

ACTIVE LEARNING IN PRACTICE: STUDENTS' PERCEPTIONS IN AN ECONOMICS-LECTURE CLASSROOM

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Abstract In higher education, there is an increasing trend from teacher-centred to student-centred learning environments, wherein active learning experiences can play a decisive role. This paper assesses how students perceive the use of active learning techniques within the lecture framework, traditionally accepting students as passive listeners. To that end, a survey was distributed in a single class at mid-semester in order to evaluate and help refine the active learning approach conducted in an economics course. Results show that students have an overall positive response towards active learning, helping them to focus, engage and learn, and especially valuing the lectures as a whole as interactive and a valuable learning experience. Students' appraisal regarding the usefulness of key implementation rules like the what, when, who technique on slide-written instructions as well as the variety of active learning activities tested has also revealed that the designing and testing of active learning events need improvement.

Keywords:
active learning, higher education, student perceptions, survey, economics course.



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Introduction

Active learning shifts the focus from teacher-centred learning to student-centred learning. According to Bonwell and Eison (1991), involving students in doing things and thinking about the things that they are doing can be referred to as active learning. Thus, through active learning techniques, students are engaged in more than passive listening and more emphasis is placed on higher-level thinking tasks such as analysis, synthesis and evaluation.

Research shows that active learning is essential for enhancing students' learning (Prince, 2004). Other related outcomes include higher academic achievement (Freeman et al., 2014), increased retention and development of higher-order thinking skills (Trego, 2016). However, there are many obstacles associated with the use of active learning. Apart from global barriers to change what is known as educational tradition, there are specific difficulties in designing and testing time-intensive active learning activities, in adequately covering all syllabus with activities perceived as taking too much time in the classroom, and in students lacking the necessary skills for active learning strategies that work (Felder & Brent, 2009).

While active learning techniques can be more effectively implemented in flipped classrooms (Brame, 2013) or active learning classrooms (Drake & Battaglia, 2014), modifying traditional lectures to incorporate active learning in the classroom is also an alternative even in large classes (Bonwell & Eison, 1991). Transforming the passivity of a traditional lecture-based large class by adding short activities that most students or all of them will do can make a substantial difference in the learning process with a minor impact on the syllabus and should not take much time (Felder & Brent, 2009). Moreover, letting students know the benefits of using this approach can help change the small fraction of the class that do not engage in active learning.

Nevertheless, how the students perceive or value the use of active learning techniques within the lecture framework needs further study. This paper is a first attempt at motivating the further use of an active learning approach within an economics-lecture classroom, resulting in the following research question: "*How can students perceive the active learning approach implemented in economics lectures?*". To that end, this paper gauges students' beliefs and attitudes toward both active learning principles and outcomes by using an 11 question Likert-type inventory as well as

responses to open-ended questions taken at mid-semester in an economics course. The remainder of the paper is organized as follows. Section 2 briefly overviews the topic by presenting both major advantages and strategies adopted in active learning. Section 3 describes the main features of the course-lecture and active learning approach at study, followed by a brief description of the survey and analysis of the main results. Section 4 concludes the paper.

Active learning in practice – overview

There are many broad definitions of active learning and the evidence that in order to learn, students need to do something is at their core. To consider something as active learning, students must be doing something other than just listening to a lecture or reading PowerPoint slides. A lecture does have its place and can be dynamic and engaging by itself. However, active learning is often contrasted to the traditional lecture and can thus be defined as “anything course-related that all students in a class session are called upon to do other than simply watching, listening and taking notes” (Felder & Brent, 2009, p. 2). Moreover, active learning is the idea that to be actively involved in the learning process, students must engage in the higher-level cognitive processes of applying, analysing, evaluating, and creating.¹ Consequently, according to Dale’s Pyramid of Learning (Dale, 1969), students are expected to retain 70% of what they say and write and 90% of what they do compared with the fact that students generally remember only 10% of what they read and 20% of what they hear. Thus, active learning equals better learning.

Even though learning is the most consistent outcome of active learning, many other benefits have been well documented. For instance, in a meta-analysis of research on active learning, Prince (2004) reported improvements in the following: (i) both short-term and long-term recall of information; (ii) students’ academic performance; (iii) conceptual understandings; (iv) retention in academic programs; (v) student attention; (vi) student engagement; (vii) critical thinking skills; (viii) student’s self-esteem; (ix) interpersonal relationships; (x) teamwork skills (Drake & Battaglia, 2014). More recently, the meta-analysis of Freeman et al. (2014) showed that in

¹ Bloom’s taxonomy of learning outcomes has six levels: (i) Knowledge / Remembering; (ii) Comprehension / Understanding; (iii) Application / Applying; (iv) Analysis / Analysing; (v) Synthesis / Evaluating; (vi) Evaluation / Creating.

undergraduate courses where active learning was used there was, on average, a 12-percentage point decrease in the failure rate.

