

Motivation in the 21st century classroom

How does the use of New media affect motivation?



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Abstract

With this research the effect of new media on the motivation of learners in a CLIL classroom environment was studied. A lesson series incorporating new media elements was developed and executed. Before and after the execution of the lesson series, quantitative data was collected by means of a questionnaire. Qualitative data was obtained by interviewing seven learners after the lesson series.

Motivation was increased after execution of the lesson series. The increase in motivation is the result of a combination of cooperative learning elements and increased autonomy associated with new media use. With the results from this research it was not possible to isolate the direct effects of new media on motivation.

Introduction

It is hard to imagine life without the internet, mobile phones and social networks. They are an essential part of our daily life. Although businesses, government institutions and common households have embraced the technology and use it to their advantage, schools seem to be hesitant to implement so-called new media in the daily lesson activities. This research focuses on the effect on student motivation when new media is incorporated in the lessons.

Problem Statement

The school where the research took place was motivated to use new media in the classroom but has been struggling to effectively incorporate new media elements into the lessons. According to the school their teachers find it difficult to keep up with recent developments and resolve to traditional ways of teaching without the implementation of new media. The school is built around the philosophy of CLIL teaching. Especially in the CLIL teaching environments, the school wants to include the possibilities of new media.

For this research, an intervention study was developed in which a project was designed using different forms of new media as lesson input for CLIL lessons. The project was designed as a cooperative learning project where learners need to work together using new media. The learners' motivation before and after the project was measured using quantitative and qualitative evaluation methods.

Theoretical Framework

Motivation Theory

When you are motivated you are “*moved to do something*” (Deci and Ryan, 2000). Part of the teacher’s job is to motivate learners to work and start learning about the presented topics. There has been a lot of research on different forms of motivation. One of the leading researches is the research of Richard M. Ryan and Edward L. Deci (2000). Instead of looking at motivation as a unitary phenomenon they came up with different variables. Their Self Determination Theory (SDT Theory) of motivation is based on different types of motivation with different reasons and goals. The main distinction they make is the difference between intrinsic motivation and extrinsic motivation. Intrinsic motivation means that a person is doing something because it is “inherently interesting or enjoyable”. Extrinsic motivation means a person is motivated because of the desired effect; it refers to the end product. The importance of this distinction lies in the fact that the quality of the experience and/or performance can vary. Intrinsic motivation is generally viewed to be very positive. It is believed to provide a high quality of learning and to lead to a lot of creativity. Extrinsic learning is generally viewed as the less desired variant of motivation, because the learner only “moves” when he is externally compelled to do so. Deci and Ryan (2000) do not fully agree on this view. They explicitly underline the fact that there are multiple ways to be extrinsically motivated. If a learner has accepted the extrinsic goal and values the utility of this goal, it can also be a high quality motivation, although it is not an intrinsic motivation (Deci and Ryan, 2000). Therefore, this research will focus on intrinsic as well as extrinsic motivation of our target group, the learners, when using new media in a CLIL teaching environment.

The research was conducted within a CLIL setting. Research has shown that this influences the learners’ motivation for several reasons.

Because new media is a relatively new concept it is important to define how it is interpreted by the research team. Research shows that the use of new media influences the motivation and the motivation within a CLIL environment in different ways.

CLIL

In CLIL (Content and Language Integrated Learning) the goal is to explicitly teach a subject through a foreign or second language but also implicitly to teach a language through a subject (Marenzi et al., 2010). To be successful in integrating content and language learning, good resources, a clearly defined set of objectives and good task design are essential. CLIL requires an adjustment in methodology to ensure that learners understand the content, and teachers have to think of other means that actively involve the learners and give the teacher additional possibilities for feedback, regarding the language as well as the content. Educational materials have to focus clearly on the role that language plays in the learners’ assimilation of concepts (Marenzi et al., 2010). A CLIL classroom offers an environment for explorative learning where exploring the content and experimenting with specific aspects of the subject are natural activities. Project work and explorative learning are much easier to embed into a CLIL learning environment than in a conventional language classroom (Marenzi et al., 2010). Therefore, the CLIL classroom environment offers the ideal circumstances to incorporate new media as well as the project, which involves many cooperative learning activities.

The combination of motivation and the CLIL teaching environment is of importance for further analysis because this environment may influence motivation as well.

The CLIL teaching environment and motivation

According to B.J. Unterberger (2008), both the intrinsic motivation and the extrinsic motivation of the learners are increased when using CLIL. The intrinsic motivation of a learner is being enhanced because it adds to the purpose of learning a language. By learning a language in a CLIL classroom situation, the purpose goes beyond learning the language alone. The learners have to put the language directly into practice which makes CLIL an effective hands-on approach. Understanding and experiencing the usefulness of a language enhances the intrinsic motivation. Another factor is the cooperative learning aspect in CLIL. Cooperative learning activities like group work have a positive effect on both intrinsic and extrinsic motivation (Unterberger, 2008). An additional intrinsic motivational factor in CLIL is the multi-facet topics which are provided to the learners. CLIL tries to encourage learners to make cross-curricular connections between information they obtain during different classes. As a result, learners learn to draw parallels between different subject-related topics. This is a way to enhance the intrinsic motivation of a learner (Grabe and Stoller, 1998).

The extrinsic motivation is being triggered because the learners expect that they will benefit from the skills they learn during their years of CLIL education. CLIL education has a tendency of clearly focusing on their future professional life. This reality based focus increases the extrinsic motivation of learners (Unterberger, 2008).

What is new media?

New media are associated with the use of a computer. It deals with network communication technologies and is considered to be interactive. New media uses digital computer technology for distribution and exhibition of information and materials. Examples of new media include the internet, websites, e-mail, computer multimedia and computer games. Television programs, feature films, magazines, books and other paper-based publications are not considered to be new media because these examples are not interactive, meaning that no direct communication or response is possible between the interface and the user (Manovich, 2001). Important parts of new media are Computer-Mediated Communication, or CMC (Nowrozi, 2011) and using the internet as a source of information. The latter is known as a webquest (Vlachos, 2009).

