sub-questions. After the lecture they had to name at least two forms of indirect intergroup contact and explain the difference between indirect and direct intergroup contact. After the active learning part of the session, students were requested to name at least two applications of intergroup contact theory and explain what conditions should ideally be met for contact to reduce prejudice. Students were given seven minutes to write down their answers on

a pre-prepared answer sheet after each part of the class. The Tehran students were allowed to express themselves in Persian if they did not feel confident with English. As for the transformation of qualitative data into quantitative, complete answers were coded by a value of 2, incomplete answers by a value of 1 and missing answers by a value of 0.

To collect the data on students' engagement in the class (H3), I also used a minute paper. Students were asked if they found the lecture/activities on intergroup contact theory interesting. When they did, I assigned a value of 1 and otherwise 0.

To test hypotheses one to three and verify whether lecturing or active learning was more effective, I compared the first and second parts of the class in Brno and then the first and second parts of the class in Tehran. I conducted within group analyses using paired t-tests.

Then I investigated if the students at Masaryk University and the University of Tehran responded differently (H4), and compared the data from the lecturing part of the session in Brno with the data from the lecturing part of the session in Tehran. Similarly, I continued with the data from the active learning part of the sessions in Brno and Tehran. I conducted between group analyses using unpaired t-tests<sup>1</sup>.

## Results

At Masaryk University I taught one session in the autumn 2017 semester within a course called Political Psychology and Intergroup Conflict. The expected number of students was thirty-five, however, only twenty-three showed up to class that day. At the University of Tehran, I also taught one ninety-minute session in the spring semester of 2018, this time within the course called Information Technology in Psychology. The expected number of students was thirty-five, but only thirty-two students were present for my lesson. The language of instruction was English at both universities<sup>2</sup>.

Regarding the assumption that active learning will motivate students to raise their hands, discuss the topic and take notes more than lecturing (H1), the class observations partly confirmed the predictions. At Masaryk University, no students started a discussion after the lecture, while three out of the twenty-three students voluntarily contributed to the plenary discussion after the active learning part. The pattern at the University of Tehran was similar: three of the thirty-two students voluntarily asked a question during the plenary discussion after the lecture, while five students did the same during the plenary discussion after the active learning part of the class. Although the differences were small, in line with the hypothesis, the active learning parts of both sessions elicited higher rates of participation while learning than the passive learning parts. Concerning note-taking as an indicator of participation while learning, the lecture notes data was successfully collected in Brno but not in Tehran because I only learnt upon arriving in Iran that

1 Students' engagement in class was not compared statistically since the number of active students was too low.

2 A translator from English to Persian was present in the classroom in Tehran.

the custom at the Faculty of Psychology and Education in Tehran is to record lectures instead of taking notes. Masaryk University students took notes only during the lecture and not during the active learning part of the class, which contradicts the first hypothesis. This observation can be explained by the fact that students may not have known how to discern what information is necessary to take away when the information was presented in the form of active learning.

As for the hypothesis on the level of knowledge learnt (H2), the students at both universities performed better after the lecture than after active learning exercises when comparing group means (table 1). At Masaryk University, this result occurred both when students were required to list the names of two concepts we talked about in class as well as when they were asked to compare the two theoretical concepts. At the University of Tehran, students similarly recalled more when they were asked to write down the names of two theoretical concepts after the lecture than after the active part of the class. Unfortunately, in Tehran I could not compare knowledge levels when the students were asked to compare the theoretical concepts because the instructions were not adequately adjusted to the level of the students' English language proficiency and therefore they were misunderstood. Nonetheless, none of the above differences are statistically significant, and thus, the second hypothesis cannot be confirmed.

Table 1. Comparing the level of knowledge acquired by students in Brno and Tehran after lecturing and active learning

	University	Lecturing		Active learning		N	t-test	df	p-value	Sig.
		Mean	SD	Mean	SD					
Knowledge listing	Brno	1.09	0.90	0.74	0.96	23	-1.32	22	0.20	No
	Tehran	1.13	0.75	1.09	0.93	32	-0.15	31	0.88	No
Knowledge comparing	Brno	1.39	0.84	1.22	0.85	23	0.79	34	0.44	No
	Tehran	Not available								

When it comes to the hypothesis on students' engagement in class (H3), the story is similar to the previous one: there is no statistically significant difference in the scores for the two parts of the class either at Masaryk University ( $t=.00$ ,  $df=22$ ,  $p=1.00$ ), or at the University of Tehran ( $t=-1.14$ ,  $df=31$ ,  $p=.26$ ). The students in Brno indicated that they enjoyed the lecture and the active learning exercises equally ( $M=.87$ ,  $SD=.34$  for both teaching methods), while the students in Tehran preferred the lecture ( $M=.84$ ,  $SD=.37$ ) to active learning activities ( $M=.75$ ,  $SD=.44$ ). Thus, the third hypothesis has not been confirmed either, as active learning did not evoke higher engagement among students.

With regard to the hypothesis comparing the two locations (H4), the level of student participation while learning during the lecture in Brno was lower than during the lecture in Tehran (zero per cent of the Brno students raised their hands and contributed to the discussion versus nine per cent of Tehran students). Similarly, the level of student participation while learning during the active learning exercises was lower in Brno than in Tehran (thirteen per cent of Brno students raising their hands and discussing versus sixteen per cent of Tehran students). However, a definitive conclusion that students in Brno participated generally less cannot be drawn since the data pool is too small for a reliable statistical test.