The theoretical reflections outlined above lead to the following proposition:

Proposition One (P1): Students can perceive or value active learning expected outcomes such as focus, engagement, or learning.

The published literature on examples of active learning provides a rich menu of different approaches for students to become engaged learners and dynamic thinkers. For instance, active learning strategies reported in Drake and Battaglia (2014) include the following: brainstorming; classroom assessment techniques; clickers; collaborative learning strategies; concept mapping; concept tests; cooperative learning strategies; debates; experiments; field trips; games; interactive discussion; note check; panel discussions; performances; presentations, problem-based learning; question and answer pairs; research; role plays; service learning; simulations; team-based learning; the pause procedure; think-pair-share; writing-to-learn. The Florida State University handbook, on the other hand, provides a large sampling of active learning techniques, while noting that “grasping the principles of active learning will do far more for your teaching than simply using these activities as if they are templates to be filled in with your respective content” (FSU, 2011, p. 76).

Many of the above active learning examples can be applied in large lecture sections in which the traditional lecture is modified to integrate active learning into the classroom. Lecturing can be an active learning experience by simply asking a question, posing a problem or issuing some other type of challenge. Nevertheless, a modified lecture will not be considered active learning if the same few students answer the questions or if discussions engage only a small fraction of the class (Felder & Brent, 2009).

To get a clearer picture of what may constitute active learning in practice within the lecture framework, the present paper assesses an active learning approach that followed the guiding principles set forth in a one-day training session for higher education teachers on the subject. In accordance, five steps were recommended to set up an active learning activity: 1) prepare clear instructions guided by specific questions: What? (e.g. video with questions) When? (e.g. three minutes) Who? (e.g.

individually); 2) present the instructions to the class and ask students to follow them as written; 3) let the class decide if adequate instructions were given and start the activity, preferably with timers; 4) move around, going closer to students and seeking clarification if necessary; 5) ask students to share their results and promote discussion, providing feedback about the students' knowledge or misunderstandings (Sá, 2018). Subsequently, short-time activities were planned throughout each chapter of the syllabus and tested in lectures. The activities were of the following type: book exercises, case studies, debates, Full-Body Responses (FBR), one-minute papers, quizzes, T-analyses, and videos with questions.

Considering this set of active learning principles, the following proposition may be stated:

Proposition Two (P2): Students can perceive the usefulness of certain functioning aspects that set up active learning activities.

Findings from an Economics lecture classroom

Economics is a Curricular Unit to first-year students enrolled in one of the following first-cycle courses offered by the School of Business and Administration (ESCE): (i) Accounting and Finance; (ii) Accounting and Finance – evening classes; (iii) Marketing; (iv) IT Systems Management. Undergraduate students of (i) and (ii) attend Economics during the second semester while those of (iii) and (iv) attend it on the first semester. Table 1 presents the number of students enrolled in Economics subject in the last three academic years and the corresponding failure rates, usually measured as the percentage of students receiving a grade lower than 10, on a scale of 0 to 20, or withdrawing from the course in question.

Table 1: Economics in ESCE 1st Cycle Courses – Enrolment and Failure Rates

ESCE 1st cycle courses	Academic year	Enrolled students	Failure rates
Accounting and Finance	2015/2016	150	46.67%
	2016/2017	144	62.50%
	2017/2018	136	59.56%
Accounting and Finance - evening classes	2015/2016	66	57.58%
	2016/2017	63	73.02%
	2017/2018	64	65.63%
Marketing	2016/2017	131	45.80%
	2017/2018	107	65.42%
	2018/2019	109	60.55%
IT Systems Management	2016/2017	91	42.86%
	2017/2018	72	61.11%
	2018/2019	73	30.14%

As Table 1 reveals, ESCE Economics is a medium- to large-enrolment subject. Furthermore, it presents high failure rates with an average failure rate across the academic years and undergraduate courses of 55.9% (presented in Table 1). The worst situation is Economics taught to Accounting and Finance students in evening classes with a failure rate above 50% in the last three academic years.