There is no scientifically accepted definition of new media. This is because it is a research field in which the concepts are continuously evolving due to rapid technical developments. Therefore, for this research, a combination of the definitions by Manovich (2001), Nowrozi (2011) and Vlachos (2009) is used to describe new media. New media is communicating using the internet. This includes active as well as passive usage of the internet such as e-mail, online computer games, the use of websites and other forms of computer-mediated communication.

New media and CLIL

One of the educational benefits of CMC is encouraging motivation and learner autonomy (Nowrozi, 2011). CMC offers benefits to CLIL as well. By communicating through English exposure to the target language is enhanced. Digital communication in the target language improves proficiency in that language (Fotos, 2004). Besides the advantages of CMC to CLIL, the use of a webquest enhances exposure to the target language as well as group collaboration (Vlachos, 2009).

New Media and motivation

New media are perceived to be beneficial for learners. Six main functions of new media supporting learning processes can be distinguished (Lipponen, 2001 and Simons, 2003)

- Facilitating externalization of thought through writing and visualization
- Facilitating progressive discourse and collaborative learning
- Facilitating metacognitive development and Learning to Learn
- Creating connections between cultures of schooling and expert cultures
- Providing access to extended sources of information
- Providing tools for publishing results of inquiry

New media fit well within constructivist learning environments. They allow learners to interact more easily and at higher cognitive levels with peers, experts, and instructors, both locally and globally (Small, 2011). Social equality is improved because there is no face to face communication, everybody is equal (Hansen, 2001). It offers learners more control over their own learning and provides learners with an opportunity to use software that was previously not available to them. These are all positive factors connected with new media that influence the motivation for student learning (Small, 2011).

Factors influencing motivation

According to various literature, cooperative learning assignments, increased autonomy, a CLIL teaching environment and multi-facet topics all increase the motivation of learners (Deci and Ryan, 2000, Unterberger, 2008, Grabe and Stoller, 1998). The research mainly focuses on the effects of new media on the learning processes and thus far, the outcomes show that the use of new media have a positive effect on the learning processes. It is found to be beneficial for learners by allowing learners to interact more easily at a higher cognitive level with peers, experts, and instructors. It provides access to extended sources of information and provides tools for publishing results of inquiry (Lipponen, 2001; Simons, 2003). Little research has been done on the effect of new media use on learners' motivation. When looking specifically at new media aspects concerning motivation Nowrozi (2011) found that Computer Mediated Communication (CMC) encourages motivation. Hansen (2001) found that social equality is improved because there is no face to face communication which makes everybody equal. CMC is a way to offer learners more autonomy in their learning process which positively influences their motivation (Small, 2011). Since cooperative learning, the use of new media and a CLIL classroom setting all increase motivation according to the current theories, it would make sense that a combination of these aspects would result in an increase of the motivation.

As described above, the setting within a CLIL environment and the use of new media will influence motivation according to the recent literature. Very little research has been done to determine the change in motivation when incorporating new media elements within a CLIL teaching environment. Therefore, to complement the current knowledge this research has the objective of getting a better insight into the motivation connected to the use of new media within a CLIL classroom environment.

Research question

The research focuses on the use of new media within the CLIL classroom and its effect on the motivation of learners. According to the described literature not much is known about the use of new media in a CLIL classroom environment. Therefore, the following research question was formulated:

In what aspects do new media influence motivation of learners in a CLIL teaching environment?

To be able to answer the main question, first the sub questions need to be answered.

1. *What is the identified level of motivation before and after the intervention study?*
2. *Which factors can be identified as influencing motivation during the intervention study?*

The level of motivation we can define as the power of the force that initiates, guides and maintains behavior towards a certain goal, in this case relating to learning goals. This is broken up into smaller parts as discussed in the methods section (page 11 and 12). The change in motivation will be evaluated by answering the first sub question while the second sub question focuses on what influenced the change in motivation.

We can define the factors that influence motivation as the combination of intrinsic and extrinsic actors that change the level of motivation of learners. When the different factors influencing motivation are identified, the new media aspect can be isolated which allows us to answer the main question.

The level of motivation was measured using questionnaires on motivation. The questionnaire used was developed by Pintrich et al (1991), which uses a Likert scale ranging from 1 to 7. The questionnaire recognizes four different categories subdivided into 11 subcategories.

- Motivation, subdivided into Intrinsic goal orientation, Extrinsic goal orientation and Task value
- Expectancy component, subdivided into Self-efficacy for learning and performance
- Cognitive and metacognitive strategies, subdivided into Rehearsal, Elaboration, Organization, Critical thinking and Metacognitive self-regulation.
- Resource management strategies, subdivided into Effort regulation,

An extra category on multimedia media attitude was added by the research team. All the (sub)categories are further explained in the methods section (page 11 and 12) For the second sub question, seven semi-structured interviews were conducted that allowed us to identify different factors influencing motivation. These factors are cooperative learning, use of new media and learner autonomy and are further explained in the methods section (page 12 and 13)

Hypothesis

According to Nowrozi (2011), Vlachos (2009), Simons (2003) and Lipponen (2001), today's youth has embraced the use of new media in their personal life and are generally interested in new developments within the use of new media. The use of new media is found to be beneficial for learning as well as motivation. Therefore, our hypothesis is:

The motivation of learners will be increased after the intervention study due to the use of new media elements.

Personal relevance

As starting teachers we are interested in learning more about what exactly motivates our learners. As young professionals, we are the ones at our future schools who will be expected to use, at least, a minimum of new media in our lessons. We believe that this use will increase over time. The combination of these two aspects, the motivation of learners and the influence of the use of new media can give an interesting and motivating insight.

Practical relevance

Research has been done on general motivation (Deci and Ryan, 2000), motivation in a CLIL teaching environment (Unterberger, 2008) and the advantages of the use of new media concerning teaching and learning (Lipponen, 2001 and Simons, 2003). Yet, very little research has been done combining all these factors. This research will give insight in the question if new media use influences learners motivation. This research can complement the research which has been done on general motivation (Deci and Ryan, 2000; Unterberger, 2008), but it can also give insight on working with new media in a CLIL teaching environment in a positive and constructing way.

Methods

Several research methods were used to answer the main research question: *In what aspects do new media influence motivation of learners in a CLIL teaching environment?* To obtain reliable results, triangulation was used. The agreement between two or more methods enhances the belief that the results are valid and not a methodological artifact (Bouchard, 1976). To achieve triangulation, literature research on motivation, new media and CLIL was complemented by questionnaires on motivation and semi-structured interviews. The methods used are described further in this section.

