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WORKING TOGETHER TOWARDS LEARNING - AN EXAMPLE OF USING PEER TEACHING IN HIGHER EDUCATION

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Abstract

Peer teaching is an approach where students teach subject content to each other in addition or instead of teachers or lecturers. Peers teaching content to others originates back to Aristotele's times, and it has been used and researched on many occasions since then. Elements of peers teaching each other can be seen also in other methods of learning, as for example flipped learning and tutoring have traits of peer teaching. Peer teaching and its' applications have proven to have many benefits: it supports the learning of both parties involved and it allows more time to be dedicated to applying the content, instead of lecturing it. As peers participating usually share the same discourse, it can be easier to understand even more challenging learning contents.

The purpose of this paper is to share an example of how peer teaching can be used to increase both academic results and overall satisfaction of the learners. In this paper, we describe how we have been implementing peer teaching with students at the university of applied sciences while they are learning bookkeeping in an online course. To provide more support for students not majoring in finance and accounting, we have asked students that are at the early stage of their majoring studies in accounting to help them with their assignments and teach them the basics of bookkeeping.

The results of this peer teaching have been very promising. The academic results of students participating in peer teaching activities have improved when compared to those groups that did not participate in peer teaching activities. Not only did those receiving teaching from peers perform better, but also those teaching others reached a better understanding of the basics of the subject in matter. In addition to that, the overall feedback of the bookkeeping online course has been better since we introduced peer teaching.

Keywords: peer teaching, course development.

1 INTRODUCTION

The traditional perception of teaching is that the teacher delivers the content to the students. In peer teaching this set-up is changed, and the students are taking the role of instructors. The practical implementation of peer teaching may vary, but the underlying idea is always to make students responsible for teaching their peers certain content of the course. To be able to teach others, the students need to first internalize the content themselves. Even though the learning in peer teaching is a collaborative effort, the students need to take responsibility and control of their learning as well as the learning of the peers [1.] Students delivering the content to their peers in this kind of collaborative learning supports deeper, or higher levels of learning as presented in Bloom's well-known taxonomy of learning. [2]

Goldschmid and Goldschmid [3] have identified five types of peer teaching:

- 1 Students act as teaching assistants, by leading small group discussions and sessions of a certain topic. Sometimes students can also be asked to assist when preparing and correcting, for example exams.
- 2 Students act as proctors while other students are performing the tests and other assignments during the course. These student proctors' roles may also include giving feedback to other students and reporting any emerged issues to the teacher.
- 3 Students can be organized as study groups responsible for working together towards their own learning.
- 4 Students can be organized as study groups where some are answering questions that others may have, asking questions about the studied material, or giving feedback on the other students' work or assignments.

- 5 Students who know the topic act as tutors for those who are learning the content. In many institutions of higher education this kind of service is offered to students who struggle with learning certain content and seek one-to-one tutoring to improve their grades or learning strategies.

As can be seen, the level of how advanced the peers acting as teachers need to be, differs between types of application: in some the students are at the same level and they collaborate to form the understanding of the topic, whereas in other applications the peer teachers are situated more in between the teacher and other students, acting as co-teachers [3.]

To be successful, the students need to have a certain mindset towards learning. As said earlier, peer teaching requires participants to take collaboratively responsibility of the learning of themselves and the peers. In addition to this Winfield-Corbett [4] has identified five components that need to be present for effective peer teaching (Fig. 1):

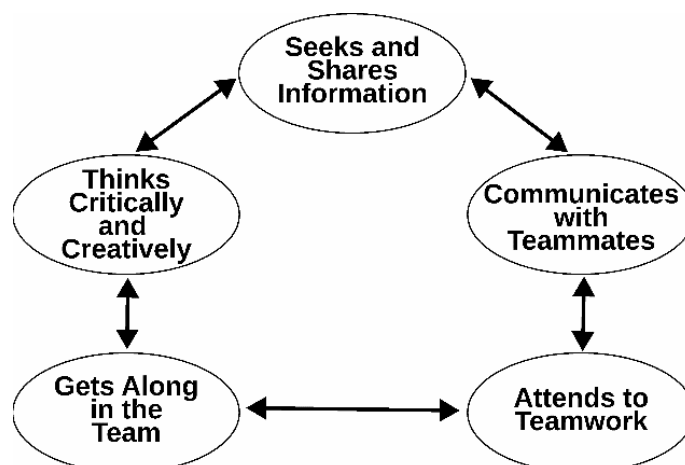


Figure 1. Features of a good participant of peer teaching [4].