Comparing group means on student engagement levels revealed that Masaryk University students found both the lecture and the active learning exercises more engaging than did the University of Tehran students (table 2). Nevertheless, the students in Tehran learned more after both parts of class as is indicated by the knowledge listing results. Despite the differences between the two locations, none of the results reached statistical significance. I can therefore conclude that the fourth hypothesis has been confirmed. There is no difference between the students at Masaryk University and the University of Tehran in terms of participation while learning, knowledge of the topic and engagement in the class either after lecturing or after the active learning exercises.

Table 2. Comparing students at Masaryk University and the University of Tehran regarding their levels of knowledge and engagement after lecturing and active learning

	Brno			Tehran			t-test	df	P-value	Sig.
	N	Mean	SD	N	Mean	SD				
Knowledge listing lecture	23	1.09	0.90	32	1.13	0.75	-1.70	53	0.87	No
Knowledge listing active learning	23	0.74	0.96	32	1.09	0.93	-1.38	53	0.18	No
Class engagement lecture	23	0.87	0.34	32	0.84	0.37	-1.14	53	0.79	No
Class engagement active learning	23	0.87	0.34	32	0.75	0.43	1.09	53	0.28	No

## Conclusion

Passive learning methods, where students receive information from the lecturer and internalise it, are prevalent at both the Department of Psychology in Brno and the Faculty of Psychology and Education in Tehran. When comparing teacher- and student-centred methods implemented within the same class sessions at both universities, the results suggest a tendency for lecturing to be more effective than active learning. However, the differences within each class and between the universities were not statistically significant.

There are a couple of possible explanations for active learning not being more effective than passive learning in this study. First of all, many students at both Masaryk University and the University of Tehran were more familiar with traditional lecturing than active learning methods. They may have felt forced into active learning with no preparation. Some students may not be used to doing anything that requires them to go beyond what is necessary preparation for the final exam and they may see the active-learning approach as a waste of time.

Another possible reason active learning was not as effective as I expected were flaws in the implementation of the innovation. Gaps in the dataset resulted from relying on the translator and not adjusting the data collection measures to the English language level of the students. Similarly, the dataset would have been richer if it had been possible to collect students' note data in Tehran. Future research should explicitly compare note-taking during lectures with recording lectures to find out if they are equally influential.

An interesting discovery I came across was that the students in Brno took notes only during the lecture and not during the active learning part of the class. This had no immediate consequence on the quality of their learning experience. However, insufficient note-taking may be a problem for students in the medium and long run since they do not have any written record to refer to when, for example, they prepare for final exams. Instructors should be sensitive when debriefing after active learning to help students understand the take away message, i.e. what to record in their notebooks. The lack of notes also stopped me from looking at students' engagement in learning in more detail.

In the future, I hope to examine the effectiveness of the teacher- versus student-centred approaches by using a more conventional setup. Instead of using both approaches within one class, I would apply active and passive learning techniques during whole class sessions. Thus, students would, firstly, have more time to adjust to the new style of teaching and learning. Secondly, the data on the effectiveness of the innovation could be collected over a longer period of time, which would make the results more reliable. In addition, it is also desirable to increase the sample sizes for the potential effect to become evident.

Finally, more research is needed to better understand the dynamics of student-centred learning in the Czech Republic and Iran. In their feedback, the students I had a chance to work with said they appreciated both styles of teaching and learning. Altogether, these results and observations



imply that both forms of learning and teaching are important. The main recommendation of this chapter on how to improve the effectiveness of classes on intergroup contact is to sensitively employ both passive and active learning methods.

## References

- Angelo, T.A. and Cross K.P. (1993) *Classroom assessment techniques: a handbook for college teachers*, San Francisco: Jossey-Bass Publishers.
- Bonwell, C.C. and Eison, J.A. (1991) *Active learning: creating excitement in the classroom. ASHE-ERIC Higher Education Report*, Washington DC: School of Education and Human Development, George Washington University.
- Bromley, P., Meyer, J.W. and Ramirez, F.O. (2011) 'Student-centeredness in social science textbooks, 1970-2008: a cross-national study', *Social Forces* 90:2, pp. 547-570.
- Hartley, J. and Cameron, A. (1967) 'Some observations on the efficiency of lecturing', *Educational Review* 20:1, pp. 30-37.
- Littlewood, K.E., Shilling A.M., Stemland C.J., Wright E.B. and Kirk M.A. (2013) 'High-fidelity simulation is superior to case-based discussion in teaching the management of shock', *Medical Teacher* 35:3, pp. 1003-1010.
- Prensky, M. (2001) 'Digital natives, digital immigrants', *On the Horizon* 9:5, pp. 1-6.
- Trilling, B. and Fadel, C. (2009) *21st century skills, learning for life in our times*, San Francisco, CA: John Wiley & Sons, Inc.
- Zhao, Y. (2012) *World class learners: educating creative and entrepreneurial students*, Thousand Oaks, CA: Corwin Press.



**Stanislava Kováčová** received her master's degree in psychology from Masaryk University in 2013. She subsequently worked at the Institute of Psychology at the Czech Academy of Sciences as a research assistant on a project on relations between the Czech majority and the Roma minority living in the Czech Republic. She obtained several scholarships to take courses at multiple top-ranked universities, e.g. University of Groningen, University of Helsinki, University of Arizona and University of Tehran. Her academic interests include social psychology and in particular the fields of intergroup contact and social influence as well as a general interest in pedagogy. She is currently transitioning from having a more academic focus to practicing psychology as a school psychologist at an elementary school in the Czech Republic.

[kovacova.stania@gmail.com](mailto:kovacova.stania@gmail.com)