1. *What is the identified level of motivation before and after the intervention study?*

Before the start of the project, learners filled out a questionnaire that served as a base indicator of their motivation. The questions included different factors that might influence their motivation. After the intervention study, the same questionnaire was filled out again. The differences were analyzed to give insight into changes in their motivation. This part provides the main quantitative data of the research. Statistical research was conducted using SPSS to determine the reliability and validity of the data.

2. *Which factors can be identified as influencing motivation during the intervention study?*

In the theoretical framework, the factors influencing motivation were defined. With the outcome of the questionnaires, before as well as after the project, these factors and their influence on the motivation were identified. These factors included the CLIL teaching environment, the use of new media and usage of CMC.

In addition to this, the outcome of the analyzed questionnaires served to identify certain types of learners. From the analysis, learners have been chosen to be interviewed for the qualitative research. The qualitative research focuses on the effect of the different factors on their motivation. The interviews with the learners are semi-structured and were used to provide more depth to the answers given in the questionnaires.

Respondents

The respondents are all the learners participating in the project at the research school. It is a second form TTO (bilingual) class which represents a CLIL classroom. This class was chosen because of practical reasons and consisted of 23 learners, aged 14-15. The intervention study was conducted during the geography classes because the project theme fitted well within a humanities course and the teacher was very enthusiastic about the project. The class consisted of all types of learners: some had a preference for science while other learners had a preference for social science or arts. The questionnaires were conducted before and directly after the project, as shown in figure 1. The data provided us with insight about changes in motivation. Based on the differences in the outcome between first and second questionnaire, seven learners were selected to participate in a semi-structured interview to derive more data. The learners represent cases from both the mean and outliers in the data set; some had no change in motivation at all and some had an extreme increase or decrease in motivation. The first interview served as a pilot interview.

Research set-up

A project containing multiple lessons that make optimal use of new media was developed. The concept was built to motivate and activate the learners. Learners had to work together and needed to learn from each other in a cooperative way. The teacher was mainly present as a facilitator. The theme of the project was 'Changing World'. This theme was chosen because it brings a range of issues together that are present around the world. Also, it can be used in different subjects within humanities. The themes are diverse and range from climate change to the influence of social media on revolutions. Learners had to work in groups of three and had to figure out part of a solution to a global problem. They had to formulate a solution to their problem using new media. Internet research and getting into contact with experts outside of the school were means to answer their questions. The final product of the project was a self-written 'TED-talk' that needed to be presented in an interactive way. TED (Technology, Entertainment and Design) is a series of conferences with motivational or influential talks about innovative ideas. Each group had to present a 'TED-talk' in front of an audience as 'grand finale' of the project.

Project span

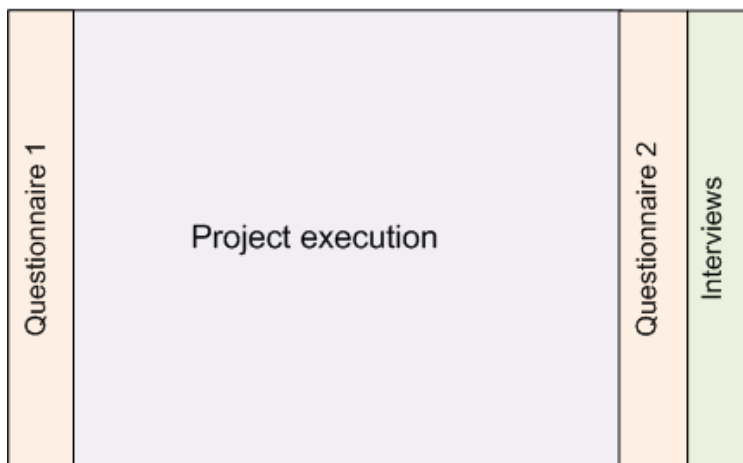


Figure 1: the research set-up

The designed project was conducted in two bilingual second year TTO classes. In consultation with the teacher involved, it was decided that the first class served as a pilot group. This way, the teacher and authors were able to modify the lesson material when needed. Therefore, the outcome of the questionnaire would not be influenced as much by teacher performance since the teacher was familiar with the lesson material.

Instruments

Questionnaires

Before the start of the project, the questionnaires outlining the motivation profiles of the learners were filled out by all the learners. After the project was finished, the same questionnaires were filled out again. The questionnaire contained 41 questions based on “A manual for the use of the motivated strategies for learning Questionnaire” by Pintrich et al (1991) (see appendix 2 for the list of questions). This is one of the most widely used questionnaires concerning motivation. According to Pintrich et al (1993), the scale reliabilities within this questionnaire are robust and have a good factor structure. The instruments show reasonable predictive validity to the actual course performance of learners (Pintrich et al., 1993).

Five questions concerning the use of new media were added to the existing questionnaire. The validity of these five questions was determined using Chronbach’s alpha.

The questions are grouped into 4 main categories that are subdivided into 11 subcategories created by Pintrich et al.(1991), representing subjects about motivation, learning strategies and skills as follows:

Motivation

- **Intrinsic goal orientation:**
Goal orientation refers to the learner’s perception of the reasons why he is engaging in a learning task (Pintrich et al., 1991).
- **Extrinsic goal orientation:**
Extrinsic goal orientation complements intrinsic goal orientation, and concerns the degree to which the learner perceives himself to be participating in a task for reasons such as grades, rewards, performance, evaluation by others, and competition (Pintrich et al., 1991).
- **Task value:**
Task value differs from goal orientation in that task value refers to the learner’s evaluation of how interesting, how important, and how useful the task is.

Expectancy component

- **Self-efficacy for learning and performance:**
This category represents how learners perceive their own skills and is comprised of two aspects of expectancy: expectancy for success and self-efficacy (Pintrich et al., 1991).

Cognitive and metacognitive strategies

- **Rehearsal:**
Basic rehearsal strategies involve reciting or naming items from a list to be learned. (Pintrich et al., 1991).
- **Elaboration:**

Elaboration strategies help learners store information into long-term memory by building internal connections between items to be learned (Pintrich et al., 1991).

