

Developing a short list of guidelines on the importance and best use of student presentations in classroom teaching

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Key abbreviations. AL: active learning, SDL: student-directed learning

Overview

Background

Student-directed learning (SDL) has emerged as an important learning concept in higher education. The goal of SDL is to promote more active learning (AL), a better sense of responsibility, a higher-level of learning, and, ideally, should empower students to become life-long learners. Student presentations are an important AL component of SDL that have been implemented in many courses at universities in Denmark and abroad. Usually, students are given a topic that they have to familiarize themselves with and then teach the topic to their peers. This not only requires an understanding of the topic at a level that enables students to teach, and ideally, also answer questions and lead discussions, but also requires a general understanding of how to best prepare and successfully present a topic.

Rationale and Goal

Some students, especially those that have just entered higher education may find it difficult to understand the benefits of student presentations and to acquire the skills needed to present in a way that not only engages their

fellow students but yields a positive learning outcome. The goal of this project was to develop a concise list of guidelines on the usefulness and best approach for student presentations using first-year medical students enrolled in the human biology course at the University of Copenhagen as example.

Summary of methods and main findings

First-year medical students were taught for one semester in human biology (3909-E20 basal humanbiologi) at the University of Copenhagen, a course that included, among lectures and some practical sessions, a weekly student-activated class (SAU) in which students had to present various topics to their peers. At the end of the semester students evaluated the SAU class. This revealed that while students were generally satisfied with the class, for some students, student presentations caused frustration and dissatisfaction. Based on this negative evaluation and additional conversations held with students and teachers, a short set of guidelines for student presenters and teachers was developed. These could be used in the human biology class or any other class that includes student presentations in the curriculum.

Conclusions

Student presentations are an important part of SDL that have significant potential in enhancing (long-term) learning outcomes. However, students are not trained teachers and, if left without sufficient guidance or feedback, student presentations may result in frustration and negative learning outcomes for some students. Thus, a concise set of guidelines may help improve the use and perception of student presentations in the future.

Introduction

Student presentations are a component of Active learning (AL)

Student presentations are one of several activities that are commonly grouped under “Active learning” (AL). Active learning, as described by Bonwell and Eison (Bonwell & Eison, 1991) is "a method of learning in which students are actively or experientially involved in the learning process and where

there are different levels of active learning, depending on student involvement." As such, AL describes any type of learning during which students are not passively listening. Examples are debates, round tables, group work, quizzes, role plays, and student presentations.

The principle of AL is based on the basic idea that students require more than mere listening in order to acquire, critically evaluate and retain knowledge. This includes reading, writing, and discussing (Bean, 1996) but also higher-order tasks such as problem-solving and evaluation (Renkl et al., 2010). AL has been shown to be superior to classical lecture-based teaching in many teaching environments and disciplines, including science, engineering and mathematics (Freeman et al., 2014), medicine (Michael, 2006), humanities (Mello & Less, 2013), and economics (Dorestani, 2005).

Because of its widely proven beneficial effect on learning, AL has become an important part of educational theory and practice. Despite its usefulness, AL can be challenging to effectively implement under certain circumstances.

Challenges of AL

Some of the reported possible challenges of AL are a lack of a focal point that is typically represented by the teacher, the presence of multiple distractions in the classroom, and students that may be reluctant to engage in AL (Petersen & Gorman, 2014). Additionally, some teachers, particularly those new to teaching may restrain from AL because they have less control over what will happen in the classroom when compared to giving a lecture that can be well prepared in advance (L. Rienecker & Ingerslev, 2015). Furthermore, students taught in larger classrooms may not be as convinced by the benefits of AL as those in smaller or medium-sized classes (Juergensen et al., 2016).

Conclusions that can be drawn from these studies are that, in order to take full advantage of the benefits of AL, students may need to be more aware of the theory behind the use of AL in order to appreciate various types of activities in the classroom. Educators, especially those new to AL may need more courage to try out different activities, thereby gaining more experience, and institutions could reconsider how to redesign classroom layouts and curricula to facilitate the incorporation of AL.

Student presentations are a component of Student-Directed Learning (SDL)

Student presentations require students to independently learn specific topics to the level of understanding needed to transfer the acquired knowledge to their peers. Thus, the topic of student presentations is directly connected to the theory of SDL. This section provides a brief summary of this theory.