Economics is traditionally delivered to undergraduate students in the form of lectures and practical classes. Lectures of three hours per week take place in medium to large size classrooms (100 students), whereas practical classes of one hour per week are in small to medium size classrooms (average size class of 45 students).² The teaching methodologies are consequently different: in the first case, both expository and interrogative methods are combined with the learning of the theoretical and conceptual economics framework; in practical classes, students develop analysis and discussion skills and solve different types of exercises. Moodle webpage supports student learning.

² ESCE Economics lectures are usually delivered twice a week; one lecture of one hour per day and a second one of two hours per day.

In the evening classes, one lecturer started to implement active learning activities at the beginning of the second semester 2018/19. The number of students currently enrolled in the class is 82, although only approximately one third attends Economics lectures on a regular basis. Table 2 summarizes the various active learning exercises done in the lectures of each week until mid-semester.

Table 2. List of Active Learning Activities within an 8-Week Economics-Lecture Framework

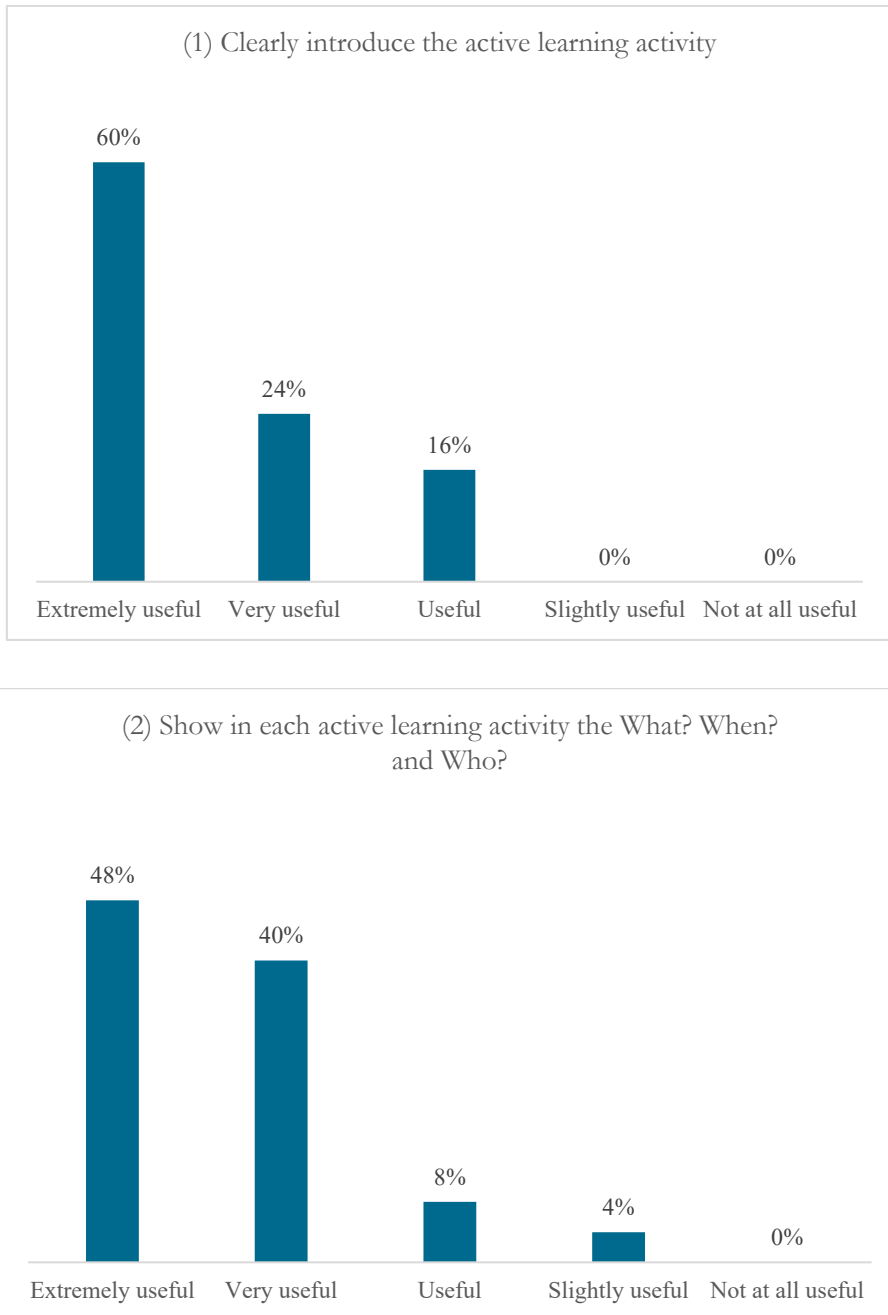
Economics Syllabus	Lectures Topic	Lectures Week	Active Learning Activities		
			What?	When?	Who?
1.1 – Definitions and Basic Concepts	Economics as a social science	Week 1	Quiz – three multiple choice questions	2 minutes	groups of two
	Microeconomics vs macroeconomics		Quiz – eight true or false questions	2 minutes	groups of two
	Normative economy vs positive economy		Quiz – eight true or false questions	2 minutes	groups of two
	Rational decisions, Cost-benefit principle	Week 2	Debate – open question for discussion	4 minutes	groups of two
	Production-Possibility Frontier (PPF), Opportunity costs		Book exercise	5 minutes	individually
	PPF - shifts of curves		Full-Body Response (FBR) – body position in accordance with answer chosen	10 seconds	individually
1.2 – Mixed Economy and the Government Behaviour	Government intervention, Market failure	Week 3	One-minute paper (OMP) – writing short response to two questions	4 minutes	individually
	Public goods		Debate – open question for discussion	2 minutes	groups of two
2.1 – Objectives, Instruments, and Macroeconomic Models	Macroeconomic policies	Week 4	Debate – open question for discussion	4 minutes	groups of two
	Economic activity, Labour market, Prices	Week 5	Case study – national statistics about Portugal	5 minutes	groups of two
	International trade		Case study – external trade statistics about Portugal	2 minutes	groups of two
	Gross Domestic/National Product, GDP vs GNP	Week 6	Quiz – two multiple choice questions	2 minutes	groups of two

