

Peer Instruction to learn English

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Abstract

We report data from one year of teaching English for foreign students with Peer Instruction (Mazur 1997), a method invented and developed by Harvard Professor Eric Mazur. This interactive method partly based on collaborative work is used in various disciplines, but rarely in foreign languages. It is a student-centered approach that involves flipping the original classroom by moving information transfer out through technological support and moving application of learning into the classroom. Our observations indicate increased student mastery of both use of English and conceptual reasoning accompanied with an increase in self-esteem. We also discuss how we have improved our implementation in one year of practice. We have focused in class common language practice exercise with pre-class written responses using wikis as a support for the tasks and as a mean of communication between students and teacher. This is intended to help students learn more from pre-class homework and to increase student engagement in the discussion with their peers and also to increase further student understanding. Research demonstrates the effectiveness of peer instruction and the use of wikis to enhance collaborative pre-class work over more traditional teaching methods. Students' ratings have shown a higher level of satisfaction after one semester of peer instruction teaching method already. The method is taught with either the use of flashcards, clickers or on the Internet with an interactive website called Learning catalytics which allows teachers to make new questions or to take some from the 7000 questions existing on the data base. Students can then answer the questions using a smartphone, a tablet or a computer. The European Research Project Wikiskills has been integrated in this study.

1. Introduction

In this short paper, we show how to foster college students getting deeply engaged in learning a foreign language using a collaborative method of teaching called Peer Instruction (Mazur 1997). The study is about a student centered approach involving flipping the classroom. The concept of flipping the classroom could be summed up accordingly, firstly transfer of knowledge occurs outside the classroom, indeed students receive the material to learn prior to the course. Then the assimilation of knowledge and new concepts takes place afterwards in the classroom. In this short article, we show the results of a year of flipping a classroom for engineering students learning English as a foreign language. Moreover, we show how the Wikiskills European research project has been integrated in it for the transfer of knowledge in phase taking place outside the classroom through collaborative works prior to the classroom course. We find significant increase of satisfaction in learning experience and significant improvement in final exams results.

2. The method Peer Instruction associated with wiki tools to learn a foreign language

This study concerns class of 14 B2 students in engineering at Yverdon University of Applied Sciences in Switzerland, such categories of students express a middle average to low level of motivation for humanities and foreign languages. The courses are compulsory and weigh significantly in succeeding the studies. There are two weekly sessions of one hour and a half. As a result of flipping the classroom, the students had to work new subjects prior to the classroom through a discovery approach, their homework wasn't graded, but their effort in doing them was, giving them a bonus at the end of the year.

2.1 Transfer of information out of the classroom

As a first step, we used to assign a reading, video, or activity for students to complete outside of class that introduces our students to the new concept or idea. It may be interesting to create one's own video lesson for them to watch. Homework is given electronically, mostly through emails. It may consist of a variety of tasks such as answering questions, annotating a text through a wiki such as framapad, watching videos, creating an online wiki document or even giving feedbacks. Homework



must be sent to the professor at least one day before the class meeting in order to let the professor acknowledge the encountered problems and mistakes to be dealt with during the class session. For instance, the given task could consist of writing an article collaboratively about a certain topic to foster essay writing or critical thinking and writing. Students are asked to comment others contributions and to modify them when necessary explaining why. The use of Framapad as a wiki allows the professor to follow each student's contribution and the history of all the changes in the document. This information is relevant to organize the class teaching to let students assimilate new concepts based on what they worked on before the class meeting (Schell 2013). Soliciting feedback from students on coverage activity require them to respond to one conceptually based question which students can get right if they have done their homework. Professor Eric Mazur suggests to ask a feedback question such as: 'What did you find most confusing or difficult about what you read, watched, wrote? Students' answers will allow to point out at common misconceptions or misunderstandings about the concept and give material to the classroom teaching. Writing effective questions for fostering deep learning may not be an easy task. We have been using a prompt cycle developed at Harvard (Schell 2013) pertaining to the chosen concept. In the first prompt we focus on what students indicated as having difficulty understanding. In the second prompt, we focus on what students must be able to do or to know. In the third prompt, we concentrate about what students often misunderstand about the concept or have difficulty with or incorrectly think. Eventually, we have elicited the kind of questions aimed at solving the misunderstandings, difficulties or misconceptions mentioned by students in their feedbacks. (Schell 2013)