Student-directed learning as defined by Knowles (Knowles, 1975) describes “A process in which individuals take the initiative (...) in formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes”. Instead of playing a passive role in the learning process, by assuming the role of the teacher, students are thought to have better, higher-level learning outcomes. Later, several educators, including Hiemstra (Hiemstra, 1982), Zimmermann (Zimmerman, 1990), Claxton (Claxton, 1996), further argued that the learning processes and environment should be structured in a way that fully enables students to take responsibility for their own learning, and that, if successful, SDL will create life-long learners (**del1996international**).

While SDL has become an important concept in educational theory and practice, very little field and experimental research data has become available to show the effectiveness of SDL in the classroom. What has been repeatedly reported on, however, are some of the main challenges of SDL.

Challenges of SDL

SDL assumes that students can regulate their learning in various ways, “such as goal-setting, time management, learning strategies, self-evaluation (...), seeking help or information, and important self-motivational beliefs, such as self-efficacy and intrinsic task interest” (Zimmerman, 2002). However, students are not trained teachers and may lack the skill set needed to effectively direct their own learning. In their 2001 review, Oser and Baeriswyl (Oser & Baeriswyl, 2001) state that in order to make SDL an educational goal, teachers have to guide the students in choosing suitable learning strategies. As found in several studies on this topic (Boekaerts & Simons, 1993; Kember, 1997; Lunenberg & Korthagen, 2005; Vermunt, 1997) this is often not the case.

Conclusions that can be drawn from these studies are that educators should offer students some level of guidance, and that educators may need more training in determining the type of support that should be provided.

Student presentations – opportunities and challenges in the context of AL and SDL

Student presentations are student-directed and executed activities and, as such, have the same or very similar opportunities and challenges as described for AL and SDL. One additional benefit and challenge to the ones listed above is that students have to learn to be able to effectively present their learning to other students. While repeated student presentations will ultimately enable students to become better presenters, for some students, this may cause stress and anxiety which may have to be addressed by the teacher.

Project Goals

The overall aim of this project was to develop a concise list of best-practice recommendations to enhance the perception and learning outcomes of student presentations.

The specific goals of these recommendations are to

1. help students and (new) teachers understand and appreciate the use of student presentations in the classroom
2. enable students to tailor their presentation to best motivate and engage their peers and facilitate high-level learning
3. encourage students to become better presenters
4. encourage students to reflect and receive feedback on their presentations

Methods

Subjects

The subjects of this project were a subset of the ~ 350 first-year medical students enrolled in the course human biology (3909-E20 basal humanbiology) at the University of Copenhagen in the fall of 2020. This course consists of ~14 lectures on various topics of human biology with a focus on the physiology and anatomy of the human body. Each lecture is accompanied by

a student-activated class (SAU-24) consisting of a small group of ~24 students. At the beginning of each class, two groups, each consisting of 2-3 students, give a presentation on the weekly topic to their peers. The purpose of the SAU-24 class is to gain a better, more in-depth understanding of some of the learning objectives. Additionally, the students have a series of practical sessions on a select number of topics.

Material

At the end of the semester, students evaluated the entire course and their particular SAU-24 class. In addition to this written evaluation, SAU-24 students elected a class representative who, after having a joint discussion with the class, provided additional feedback to the teacher during a one-hour discussion. Several SAU-24 teachers were also asked about their experience with student presentations.

Future material: Following the completion of this project, the herein developed guidelines will be shared with the course coordinator, other interested teachers and future students of this and potentially other classes. This will facilitate a future survey or discussion of the usefulness of these guidelines.

Analysis

Since there was no overlap between the time provided to prepare this project and teaching of this class, it was difficult to conduct a quantitative survey. Instead, written evaluations, informal discussions with the student representative and several teachers, and literature on the benefits and challenges of student presentations in the context of AL and SDL were used to formulate the guidelines. Note: evaluations written in Danish were translated into English which may have slightly changed the exact content of the written text.

Findings

One of the major issues that emerged from the written evaluations was that students did not seem to fully appreciate student presentations, particularly regarding the benefit for the (student) audience.