2.2 – National Accountancy	National accounts		Book exercise	5 minutes	individually
2.3 – Economic Growth and Development	Sustainable Development Goals (SDG)		YouTube video with two questions	video duration(5:23)	individually
3.1 – Demand, Supply, Market, and Elasticities	Supply (S) and Demand (D)	Week 7	Quiz – two multiple choice questions	2 minutes	groups of two
	D - shifts of vs movement along curves		FBR – body position in accordance with answer chosen	30 seconds	individually
	D and S - shifts of curves		Debate – open question for discussion	2 minutes	groups of two
	Price controls		T-analysis – writing advantages on the left side and disadvantages on the right side	3 minutes	groups of two
	Price Elasticity of Demand (PED)	Week 8	Quiz – one multiple choice question	1 minute	groups of two
	Elasticity and revenue		Book exercise	3 minutes	groups of two
	Income Elasticity of Demand (IED)		Book exercise	4 minutes	individually

In order to evaluate students' perceptions about the activities listed in Table 2 above, a self-administered survey was distributed to students in lecture week 9. A total of 25 students responded anonymously to the questionnaire (91% of the average class attendance). 52% of the respondents were female and 48% were male. All the students surveyed attended evening classes and thus, not surprisingly, the majority of them (76%) were above 20 years of age and only 24% were aged between 18 and 20 years. In addition, the majority of the students (79%) are student workers and only 21% are full time students. In spite of these class characteristics, 92% of the respondents marked their class attendance in all or almost all cases, while solely 8% marked their class attendance in just some Economics lectures.

Apart from basic demographic questions and respondents' studying information, the one-sheet questionnaire comprised three different sections: (i) five questions about students' opinion on specific aspects of the active learning method used in classes with answering options ranging from 'extremely useful' to 'not at all useful' on a five-point Likert scale; (ii) five questions about students' opinion on active learning expected outcomes, with answering options ranging from 'strongly agree' to 'strongly disagree' on a five-point Likert scale; (iii) the overall impression that students had about their active learning experiences in the class, evaluated using both one Likert-type scale question and two optional open-ended questions.³ Figure 1 shows students' responses to each of the questions related to (i).

³ A non-response option (unable to judge) was also added in each multiple-choice question.