- **Organization:**
Organization strategies help the learner select appropriate Information and also construct connections among the information to be learned (Pintrich et al., 1991).
- **Critical thinking:**
Critical thinking refers to the degree to which learners report applying previous knowledge to new situations in order to solve problems, reach decisions, or make critical evaluations with respect to standards of excellence (Pintrich et al., 1991).
- **Metacognitive self-regulation:**
Metacognition refers to the awareness, knowledge, and control of cognition. There are three general processes that make up metacognitive self-regulatory activities: planning, monitoring, and regulating (Pintrich et al., 1991).

Resource management strategies

- **Effort regulation:**
Effort regulation includes learners' ability to control their effort and attention in the face of distractions and uninteresting tasks (Zimmerman, 2002).

New media attitude:

This encompasses all questions related to new media. These questions were not part of the questionnaire developed by Pintrich et al. (1991) and were developed by the research team and validated using Cronbach's alpha.

Interviews

From the results of the questionnaires conducted before and after the project, seven learners were selected to take part in the semi-structured interviews in which they could elaborate on their motivation. The interviews were conducted by all four of the authors in rooms of the school of the participating learners and were audio taped. The interviews were transcribed and analyzed. All interviews, including the pilot interview, could be used for analysis. The learners are named student 1 to 7 from hereon.

The semi-structured interviews were based upon questions stated in the questionnaires and aimed at identifying factors influencing motivation. All the interviews were analyzed by two of the authors by labeling the responses. To check whether the questions were not too leading, a pilot interview was done and labeled. The questions were not leading and therefore, no changes were made after the pilot interview. The agreement between the two raters was identified as 0.81, which is a interrater-reliability that is high enough to validate the outcome.

The responses were labeled into three main categories: Learning, Motivation and Difficulties. Each category was subdivided into different labels.

The 'Learning' category held responses of seven labels: learning about subject specific information, learning from creating the presentation, learning from the expert, learning from speaking/presenting, learning from the webquest structure, learning from cooperative learning and learning from forming an opinion.

The 'Motivation' category contained responses of eleven labels: Motivated by cooperative learning, motivated by creating the presentation, motivated by the expert, motivated by opinion forming, motivated by speaking/presenting, motivated by the webquest, unspecified motivation, negative motivation due to homework, negative motivation due to presenting, motivated by the subject and motivated by the variation in lesson material.

The 'Difficulty' category held four labels: helped by the webquest structure, challenging task, helped by cooperative learning and helped by the teacher as facilitator.

Results

Questionnaires

The results of the questionnaires were used to answer the sub question: *What is the identified level of motivation before and after the intervention study?*

The difference between the mean values of the first and second questionnaire was calculated per category (figure 2).

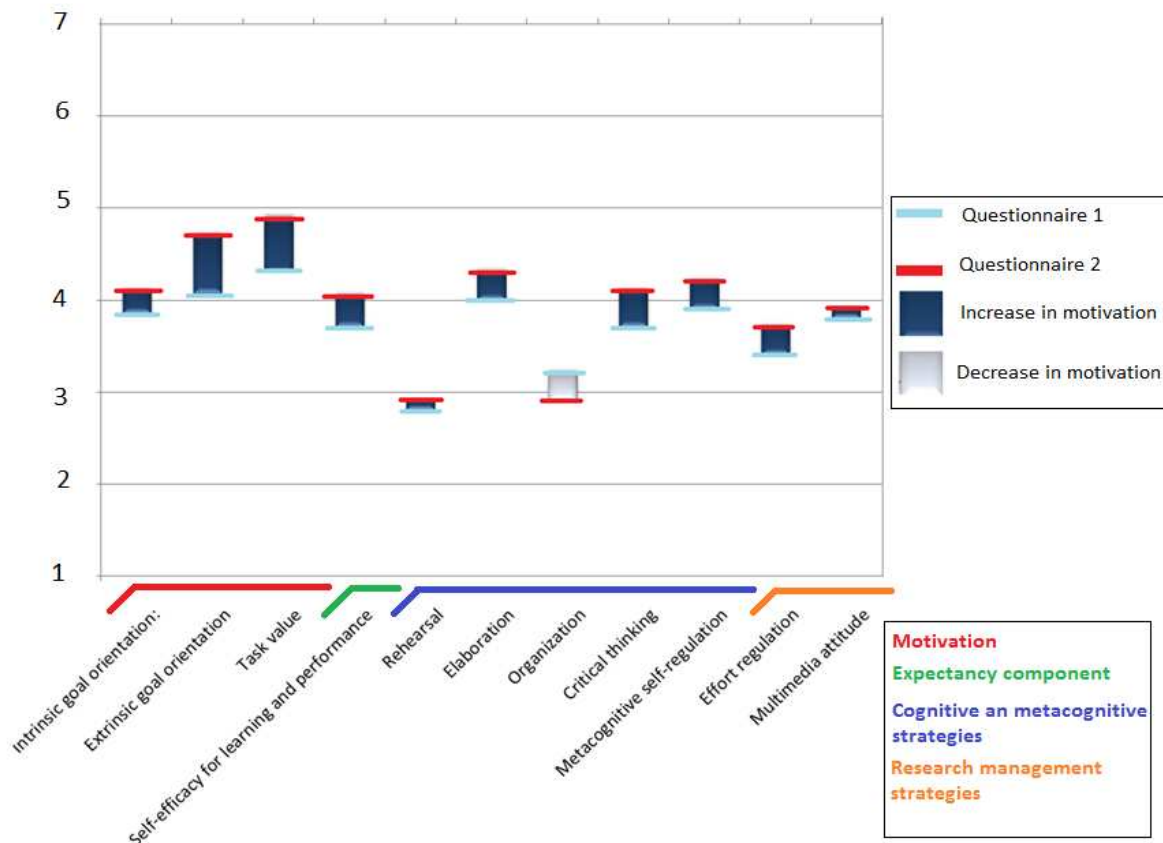


Figure 2: the mean difference between the first and the second questionnaire per (sub)category.