2.2 Implementing Peer instruction during the classroom

Most of class time in a PI course is spent interacting with questions, called ConcepTests. It is needed to define a way to deliver and collect student responses to these questions. Decide if you want to go low-tech or high-tech to pose questions in class. Either way works. "It's not the technology, it's the pedagogy," says Eric Mazur, the Harvard Professor founder of the method. At Yverdon University of Applied Sciences, we opted for the use of clickers and the technology of turningpoint, but we could have chosen to use flashcards or an online website called learning catalytics and developed by Professor Mazur and his group. Peer Instruction can be used with any topic, concept, or idea, it has appeared that in our practice that it was relevant to ask grammar questions, language base concepts about writing and levels of language ie formal versus informal language. Questions that work the best are usually those that address concepts or ideas students find tricky, difficult, or often misunderstand *and* are key to deep understanding of the subject. For each concept, idea or topic that we wanted to implement with our engineering students learning English as a foreign language, we first used to set the stage and give a brief presentation to put the concept in context. The questions posed about the concepts are called ConcepTests (Mazur 1997). Knowledge transfer questions where students have to apply what they have just learned are extremely efficient in language learning. The methodology of Peer Instruction is based on polling students and challenging about their answers. First, a question called ConcepTest is posed to students, they are then given time to think about their answer individually. Poll students to respond using clickers or flashcards. The next next is to ask students to find a peer with a different answer and convince them of their response, this step is the heart of the Peer Instruction method. Letting students explain to each other and obliging them to make a choice accordingly. Finally, students are polled again and feedback is analyzed by the professor who provides closure explaining the correct answer or asking for students volunteers. The cycle is then repeated (Mazur 1997). We observed a rise of intrinsic motivation during our Peer Instruction classes which resulted in a high level of attending students, and very positive comments from the students at the moment of teaching and in their evaluation feedbacks.

3. Results

To measure our students' learning experience and satisfaction, we have analyzed students' feedbacks on the English course taught with wikis and Peer Instruction. Research shows that students' feedback are relevant to state about their learning experience and satisfaction (Marsh 1997; Wolff and Marsh 2007) and hence provides a tool for measuring certain aspects of teaching quality. As a result, we observe an exceptional high rate of satisfaction for our teaching. If we look closer at the feedbacks results, we can see that students find no discrepancy between the course objectives and what they achieved in the course. It's a very interesting result, as we usually observe a gap respect to that special point. The highest score of 100% satisfaction concerns the method used to teach and personal satisfaction. Students express their happiness in their comments which focus on how 'entertaining, fun



and motivating' the course was taught. They also express a feeling of a high learning, understanding and personal involvement.

To sum up, 100 percent of the students who sent their feedbacks about the course expressed full satisfaction about the course, about the reach of the objectives, about the way their effort were graded, the way they were evaluated and the way the course was taught. The rate of failure was extremely low as no one failed, except for a student who left school before the end of the academic year, we assume that he made his decision for personal reasons not linked to our teaching. In a ranking of over two hundreds courses, this special course was ranked first for the first time in twelve years. Moreover, students expressed a better involvement in the given learning activities and some 50% gained the final bonus given for achieving all the expected tasks prior to class teaching.

We report a 61% of participation to the evaluation which is too low a score to reflect an objective feedback. In classes whose number is below 30 students, we should have an 80% of participation to reflect an objective situation (Centra 1993). Nevertheless, as students expressed themselves directly during the class session and afterwards by email, we state very positive attitudes towards this English class and assume that the obtained results in the feedback show a generalized trend among all students.

4. Discussion

The above-discussed method of teaching provides schools teaching foreign languages with a context to use 2.0 technologies in learning environments. Indeed, students can practice the use of wikis for their learning experience and they also have the opportunity to extend and practice previously acquired skills such as youtube, discovering new perspectives in educational settings allowing co-construction of knowledge and communication. Moreover, as students are aware that what their written production will be read by other students, kept online and possibly graded by their professor, they get more seriously involved in the activity. Above all, what is particularly impactful in a collaborative approach of learning is that students adapt their discourse, language and explanations to convince their peers. Being able to explain a subject to a fellow student requires a high level of comprehension and capitalize a high level of retention. These elements increase not only intrinsic motivation but also the quality of the collaborative product and thus produce a high level of satisfaction. Furthermore, as a result the objectives of the course are fully attained and students' learning experience is optimized.

Nevertheless, teachers report a very high level of personal investment in the preparation of their teaching, they also mention the difficulty of finding appropriate and relevant ConceptTest based on the pre-class assignments. It has been observed that a high level of motivation and energy is required from a professor willing to use wikis for collaborative students work prior to the teaching and peer instruction for the assimilation of the concepts in class. Furthermore, certain aspects of the assignments might be improved as some collaborative products evolved in too many ramifications which prevented students from a global perception.

5. Conclusion

The results from one year of teaching English for foreign students with wikis and Peer Instruction are very encouraging. Indeed, this interactive method based on collaborative work proves to be effective in teaching foreign languages. Teaching a foreign language through a student-centered approach involving flipping the original classroom by moving information transfer out through technological support and moving application of learning into the classroom is rather uncommon. Our observations indicate increased student mastery of both use of English and critical thinking and writing accompanied with an increase in self-esteem. Even if the model might be improved, teaching common language practice exercise with pre-class written responses using wikis as a support for the collaborative tasks proves to be motivating and enhancing satisfaction at the same time. Our observations show that this method help students learn more from pre-class homework and increase student intrinsic motivation. Moreover, students report a higher engagement in the discussions with their peers. Research has demonstrated the effectiveness of peer instruction for sciences and humanities, but not yet for foreign languages. This study proves that Peer Instruction associated with the use of wikis enhance effectiveness in collaborative pre-class work over more traditional teaching methods. Students' ratings have shown a significant higher level of satisfaction after one semester of peer instruction teaching method and teachers are highly motivated to pursue the experience despite the amount of work.



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