**Figure 1: Responses to five questions on the active learning method of Economics lectures**

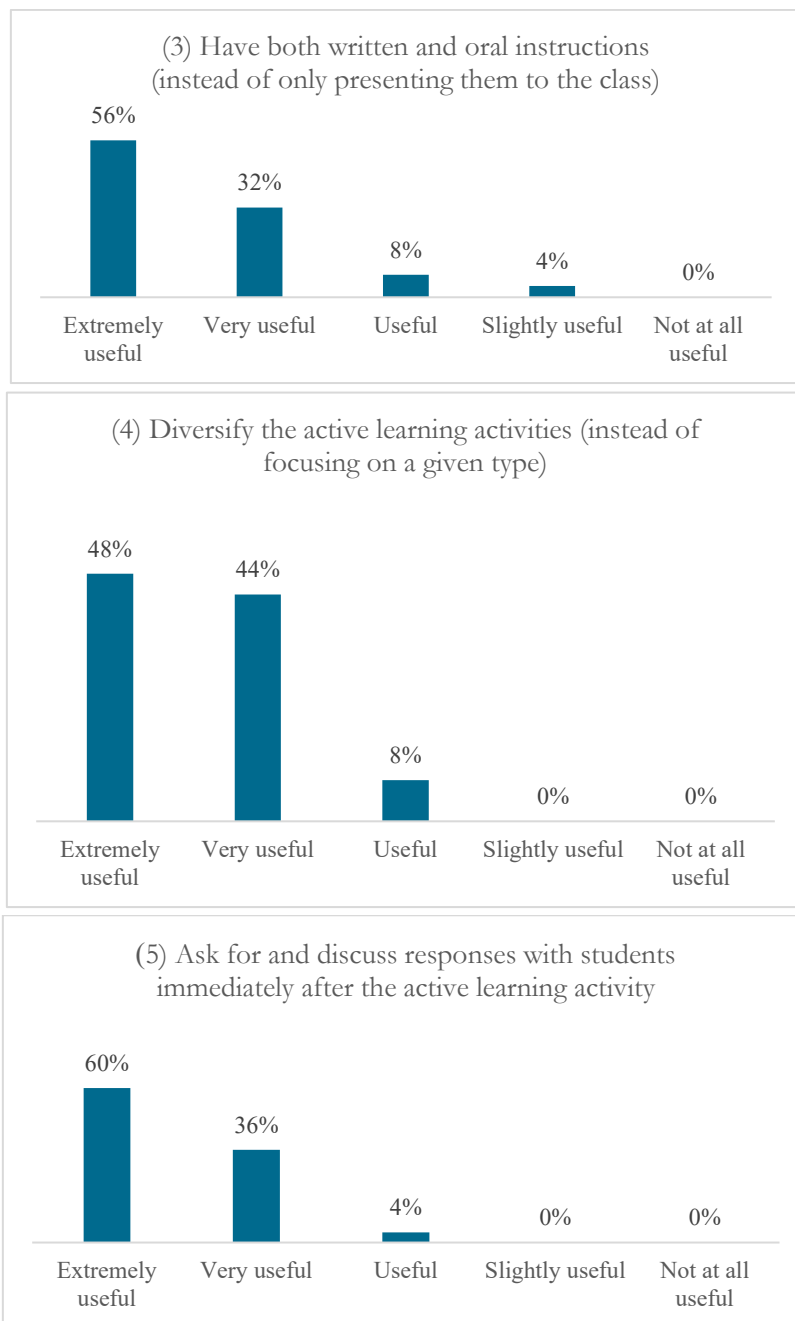


Figure 1.1: Responses to five questions on the active learning method of Economics lectures (continued)

As evidenced in Figure 1, students had an overall positive attitude towards active learning strategies implemented in the Economics lecture classroom; it was thus possible to validate research proposition P2. This is especially the case with regard to the feedback on activities where 96% of respondents perceived ‘asking for and discussing responses with students immediately after the active learning activity’ as either extremely useful or very useful. This finding is reinforced by the statement “better understanding, helping address students' misunderstandings” written by two students as a response to the open question regarding major positive aspects of their active learning experiences in the class. On the other hand, in response to question (2), 88% of students responded positively to clear instructions guided by the WWW technique, even though “not enough time to complete assignments” was stated by three students as the single top weakness of some active learning activities at the core of the discussion. The obtained result advises us to examine the miscalculation of the time allocated for most students to either finish or make reasonable progress toward finishing each activity, as specified in Table 2. However, as noted by Felder and Brent (2009), keeping the activities short prevents two common mistakes: (i) “making exercises too long” (say, ten minutes to solve a problem) and (ii) “calling for volunteers to respond after every activity”; thus making “active learning [...] almost guaranteed to work” (Felder & Brent, 2009, p. 4).