Extract from the overall course evaluation: *“The many student presentations in SAU only activate the individual student, so a suggestion is that there should not be so many in the future, or that presentations are better integrated with the rest of SAU.”*

Extract from the individual SAU-24 evaluation: *“The presentations at the beginning of SAU were not the best, it was extremely good for those who presented, but less good for those who did not present, so maybe you one make smaller groups, divide the class into 4, so that one presents a small part of a topic to each SAU.”*

Additional insight on the students’ perception of student presentations were gained from the discussion with the student representative of the SAU-24 class:

“The good thing about the presentations is that you get another viewpoint than when just being taught, it forces us to really dig into something (...) but “Sometimes it was obvious that students did not prepare their presentations well. In general, presenters did very well with topics that required some level of understanding compared to topics that can be learned by heart.”

Furthermore, the discussion revealed that students preferred topics and presentations that were as closely as possible aligned with the competencies needed to pass the course. One suggestion that was strongly voiced was that student presentations could help prepare the other students for potential exam questions by discussing and presenting potential answers to a selected pool of past exam questions.

This would then not only help students prepare for the exam but ensure that the audience was motivated to listen, thereby increasing the likelihood of the presentation being perceived as important and generating positive learning outcomes. Students were generally able to find the required literature, material, and software tools needed for preparing and giving their presentations, and there did not seem to be any concern about the format of the presentations.

Finally, conversations with other teachers revealed that it could be helpful to have some guidance on how to design and discuss student presentations with the class. In general, student presentations were perceived as a useful and important part of SAU because of their pedagogical value. Additionally, teachers mentioned that one benefit was that students serve as assistants to the teacher by taking care of a few topics that teachers do not need to cover themselves. There was no specific consensus as to what topics may be best suited for student presentations and some teachers preselect

the topic from the list of learning objectives, while others let their students select a topic from this list themselves.

Guidelines for Student Presentations

Based on the pedagogical literature on AL and SDL, student evaluations, and conversations with students and teachers a set of short guidelines was formulated that may help in creating a more positive perception of student presentation and better learning outcomes in the future:

GUIDELINES FOR STUDENTS

GENERAL INFO ON STUDENT PRESENTATIONS

Student presentations are an integral part of what is defined as active learning (AL) and student-directed learning (SDL) in pedagogy. Numerous studies have proven measurable benefits of AL and SDL as supplements to teacher-directed learning.

Some of the known benefits for you as a student presenter are: 1) better, higher-level learning outcomes (more deep learning, increased content knowledge, enhanced critical thinking and problem-solving abilities); 2) enabling you to take responsibility for your own learning, thereby becoming a life-long learner; and 3) strengthening your relationship with other students through direct student-student interactions.

Additionally, you are likely to become a better presenter through the repeated practise of giving presentations, a soft skill that has become increasingly important in nearly all professional disciplines.

It is important to keep in mind that you are not a trained teacher and are not expected to know the presented topic in great depth or detail. Instead, because your background knowledge is more similar to your fellow students than your teacher's, you have the advantage of being able to provide more practical, and sometimes better advice and point out useful resources to your peers than your teacher could. Furthermore, you are often more capable of activating your student audience because you know the interests and preferences of your peers better than most teachers do.

In order to take full advantage of these benefits of student presentations, you should consider the following recommendations:

RECOMMENDATIONS

- Prepare your presentation well but do not try to become an expert in the topic. Ideally, select or ask for a topic that requires some level of understanding (e.g., how does our body respond to danger?) rather than a topic that can be easily learned by heart (e.g., the names of cranial nerves).
- If possible, teach the topic in a way that is of high relevance to your peers. For example, present an exam question on a topic that interests you, or a case study as it could appear in your exam.
- Your presentation does not have to follow a classic lecture-style theme with a chalkboard or PowerPoint slides. You can be creative regarding the format.
- Try to activate your audience, for example by including one of the following activities: questions to the audience, quizzes (Kahoots), handouts, debates, games, interesting media (animations or sound bites). For more ideas go to: https://www.queensu.ca/teachingandlearning/modules/active/12_exmples_of_active_learning_activities.html
- Try not to cram too much content into your presentation. Instead, focus on ensuring deeper understanding of a specific topic.
- Don't worry if you are nervous. Many people are nervous when presenting in front of others. This will get better with more practice and positive experiences.
- Reflect on your presentation in order to make adjustments for future presentations. You can also ask for feedback from your teacher and your peers.