Figure 2 shows the difference between the first and the second questionnaire. Since extrinsic goal orientation and task value increase significantly, it can be concluded that the overall motivation has increased. The intrinsic goal orientation also increased, albeit not as significant. Self-efficacy for learning and performance increased which shows that their belief to bring the given task to a good end was increased. Concerning the metacognitive strategies critical thinking increased the most, implying that they were able to apply previous learned knowledge. Elaboration, metacognitive self-regulation and rehearsal increased slightly. Organization was the only factor that showed a decrease after the project was done.

To determine whether the differences of the means per question before and after the intervention are significant a paired samples t-test was performed. To show if there is a difference between the two samples a null hypothesis was formulated that stated that there was no significant difference between the first and second questionnaire results with respect to the mean scores. After performing the paired samples t-test, the null-hypothesis was rejected for nine questions (see table 1 and figure 3), which means that for these questions there was a significant difference between the two questionnaires based on a 95% confidence interval (see appendix I for the exact degrees of significance obtained) .

Table 1: selection of questions from the questionnaire. These questions show a significant difference in results before and after the intervention from the paired samples t-test.

Category	Question #	Question	Result (+/-)
Intrinsic goal orientation	1	I prefer class work that is challenging so I can learn new things.	Positive effect
Extrinsic goal orientation	6	I think I will be able to use what I learn in this class in other classes	Positive effect
Extrinsic goal orientation	13	I think that what I am learning in this class is useful for me to know	Positive effect
Task Value	4	I like what I am learning in this class	Positive effect
Task Value	15	I think that what we are learning in this class is interesting	Positive effect
Task value	19	Understanding the subject is important to me	Positive effect
Self-efficacy for learning and performance	18	I know that I will be able to learn the material for this class	Positive effect
Resource management regulation, self-regulation	23	When work is hard I either give up or study only the easy parts	Positive effect
Resource management regulation, self-regulation	40	I think it's hard to get a good grade even when I don't like a class	Positive effect

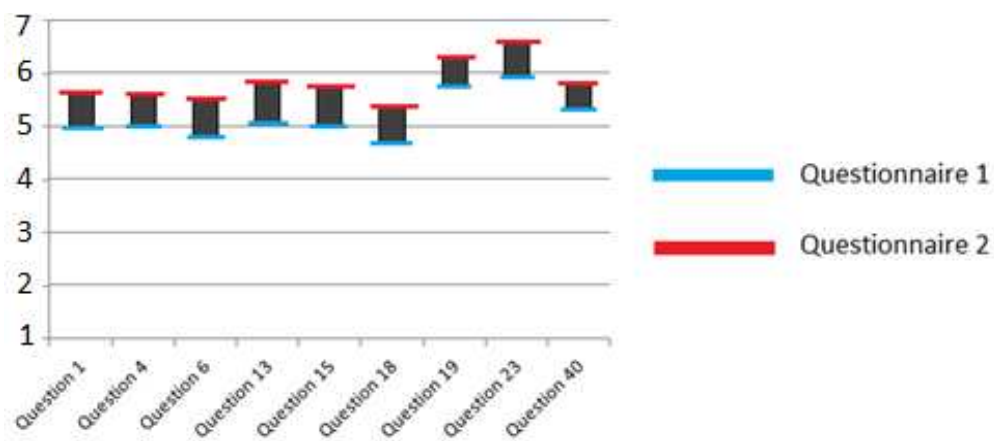


Figure 3: selection from the questions that show a significant difference in results on a Likert scale.

A significant difference can be seen in questions concerning intrinsic motivation, extrinsic motivation, task value, self-efficacy for learning and performance and resource management regulation, self-regulation. Given the significance difference between these nine questions and the overall increase in the mean values it can be concluded that there is an increase in motivation.

Interviews

The analysis of the seven interviews was done to answer the sub-question: *Which factors can be identified as influencing motivation during the project?*

As described in the methods, the three main categories in which the responses were labeled are learning, motivation and difficulties.

In figure 4, 5 and 6 an overview of each label and its occurrence during all of the interviews is given.

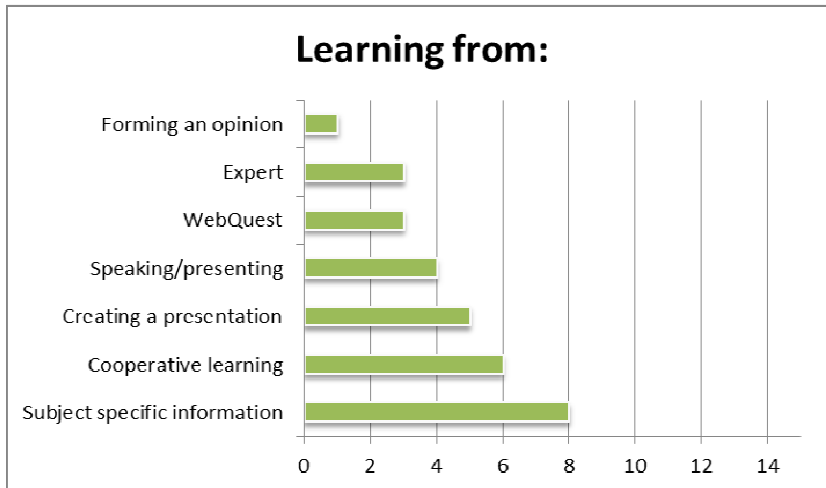


Figure 4: total occurrence of the labels in the category Learning. n = 7.