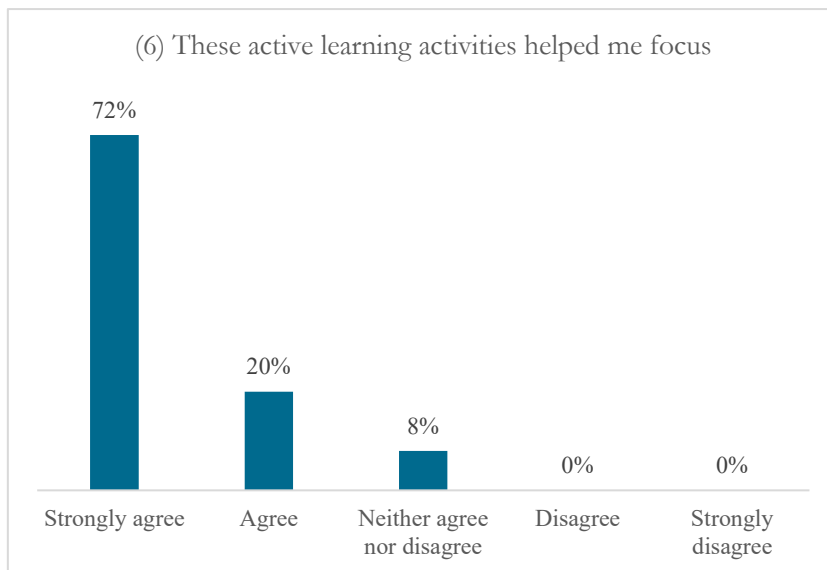


Figure 2: Responses to five questions on active learning expected outcomes

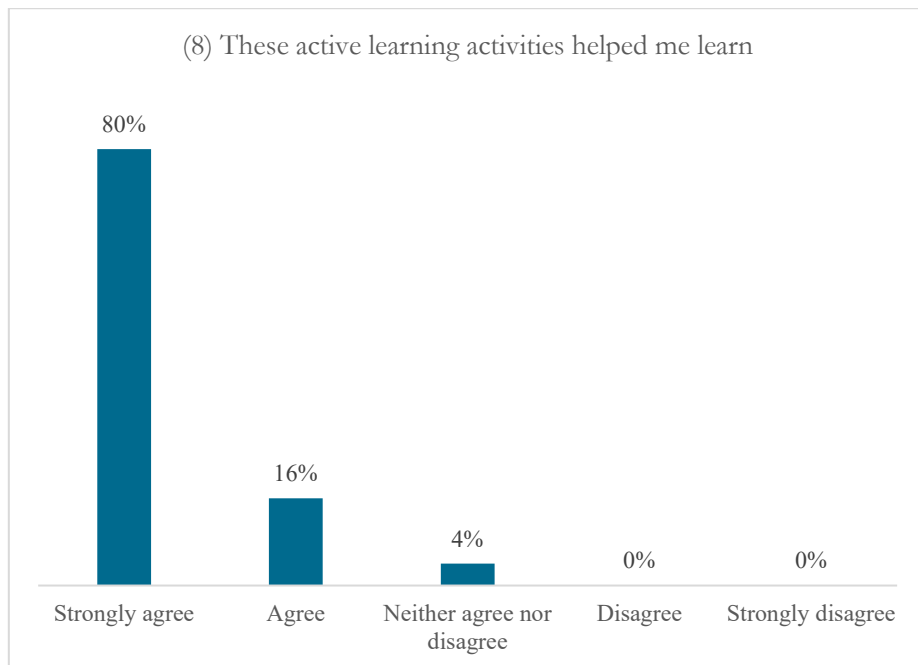
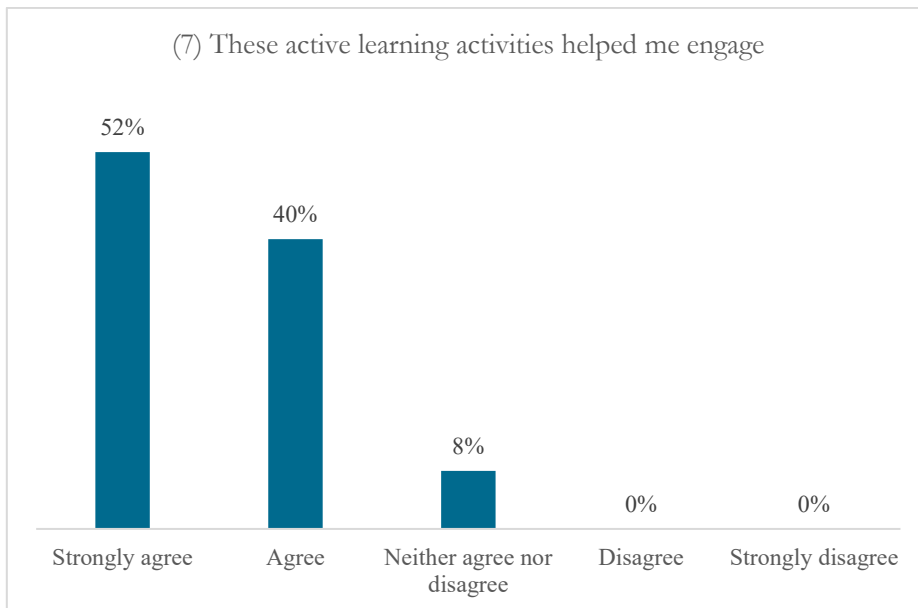


