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What promotes motivation and learning in project management students?

Hilde Nordahl-Pedersen[a*], Kari Heggholmen[b]

[a]*Norway School of Business and Economics, Campus Harstad, The Arctic University of Norway, 9480 Harstad*
[b]*Western Norway University of Applied Sciences, Postboks 7030, 5020 Bergen*

Abstract

This article discusses what promotes motivation and learning in students of project management. It is based on a qualitative study with six students from different project groups at a higher education institution in Norway. The study shows that ownership of self-chosen projects and regular feedback from the supervisor lead to hard work, intrinsic motivation and learning in all phases of the project. Participation in project groups with considerable autonomy within a tight framework creates positive communities of learning and experiences of flow. Presenting interim status reports to the class in combination with final written and oral assessment leads to competition between the project groups and extrinsic motivation to perform best, which results in deep learning. The study shows that project-based teaching is an important tool to encourage student motivation and learning.

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* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .
E-mail address: Hilde.Nordahl-Pedersen@uit.no

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1. Introduction

The implementation of limited projects and work in project teams are typical features of the everyday work of many private and public sector employees. This makes it important to provide students with a teaching programme that equips them as well as possible to participate in the planning, implementation and completion phases of projects in collaboration with others. The subject of project management aims to provide students with knowledge in key areas of organization and management [1]. The academic knowledge is grounded in perspectives of learning, development and change and the subject provides a comprehensive introduction to the various phases of project work. Students of Economics and Business Administration at Western Norway University of Applied Sciences (WNUAS) have for many years (2004-2018) performed extremely well in project management, a popular subject with up to 100 new students each year, where all the students have completed. As teachers on this course, we wish to describe the factors that promote student motivation and learning in the subject of project management.

A recent Portuguese study shows that project-based teaching where students are able to solve real problems in a real work context is an important tool for involving and inspiring students in their learning processes [2]. The study was conducted among students of biomedical engineering; their task was to develop a new prototype in health technology, as part of a national competition. A case study of the team that won the competition identified the following success factors as important for the students' motivation and learning: 1. Authentic tasks. 2. Greater student autonomy. 3. Faster decision-making processes. 4. Awareness of research ethical issues. 5. Perceived usefulness for society. A doctoral dissertation [3] points out that a learning environment that provides students with choices, opportunities, student-active methods and an experience of support and care will increase students' motivation, mastery, commitment and learning. Another Norwegian study of engagement and learning among students of administration and management shows that the element of competition is important for in-depth learning [4]. More research is needed in the field [5]-[6]. The purpose of our article is to enhance knowledge of teaching methodology that promotes engagement and learning in students of project management.

2. Theoretical approach

A key objective of higher education institutions is to facilitate effective learning, and many theories have been developed about how learning takes place. From a socio-cultural perspective, knowledge is constructed through interaction and in a context; social practices that include interaction and collaboration are thus seen as fundamental to learning [7]. This can be explained further in terms of the view that learning is situated in specific social contexts. To facilitate authentic learning activities and learning environments that are similar to the students' future work can for example involve the types of problem solving and thinking that are required when managing a project [8]-[9]. Learning is also seen as basically social, where interactions with others and participation in different discourse communities promote the acquisition and use of concepts, ways of thinking and practices in different social settings [10]. Learning is also seen as distributed knowledge between people, where individuals contribute to the community with their knowledge and skills which in total provide an expanded and holistic understanding of problem solving [8]-[11]. Furthermore, learning is seen as mediated, which can be explained as the intellectual and practical resources that we use as a basis for our understanding and acting, such as language, computers, books and films [12]. Finally, learning may be considered as participation in communities of practice [13]-[14], which presupposes that learning is facilitated through participation in social activities and actions in suitable contexts. According to Raaheim [15], an important prerequisite for learning is that students are motivated and feel respected in the learning environment. Motivation can be defined as processes that initiate, navigate and maintain continuity and determine the intensity of behaviour [16]. Ryan and Deci's [17] theory of self-determination distinguishes between intrinsic and extrinsic motivation. The driving force of intrinsic motivation is inner rewards such as joy, satisfaction or perceived meaning in the work performed [17]-[18]. By contrast, the driving force of extrinsic motivation is external reward [17]-[18], such as good or bad marks in an educational setting. According to Ryan and Deci [17], the three basic psychological needs of autonomy, competence and relatedness must be fulfilled in order to achieve intrinsic motivation. Autonomy is highlighted as the most important need, since it gives people a feeling of inner control and freedom to make choices based on their own interests and values [17]. Relatedness can also be important for intrinsic motivation, and we may assume that for project management students the need for relatedness in their

project groups will enhance commitment, interest and motivation. “Knowledge is power,” said the English philosopher Francis Bacon (1561-1626), and greater knowledge, in addition to enhancing the person’s feeling of mastery, can provide motivation for renewed efforts. The experience of being in a “flow zone” while performing work also promotes intrinsic motivation [19]-[20]. One of Csikszentmihalyi’s [19]-[20] descriptions of the experience of flow is that people become so engrossed in their work that they forget time and place and lose their self-awareness, i.e. what they are feeling and thinking. There is thus fusion between action and consciousness. In Csikszentmihalyi’s [19]-[20] descriptions there appear to be several elements that can promote a state of flow. One of these is a good balance between perceived skills and abilities and mastery of the task at hand. There must be a clear focus and built-in feedback on the work at intervals, to enable necessary adjustments. The objective of the task must be clear and give the person a feeling of control. Flow experiences typically give rise to a deep feeling of joy and pleasure, which motivates the person to make efforts to recreate the same experiences.