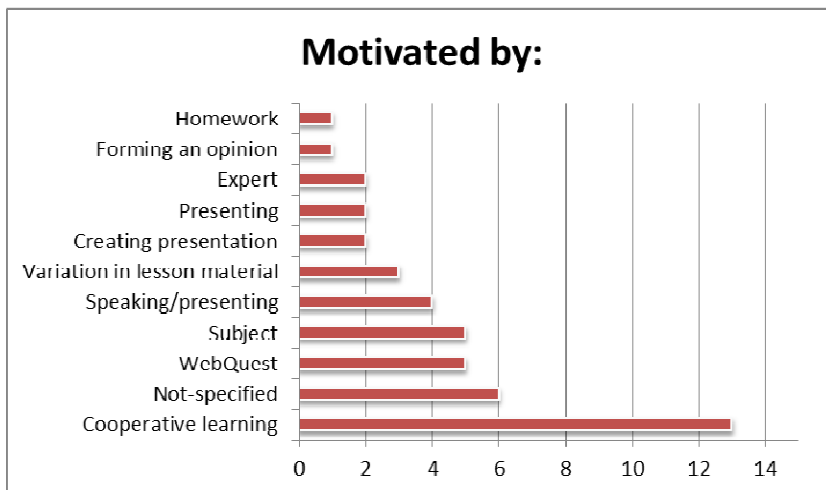


Figure 5: total occurrence of the labels in the category Motivation. n=7

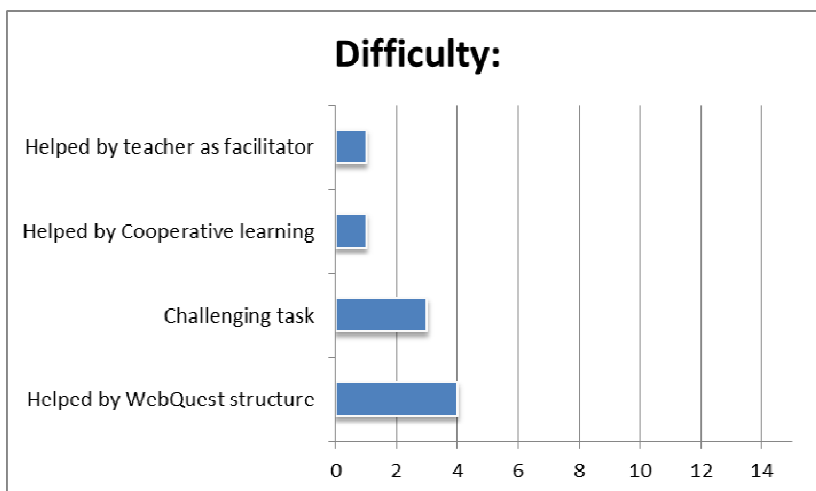


Figure 6: total occurrence of the labels in the category Learning. n=7

By labeling the responses one can tell which factors the learners themselves identify as influential on their motivation. Concerning the category learning, learning from subject specific information, cooperative learning, learning from creating a presentation and learning from speaking/presenting were mentioned four or more times by the learners. Learning from forming an opinion, learning from the webquest and learning from the expert were also mentioned, but to a lesser extent.

In the category motivation, the cooperative learning element has been mentioned thirteen times which makes it the most mentioned label by far. Motivated by the webquest structure, motivated by the subject and motivated by speaking/presenting were all mentioned four or more times. Motivation by variation in lesson material, motivation by forming an opinion, motivated by expert and motivated by creating the presentation are less frequently mentioned. Learners also mentioned to be less motivated after the project resulting from having to do a presentation and extra homework.

In the category difficulty, learners expressed to be helped by the webquest structure. The labels challenging task, helped by cooperative learning and helped by teacher as facilitator were all mentioned incidentally.

Some general conclusions can be drawn from the responses to the interviews. First of all, the main increase in motivation and why learners were actively participating during the project is due to the element of cooperative learning. With the exception of one student, the cooperative learning element was mentioned in a positive way by all learners. For five learners their motivation was enhanced due to the fact that they had to work in groups. Learner 1 told us that *“teamwork is more fun than just working on your own. And fun goes with good learning, I think. So, you remember more strongly”*. This is in accordance with results found in literature, which also states that student motivation is enhanced due to cooperative learning (Woolfolk et al., 2008, p. 487-489).

This research focuses on the role of new media on motivation in the CLIL classroom. Several new media aspects have been implemented in the project and these aspects have been mentioned by two of the learners as a reason for their increased motivation. Student 4 identified the new media aspects as the main reason for her increased motivation. She liked using the internet as a source of

information which is reflected in the following quotes that were extracted from her interview: *"Normally in the classroom you just have to sit and watch, but now you can really do things by yourself and get onto the internet and watch clips about your topic and do it yourself."* The webquest structure was experienced as very helpful to her and was mentioned several times. She found the e-mail contact with the expert on her topic useful because *"he gave us a lot of information to fill the five minute presentation with. Besides that, we looked things up on the internet as extra information"*.

Four out of the seven interviewed learners appreciated the structure of the webquest incorporated in the project and found it helpful. Student 2 mentioned that *"finding the information on the internet was easy for me and you could also ask the experts to get some extra information"*. The combination of cooperative learning and the use of new media were also seen as useful. Student 6 told us: *"Because you can work together and can look things up on the internet and you get to know things that you would not know before you did it. You can find enough information on the internet and it is only a bit hard to put it together in a good way."*

Learners' motivation is also enhanced because they were able to choose their own subject and therefore could choose whatever they found most interesting. Learners concluded that they had learned a lot about their subject while doing the project. The variation in the lesson activities compared to 'regular' geography lessons was mentioned as a factor of enhanced motivation by two of the learners.

The last factor influencing their motivation was the presenting part of the project. Creating and giving the presentation was mentioned by more than half of the learners during the interviews. This part of the project was experienced positive as well as negative. They found it interesting to make and give their own presentation as well as hearing other people's presentations.

Two learners did not like the presenting part and their motivation was decreased due to this. Student 7 told us: *"I don't like doing the presentation because it makes me nervous"*. She did like creating the presentation and she told us: *"It was nice to work together and to make the presentation and learning the Millennium goals"*. Student 6, who did not like the presentation part, was mainly demotivated because of the extra work. During the interview he mentioned *"we had to work at it at home, I don't like homework and well, I also don't really like presenting because you have to learn things for it and that kind of stuff."*

Three learners were really enthusiastic about creating and giving the presentations about their subject. A quote from student 3 underlines why their motivation was enhanced by this aspect of the project: *"It is not only listening and reading and making just exercises but also telling things and it's like you become a sort of teacher for a little amount of time"*. Student 1 really liked that he was able to improve his presentation skills: *"It is like a presentation and speech and you can train your skills at talking and presenting things and learn more about the subject. I thought it would be loads of fun"*.

From the interview analysis above we can conclude that the motivation of the interviewed learners was enhanced during the project due to the cooperative learning element, the subject, creating the presentation and the use of new media. These are the factors that can be identified as influencing the motivation during the project.

Conclusions

Following from the results answers to the sub questions and main question are formulated, followed by a discussion of the results and conclusions, and recommendations for further research.

What is the identified level of motivation before and after the intervention study?