Figure 2.1: Responses to five questions on active learning expected outcomes (continued)

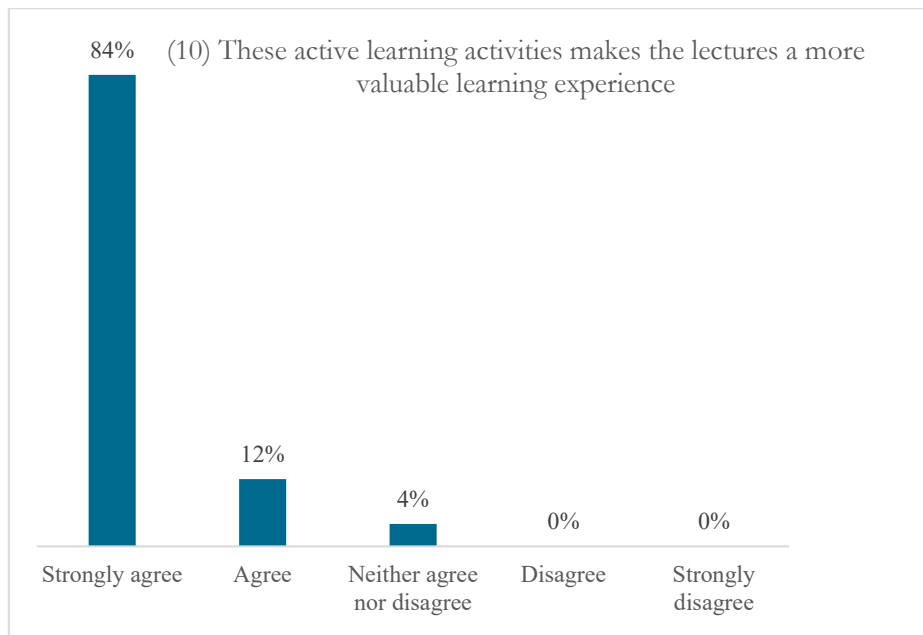
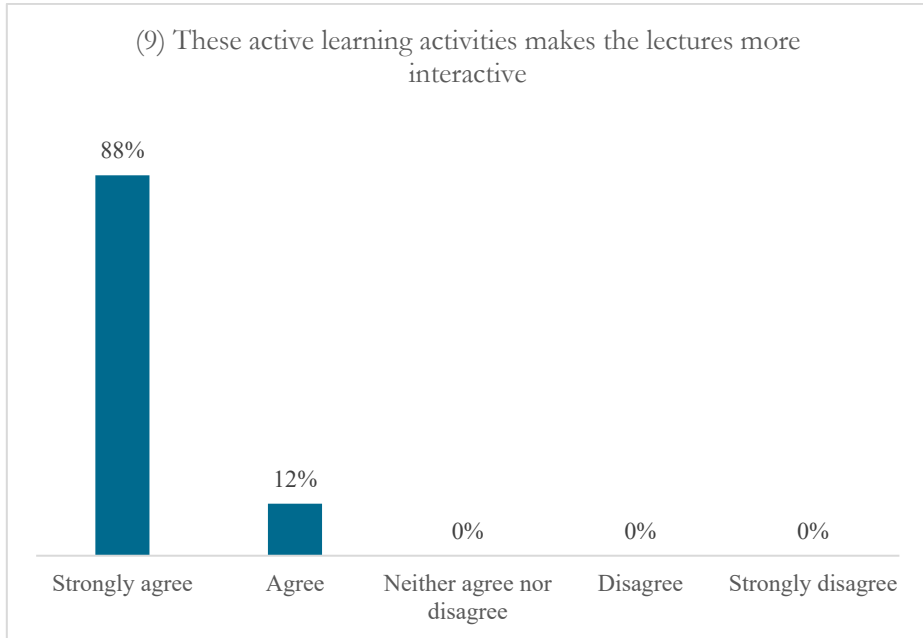