According to the studies, there are many advantages of using peer teaching as a method. Peer teaching allows more time for personalized learning [5], which students today increasingly demand from educational institutions. Peer teaching has also been reported to increase active participation and motivation towards learning [5], [6]. One advantage of peer teaching is also that students share the same discourse which enhances the understanding of the topic. [5], [7] In some cases students might even feel more comfortable and easier to communicate with other students than with faculty members. [5], [8], [9] Also, when students need to teach content to others, they are urged to internalize the content. In addition to that, when explaining the content to others, the peer teachers might receive a deeper understanding of the content, which enhances their own learning. [5], [10], [11], [12]

McKenna and French [13] note that it is not only the competence of the certain subject matter that can be fostered through peer teaching, but that this method also allows students to learn and practice important 20th century work-life skills like communication skills, time management skills, and self-reflection skills.

Even though studies show clear and vast benefits from peer teaching, it is important to understand that there might also be some challenges when using this method of teaching. As peer teaching is a collaborative method of learning, it is important that each participant has the same attitude and commitment towards learning. Also, peer teaching planning should be done carefully so that students can cope with the material they are supposed to be learning and do not end up overwhelmed with the content. Teachers and students must acknowledge that peer teaching might take more time than traditional mass lecturing. [14]

2 METHODOLOGY

At Haaga-Helia University of Applied Sciences Porvoo campus we have been implementing inquiry-based learning as long as the campus has been running. Our students have had an opportunity to learn important work-life skills along with theoretical knowledge also through various projects during their studies. We have also fostered opportunities to multidisciplinary learning because we acknowledge that the purely faculty-based approach does not serve the needs of modern working life that well. This has taught us teachers to cooperate with students, instructors, and commissioners with versatile backgrounds. From this habit and willingness to cooperate, also rises our example of multidisciplinary peer-teaching.

In 2020 our curriculum did not offer accounting studies to other Bachelor of Business Administration students than those specializing in accounting and finance. Understanding the basics of financial management can be considered as one of the essential business skills, and therefore it is important to make sure that our graduates know at least the very basics of the topic. The problem was that the curriculum was lacking the basics of financial management course that would be offered to all BBA students. We tried to solve this by adding bookkeeping as a part of one of the existing courses that had suitable content for hosting this kind of additional material. Because we could not include financial management to the course description at this point, we decided to make additional virtual course of bookkeeping and encourage students to take it.

As the virtual bookkeeping course was an addition to existing course, teachers had limited resources to guide students through the assignments. Some of the students were struggling to learn the content independently, just with the help of videos and some readable materials. This kind of learning did not call only for sufficient learning skills, but also determination to take command on quite challenging topic. Few hours that teachers could use for delivering the content to the students did not seem to be sufficient. We decided to introduce peer teaching as a solution to above-described challenge.

In fall 2020 we asked our students majoring in accounting to tutor students majoring in visual marketing as they were studying the virtual course of bookkeeping. During this first implementation the students had one meeting face-to-face at campus, and after that groups continued to work online according to their preferences. We noticed that not all groups participated as actively, and that made the groups slightly unequal. We wanted to encourage collaborative working, so to implementation in fall 2021 we added one in-person session where students were able to work together with the assignments and ask teachers for help. The process for our peer teaching was as follows (Fig. 2):

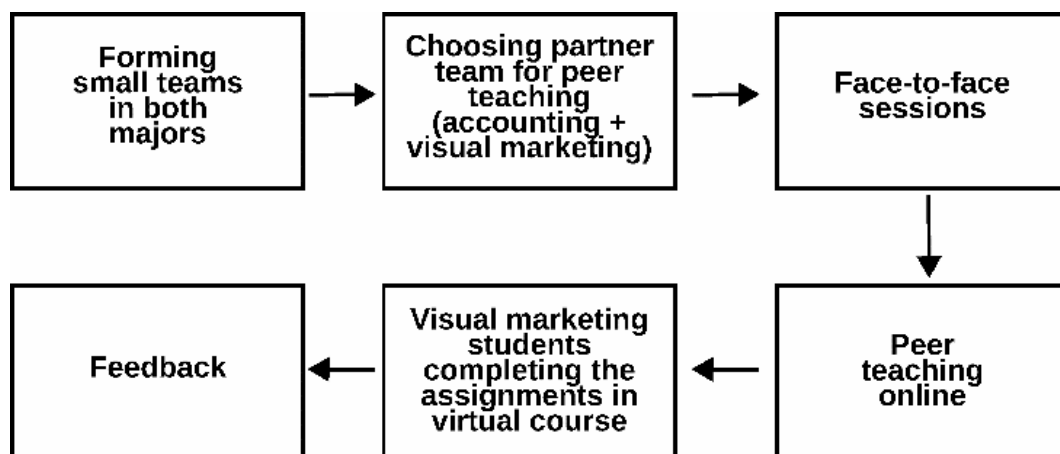


Figure 2. Process for our peer teaching in 2021.