GUIDELINES FOR TEACHERS

RECOMMENDATIONS

- Provide a brief overview of the potential benefits of student presentations at the beginning of the course, and potentially revisit them again mid-term. This may help students see student presentations as relevant additions to the class. The guidelines provided above could be shared to serve this purpose.
- Consider the type of topic that should be presented: Is it relevant for the students' performance in the class (e.g., example exam questions on a specific topic?). Does it align with the learning objectives? Is it an engaging topic? Can the topic be taught in a student-activated manner? Will students be able to present the topic well enough without being

experts? One idea would be to hand out exam questions or cases for specific topics that students can present on.

- Provide some guidance on how to present (e.g., slides, hand-outs, Kahoots etc.).
- Encourage students to be well prepared for their presentation, thereby not only taking responsibility for their own learning but also for the learning outcomes of their peers.
- Provide feedback. Only consider implementing peer feedback if there is enough time to teach students in how to give constructive feedback.
- Encourage reflections.
- Consider conducting an informal mid-course evaluation of the student presentations in order to potentially make adjustments.

Conclusion

Student presentations can be a useful addition to classroom teaching but can lead to frustrations among some students, particularly those who are not presenting but are in the audience. The latter appears to prefer teacher-led presentations. To potentially enhance the perception and performance of student presentations in the future, this project generated a list of guidelines for students and their teachers that could be used in courses containing student presentations as AL components.

References

- Bean, J. (1996). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. Jossey-Bass Publishers.
- Boekaerts, M., & Simons, R.-J. (1993). *Leren en instructie [learning and instruction]*.
- Bonwell, C., & Eison, J. (1991). *Active learning: Creating excitement in the classroom*. AEHE-ERIC Higher Education Report.
- Claxton, G. (1996). *Liberating the learner*.
- Dorestani, A. (2005). Is interactive/active learning superior to traditional lecturing in economics courses? *Humanomics*, 21, 1–20.

- Freeman, S., Eddy, S., McDonough, M., Smith, M., Okoroafor, N., Jordt, H., & Wenderoth, M. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences*, 111(23), 8410–15.
- Hiemstra, R. (1982). Self-directed adult learning: Some implications for practice.
- Juergensen, J., Oestreich, T., Yuhnke, B., & Kenney, M. (2016). New challenges to active learning initiatives.
- Kember, D. (1997). A reconceptualisation of the research into university academics' conceptions of teaching. *Learning and instruction*, 7(3), 255–275.
- Knowles, M. (1975). *Self-directed learning*. New York, Association Press.
- L. Rienecker, P. J., R. Von Mullen, & Ingerslev, G. (2015). Activities in and between teaching sessions. In L. Rienecker, P. Jørgensen, J. Dolin, & G. Ingerslev (Eds.), *University teaching and learning* (1st ed., pp. 229–249). Samfundslitteratur.
- Lunenberg, M., & Korthagen, F. (2005). Breaking the didactic circle: A study on some aspects of the promotion of student-directed learning by teachers and teacher educators. *European Journal of Teacher Education*, 28, 1–22.
- Mello, D., & Less, C. (2013). *Effectiveness of active learning in the arts and sciences* (Vol. 45). Humanities Department Faculty, Publications & Research, Wales University Paper.
- Michael, J. (2006). Where's the evidence that active learning works? *Adv Physiol Educ*, 30, 159–167.
- Oser, F., & Baeriswyl, F. (2001). J. In V. Richardson (Ed.), *Handbook of research on teaching* (pp. 1031–1065).
- Petersen, C., & Gorman, K. (2014). Strategies to address common challenges when teaching in an active learning classroom. *New Directions for Teaching and Learning*, 137.
- Renkl, A., Atkinson, R., Maier, U., & Staley, R. (2010). From example study to problem solving: Smooth transitions help learning. *The journal of Experimental Education April*, 293-315.
- Vermunt, J. (1997).
- Zimmerman, B. (1990). 1990. *Educational Research Journal*, 25, 3–17.
- Zimmerman, B. (2002). Becoming a self-regulated learner: An overview. *Theory Into Practice*, 41, 64–72.