Figure 2.2: Responses to five questions on active learning expected outcomes (continued)

Concerning the responses for the second category of questions presented in Figure 2, all students agreed that active learning activities make Economics lectures more interactive. Indeed, interaction is among the most important positive aspects of these activities, identified as such by eight students in the corresponding optional open text question. Moreover, in response to questions (8) and (10), students responded quite positively with 96% in agreement on both the active learning activities within the Economics lecture framework helping them to learn and making the lectures a more valuable learning experience. Four students also expressly stated “improved understanding, helping students understand the course content” as the top strength of these active learning activities. These perceived findings are in line with the previously cited evidence of learning as the most consistent outcome. Moreover, the findings presented in Table 4 support research proposition P1 as students seem to perceive active learning as overwhelmingly positive.

Finally, the active learning format adopted in the Economics lectures was overall quite well received by students with 88% of them classifying it as very good and 12% as good on a five-point Likert scale (from ‘very good’ to ‘very bad’). Nevertheless, a global comparison between graphs presented in Figure 1 and those in Figure 2 shows that, generally, students give more importance to positive aspects of active learning rather than the way in which active learning activities materialize in lectures. On average, 95% of students responded with either ‘strongly agree’ or ‘agree’ to the five active learning outcomes mentioned in Figure 2 compared with 90% of students who, on average, evaluated the five active learning strategies referred to in Figure 1 as either extremely useful or very useful. Results thus seem to suggest that students take for granted the teaching methodology, instead of making own judgements about alternative perspectives.

Conclusion

The findings indicate that students have a generally positive response towards active learning which helps them to focus, engage and learn. Overall, they especially appreciate interactive lectures as valuable learning experience. However, major potential limitations of the experiment are both teacher and student resistance. On the one hand, teachers may perceive the planning and the implementation of such active learning activities within classes as time consuming and resulting in not adequately covering the whole syllabus. On the other hand, this approach shifts a lot

of responsibility from the teacher to the students and, therefore, students may resent working in class, especially if this extra work is regarded as formative evaluation with no extra grade counting for their final assessment.

Furthermore, this investigation surveyed evening-class students' opinions prior to the examination scores and the end-of-year course evaluations. Therefore, two logical challenges follow: (i) To what extent do students' positive evaluations of active learning translate into better student performance in examinations?; and (ii) Will students in day classes (i.e. expectedly younger students and either non-worker or part-time students) embrace active learning within the lecture framework as well as students at evening classes did?. To those specific ends, first, the trial experiment within Economics taught to Accounting and Finance students in evening classes needs to proceed until the end of semester and, consequently, it needs to be adapted to day classes in accordance with the learning outcomes from a new assessment of method and results. Hopefully, the active learning approach in question can serve as an example of a beneficial tool that other lecturers should consider.

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References

- Bonwell, C. C., & Eison, J. A. (1991). *Active learning: creating excitement in the classroom*. ASHE-Eric Higher Education Rep, 1. Washington, DC: The George Washington University, School of Education and Human Development.
- Brame, C. (2013). *Flipping the classroom*. Vanderbilt University Center for Teaching. Retrieved from <http://cft.vanderbilt.edu/guides-sub-pages/flipping-the-classroom/>
- Dale, E. (1969). *Audio-Visual Methods in Teaching*. 3rd Edition. New York: Holt, Rinehart & Winston.
- Drake, E., & Battaglia, D. (2014). *Teaching and learning in active learning classrooms – Recommendations, research and resources*. Michigan: Central Michigan University, The Faculty Center for Innovative Teaching.
- Felder, R. M., & Brent, R. (2009). Active learning: An introduction. *ASQ Higher Education Brief*, 2(4), 1-5.
- Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafora, N., Jordt, H., & Wenderotha, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences of the United States of America*, 111(23), 8410–8415.
- FSU (2011). *Instruction at FSU – A guide to teaching and learning practices*. 7th edition. Florida: Florida State University (FSU), Office of Distance Learning.
- Prince, M. (2004). Does active learning work? A review of the research. *Journal of Engineering Education*, 93(3), 223-231.

- Sá, S. (2018). *Active learning*. Instituto Politécnico de Setúbal. Retrieved from <http://mateas.wdfiles.com/local--files/thread%3Aactive-learning/APRESENTA%C3%87%C3%83O%20Active%20learning.pdf>
- Trego, M. (2016). *What is active learning?* Northwest Iowa Community College. Retrieved from <https://www.youtube.com/watch?v=UsDI6hDx5uI>