In fall 2022 we wanted to enhance the learning outcomes. We assumed that the cooperation between students would be easier, more effective, and more motivating if the students would know each other better. We came up with the idea of using game for grouping the students. Using free to use tools (for example Google Forms) we designed a treasure hunt –type of game, where mixed groups of students had to move around Campus and solve puzzles related to bookkeeping. The first team to solve all the puzzles received a small price for their victory (Fig. 3). After the game, the students started their peer teaching sessions.

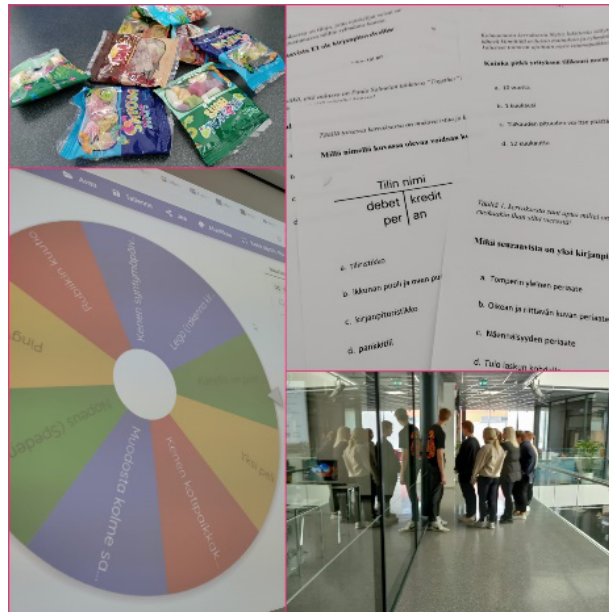


Figure 3. Pictures from the "Campus Race".

In this last implementation of our peer teaching, our process was as follows (Fig. 4):

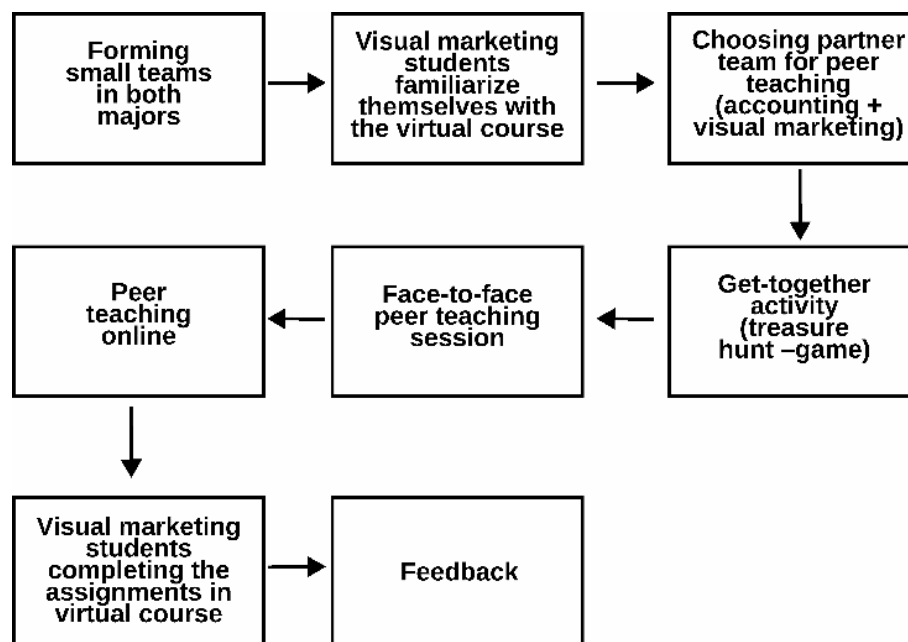


Figure 4. Process for our peer teaching in 2022.

3 RESULTS

The results of this peer teaching have been very promising. The academic results of students participating in peer teaching activities have improved when compared to those groups that did not participate in peer teaching activities. Not only did those receiving teaching from peers perform better, but also those teaching others reached a better understanding of the basics of the subject in matter. In addition to that, the overall feedback of the bookkeeping online course has been better since we introduced peer teaching.

In Fig. 5 one can see the most frequently used words used when students were writing their free form feedback of the implementation of peer teaching. Students seem to have been well informed that they were participating in peer teaching. However, it is important to note that it is not only that the students know that they are participating in peer teaching, but they also need to know the basics of the method

to be successful in the implementation. In addition to “peer teaching,” words related to this method such as “learn,” “task,” “nice,” and “group” were used quite often.