The combined outcome of the questionnaires and the interviews show an increase in motivation after the intervention. The learners answered more positively to the questions after doing the project (see figure 2, page 14). Therefore, we can conclude that the project had a positive effect on their motivation. The questionnaires that were used are recognized as being valid and reliable (Pintrich, 1993).

Which factors can be identified as influencing motivation during the intervention study?

The cooperative learning aspect has had the most profound positive effect on the learners' motivation. This is in accordance with the theory of Unterberger (2008) who found that cooperative learning activities such as group work have a positive effect on both intrinsic and extrinsic motivation of learners.

The increase in intrinsic motivation shows that learners were participating in the task because they felt more challenged, curious or wanted to achieve mastery. This was also reflected in the interviews.

The extrinsic motivation complemented the intrinsic motivation because of the grades, rewards, performance, evaluation, and competition embedded in the project. During the interview, the making and giving of a presentation has been mentioned several times as a stimulant to produce a good end product.

The increase in motivation due to task value shows that learners were more task-involved and thus more involved in their own learning. The interviewed learners identified the involvement in their own learning and mastery of the subject as positive factors influencing their motivation.

The motivational increase due to self-efficacy for learning and performance deals with the learners' expectancy for success to performance expectation and because learners believed they were more able to master the task. The increase in motivation due to self-regulation shows that learners are more motivated to complete the project/task. Self-regulated learning integrates much of what is known about effective learning and motivation, which is influenced by knowledge, motivation and self-discipline (Woolfolk et al., 2008). During the interviews it was mentioned multiple times that they appreciated the freedom given concerning their own learning process.

The freedom that learners have experienced in a positive way can be backed up by research conducted by Nowrozi (2011), who found that CMC is encouraging learner autonomy and therefore improving motivation. The combination of autonomy and new media experienced by learners was rated positively. They mentioned that the use of experts enhanced their motivation. This is in accordance with the theory of Small (2011) which states that new media allows learners to interact more easily with peers, experts, and instructors. Thus, new media offers learners more control over their own learning. *In what aspects do new media influence motivation of learners in a CLIL teaching environment?*

The main question cannot be fully answered with the results from this research. Results from the interviews give the presumption that there is a link between the increase in motivation and the use of new media but it was not possible to fully confirm this with the data. Although factors such as the web-quest and the email contact with an expert were mentioned by interviewed learners as enhancing their motivation, it has not been possible to isolate the new media aspects from other factors influencing motivation, mainly cooperative learning.

The use of experts and the autonomy associated with new media use were factors in increasing the motivation of the learners. However, the hypothesis that the motivation of learners will be increased after the intervention study due to the use of new media elements cannot be proven. But, the indirect connection through the format and the autonomy of the learners does provide support for the hypothesis. Therefore, incorporating new media elements might be useful, but to increase student motivation, group work appears to be most effective.

Discussion

From the results from the questionnaire the conclusion that the overall motivation is increased can be drawn. This conclusion is considered to be valid since the questionnaire is an instrument that is widely recognized and used within the scientific community. The validity of the questions were tested and show reasonable predictive validity to the actual course performance of learners (Pintrich, 1993). However, the validity of the five questions that were added to the questionnaire and that represent the learners' attitude and motivation concerning the use of new media was not tested beforehand. Therefore, the outcome of these questions was analyzed by calculating Cronbach's α to measure the consistency between these questions. Cronbach's α for all five questions had a value of .166. After removing one of the questions Cronbach's α increased to .512, which is significantly higher but too low for the questions to be considered valid. Therefore, the results from these questions were not used, because they have no predictive value about the change in motivation of learners related to the use of new media. Although the outcome of the questionnaires show an increase in motivation, the effect of new media on motivation could not be isolated due to the non-valid questions in this category

With the combined results of the questionnaire and the interviews it can be concluded that the cooperative learning elements and the autonomy given to the learners accounted for the increase in motivation. The interrater-reliability for the labeling of the interviews was rated at 0.81 which makes the outcome from the interviews valid. Therefore, the combination of the validated questionnaire, excluding the questions on multimedia attitude, and the interviews provide us with reliable data.

Recommendations

Since it was not possible to isolate the specific factors concerning motivation with respect to new media, further research is needed in order to gain a better understanding in how and why new media affects motivation.

At the moment, there are no questionnaires that can be used to investigate learners' attitude and motivation towards new media. The research team has attempted to develop questions relating the effects of the use of new media with the students' motivation. As described in the article here above, these questions turned out to be invalid and could not be used for our research. We therefore recommend other researchers in the process of developing questionnaires concerning this topic to develop around 10 to 15 questions on the topic instead of our 5 questions. This would create a situation in which the research team can select, after using the questionnaires in a pilot group, validated questions from the self-made 10 to 15 questions. This way, questions or an entire questionnaire with a high consistency/reliability can be developed.

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From the interviews there are clues that new media can be a factor enhancing motivation, but this cannot be isolated. To be able to isolate the effect of new media on motivation the project should involve parallel classes, one with and one without the new media element. The rest of the project setup should be identical. The differences in the motivation after the project between the parallel classes could then be attributed to the new media elements.

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The results showed that the learners enjoyed the project and we therefore recommend continuing to use this project setup in order to learn more about the effects of different factors influencing motivation and the effect of new media use in the classroom.

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Reflection

At the start of this Practice Based Research we were starting teachers as well as starting researchers within the field of education. Conducting a research on motivation in an actual classroom environment has helped us realize which processes are affecting motivation. This knowledge can be useful in our own teaching practice. In this sense the final product created is insightful for our own teaching practice.

Our major learning goal was combining our different academic backgrounds into one well-oiled researching machine. What proved to be really hard was developing valid questions on the use of new media. To validate questions on the use of new media factor analysis needs to be done which requires a strong background in statistics that none of the research team has. It was not possible to do this due to lack of experience and time.

As a recommendation for future PBR teacher-researchers we can state that designing an actual project, as a basis for further scientific evaluation is very motivating and rewarding in the sense that one can create both a tangible result and a contribution for the on-going insight in educational research.

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Appendix 1

Paired Samples Test performed with SPSS

Questionnaire 1 (Before Project) compared to questionnaire 2 (After Project) on variance in means (bold figures in last column indicate significant differences)

		Paired Differences				t	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		
					Lower	Upper	
Pair 1	q1 – q1post	-,652	,982	,205	-1,077	-,228	,004
Pair 2	q2 - q2post	-,217	1,043	,217	-,668	,233	,328
Pair 3	q3 - q3post	-,348	1,071	,223	-,811	,115	,133
Pair 4	q4 - q4post	-,609	,988	,206	-1,036	-,181	,007
Pair 5	q5 - q5post	-,565	1,562	,326	-1,241	,110	,097
Pair 6	q6 - q6post	-,652	1,191	,248	-1,167	-,137	,015
Pair 7	q7 - q7post	-,304	1,259	,263	-,849	,240	,259
Pair 8	q8 - q8post	-,348	,832	,173	-,707	,012	,057
Pair 9	q9 - q9post	-,130	1,140	,238	-,624	,363	,589
Pair 10	q10 - q10post	,087	1,203	,251	-,433	,607	,732
Pair 11	q11 - q11post	-,391	,941	,196	-,798	,016	,059
Pair 12	q12 - q12post	,043	,928	,194	-,358	,445	,824
Pair 13	q13 - q13post	-,783	1,278	,266	-1,335	-,230	,008
Pair 14	q14 - q14post	,000	1,044	,218	-,452	,452	1,000
Pair 15	q15 - q15post	-,609	1,196	,249	-1,126	-,091	,023
Pair 16	q16 - q16post	-,043	,928	,194	-,445	,358	,824
Pair 17	q17 - q17post	-,087	2,214	,462	-1,044	,870	,852
Pair 18	q18 - q18post	-,739	1,214	,253	-1,264	-,214	,008
Pair 19	q19 - q19post	-,652	,775	,162	-,987	-,317	,001
Pair 20	q20 - q20post	-,348	1,641	,342	-1,057	,362	,320
Pair 21	q21 - q21post	-,478	1,880	,392	-1,291	,335	,235
Pair 22	q22 - q22post	-,391	1,616	,337	-1,090	,308	,258
Pair 23	q23 - q23post	-,652	1,434	,299	-1,272	-,032	,040
Pair 24	q24 - q24post	-,391	1,616	,337	-1,090	,308	,258
Pair 25	q25 - q25post	-,217	1,678	,350	-,943	,508	,541
Pair 26	q26 - q26post	-,739	1,573	,328	-1,419	-,059	,035
Pair 27	q27 - q27post	-,261	1,176	,245	-,769	,248	,299
Pair 28	q28 - q28post	,000	1,414	,295	-,612	,612	1,000
Pair 29	q29 - q29post	-,087	1,505	,314	-,738	,564	,784
Pair 30	q30 - q30post	,261	1,864	,389	-,545	1,067	,509
Pair 31	q31 - q31post	-,348	1,799	,375	-1,126	,430	,364
Pair 32	q32 - q32post	-,261	1,936	,404	-1,098	,576	,525
Pair 33	q33 - q33post	-,565	1,996	,416	-1,428	,298	,188
Pair 34	q34 - q34post	-,478	1,648	,344	-1,191	,234	,178
Pair 35	q35 - q35post	,478	1,675	,349	-,246	1,203	,185
Pair 36	q36 - q36post	-,130	1,290	,269	-,688	,427	,633
Pair 37	q37 - q37post	,522	1,951	,407	-,322	1,365	,213
Pair 38	q38 - q38post	-,043	2,011	,419	-,913	,826	,918

Pair 39	q39 - q39post	,304	1,550	,323	-,366	,975	,942	,357
Pair 40	q40 - q40post	-,565	1,161	,242	-1,067	-,063	-2,335	,029
Pair 41	q41 - q41post	-,261	1,322	,276	-,832	,311	-,947	,354

Appendix 2

Motivated Strategies for Learning Questionnaire

Please rate the following items based on your behavior in this class.

Bold questions were added by the research team

1= not at all true for me

7=very true for me

1. I prefer class work that is challenging so I can learn new things.
2. Compared with other students in this class I expect to do well
3. It is important for me to learn what is being taught in this class
4. I like what I am learning in this class
5. I'm certain I can understand the ideas taught in this course
6. I think I will be able to use what I learn in this class in other classes
7. I expect to do very well in this class
8. Compared with others in this class, I think I'm a good student
9. **I like using a computer in class**
10. I like topics I will learn something from even if they require more work
11. I am sure I can do an excellent job on the problems and tasks assigned for this class
12. I think I will receive a good grade in this class
13. I think that what I am learning in this class is useful for me to know
14. My study skills are excellent compared with others in this class
15. I think that what we are learning in this class is interesting
16. Compared with other students in this class I think I know a great deal about the subject
17. **I get easily distracted using a computer in class**
18. I know that I will be able to learn the material for this class
19. Understanding the subject is important to me
20. When I do homework, I try to remember what the teacher said in class so I can answer the questions correctly
21. I ask myself questions to make sure I know the material I have been studying
22. It is hard for me to decide what the main ideas are in what I read
23. When work is hard I either give up or study only the easy parts
24. When I study I put important ideas into my own words
25. **I think using the internet is beneficial to my learning**
26. I always try to understand what the teacher is saying even if it doesn't make sense.
27. When studying, I copy my notes over to help me remember material
28. I work on practice exercises and answer end of chapter questions even when I don't have to
29. Even when study materials are dull and uninteresting, I keep working until I finish
30. Before I begin studying I think about the things I will need to do to learn
31. I use what I have learned from old homework assignments and the textbook to do new assignments
32. **I can remember things better when they are explained to me by an expert instead of reading them from a textbook**
33. I often find that I have been reading for class but don't know what it is all about.
34. I find that when the teacher is talking I think of other things and don't really listen to what is being said

35. I learn a topic better when I do research myself instead of listening to a teacher

- 36. When I am studying a topic, I try to make everything fit together
- 37. When I'm reading I stop once in a while and go over what I have read
- 38. When I read materials for this class, I say the words over and over to myself to help me remember
- 39. I outline the chapters in my book to help me study
- 40. I work hard to get a good grade even when I don't like a class
- 41. When reading I try to connect the things I am reading about with what I already know.

*Pintrich, R. R., & DeGroot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance, *Journal of Educational Psychology*, 82, 33-40.