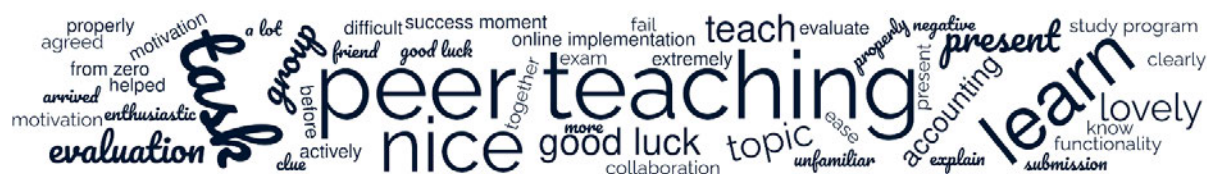


Figure 5. Word cloud of feedback received from participants in peer teaching for years 2021 and 2022.

In Table 1 we have gathered the feedback (median) received from both the teacher (= accounting students) and learners (= visual marketing students). The statements were graded by 5-point Likert-scale (0 = not at all and 5 = excellent). The results show clearly that the accounting students perceived the peer teaching more positively in fall 2022 than in fall 2021. Interestingly, the average feedback given by the learners has received lower grade in 2022 than in 2021. It is not evident how these results should be interpreted, and the possibility of results being affected by incidental variables is present. It might be that the students majoring in accounting were positively effected by the grouping activity, and therefore experienced the peer teaching activity to be more useful tool for learning. But it also might be that the students participating in fall 2022 were by default more active and understood the assignment better, which then had effect on the overall results and experience. However, when interpreting these results, one must keep in mind that each statement gets a very good grade despite possible deduction in averages, as 3 can be considered as “good”.

Table 1. Results from our peer teaching implementations.

	Teacher		Learner	
	2021	2022	2021	2022
Agreement on cooperation and practical arrangements with participants	4.2	4.3	4.1	4.1
Participants actively participated in peer teaching	4.2	4.4	4.0	3.7
Participants had a positive attitude towards peer teaching	4.6	5.0	4.3	4.1
Participants were prepared for joint meetings related to peer teaching	3.2	4.3	3.8	3.6
A clear understanding of matters related to bookkeeping through peer teaching	3.6	4.7	4.0	3.6
Development of my own skills in accounting/peer teaching	3.8	4.7	3.4	4.0

As stated also in the previous literature, the attitude, commitment, and relationship between those participating in peer teaching is crucial. Those teams who actively participate in peer teaching and work together to create a collective understanding of the topic at hand tend to benefit from this kind of activity. The feedback and the results of these kinds of actively participating teams are in general particularly good. However, if the teams are not jointly working towards common goals and/or participants are reluctant to cooperate or act passively, the experience for both parties are less beneficial than traditional lecturing would be. This might be seen also in the feedback shown in Table 1, as the teams of students majoring in accounting were very heterogenous considering their activity and participation. Those teams that functioned well, did exceptionally well, whereas the less active teams could have considered hindering the learning more than supporting it. Teachers applying peer teaching must ensure that they encourage and justify participation as well as possible, so that the students will see the benefits of peer teaching.

When allowing students to get to know each other better in a less formal way seemed to have clear benefits for the cooperation according to teachers' observations. After we introduced the game at the start of our implementation, the students got a chance to have fun and do something active together before starting the assignments. The game served as an ice breaker between the teams from different majors, and they needed less assistance from the teachers to start working together. Also, we noticed that after this implementation that included the game the feedback students gave to each other was more positive towards the individual students.

4 CONCLUSIONS

As also seen in previous literature, peer teaching has clear benefits in higher education. Here our example was peer teaching where students formed study groups in which those who have been studying certain topic a bit more help others to learn and accomplish the assignments. The results for both parties

participating have been good, and we can agree with the benefits mentioned in the literature. According to our observations and discussions with the students, students enjoyed participating in peer teaching. This kind of method is not so commonly used in their studies, so this was a new experience for them. In addition to academic and motivational benefits, students also mentioned that it was nice to get to know students from different field as they usually tend to work with those majoring in the same discipline.

Based on our experience we could highlight three aspects of peer teaching that should be carefully considered when designing whether to apply peer teaching in higher education:

- 1 Plan the peer teaching assignments so that the entirety of the content is manageable for the students considering their level.
- 2 Foster the engagement and commitment of students.
- 3 Reserve time for coaching and supporting the peer teaching teams during their learning process.

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