3. Methodological approach and the model for the teaching of Project Management

This study used a phenomenological hermeneutic approach with qualitative interviews of six students, each representing their own project group, who have completed the project management course at WNUAS. Random sampling was performed among students in two different years, and all those invited agreed to participate. Interviews were conducted in an office, and we used an interview guide related to motivation and learning in the various phases of the project work [21]. The students were in example asked to tell about their experiences with the planning stage. Prior to the interviews, we had conducted document analysis, reading through all 40 project reports written in the two-year period. This provided useful insight into the content and complexity of the subject, seen from the students’ perspective, and helped us to elaborate on various topics based on the interview guide. The interviews lasted about 90 minutes; we used a dictaphone to record all the data, with the students’ consent. Both teachers/authors of this paper were present in each interview, but the class teacher was the observer. The fact that we were both present may have influenced the responses we received, but we sought to reduce the influence by having the external teacher conduct all the interviews, while the class teacher who supervised all the groups was in the background. We experienced that the students spoke freely and gave honest answers based on their experience with the subject. Our analysis of the transcribed material was based on Bogdan & Biklen`s [21] steps, where we looked for meaning condensation in recurring themes, in different hermeneutic circles, which are presented in the paper. We have considerable experience as teachers, supervisors and examiners in the subject, and were aware of how our pre-understandings could have affected what we searched for [21].

Pettersen [22] outlines seven main points that characterize project work as a teaching strategy and method. The teaching in the project management classes at WNUAS is based on these principles and is divided into five stages, as illustrated in the model of Fig. 1.

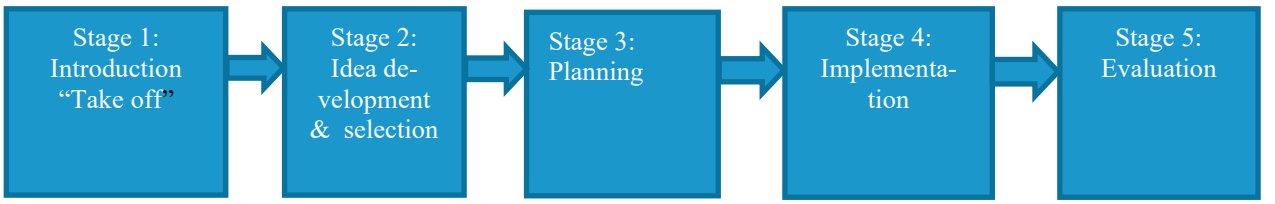

Fig 1. Five stages

In Stage 1, the “take off” phase, the course begins with an introduction to the subject which covers the most important focus areas within management, organization and project management. Students are encouraged to start thinking about possible ideas and group formation. In Stage 2, the idea development and selection phase, students are taught about creative methods of idea development. In this process, many ideas are generated for possible projects, and students select the project idea that they want to work on. The project work is thus based on meaningfulness and joint decision-making, where students’ interests and motivation form the basis for project choices with academic relevance, which must be approved by their supervisor [22]. The creative methods of idea

development must be used in all phases of the project. In Stage 3, the planning phase, students learn about theories of project management, teamwork, planning and following up, which they will subsequently put into practice. Project work is group-based and emphasizes binding collaboration and compulsory participation; all group members are responsible for producing a common product [22]. Students are now forming their final project groups, choose a project leader and prepare rules for group interaction. Each project group writes a project description that includes project organization, objectives and implementation plan. This is handed to the supervisor and presented to the class, who then provide input. In line with Pettersen's [22] idea that project work should be outward-looking and involve external actors, a steering group is formed consisting of the teacher and relevant external actors, to which each project group reports during the process. Students receive written and oral feedback through "speed dating" on written status reports during the planning of the project. In Stage 4, the implementation phase, each project group is responsible for implementing its projects, in close collaboration with external actors/the field of practice. The supervisor is available as needed, and can act as an observer. In Stage 5, the evaluation phase, students prepare a project report where they analyse the various phases of their project in relation to theory. Formative and summative evaluation are used during the process and after submission of the project report. The project work must result in a product and end result, which are subject to a formal assessment [22]. At WNUAS, the written project report counts for 60% of the final mark, while the remaining 40% is given for an oral presentation.

4. Results and discussion

The results of our analysis show that the following factors promote student motivation and learning in project management classes: 1. Ownership of projects. 2. Regular feedback. 3. A tight structure and student autonomy create flow experiences. 4. Participation in project groups: autonomy, competence, relatedness and competition. 5. Work relevance. 6. A specific product and end result. The following paragraphs provide a more detailed presentation and discussion of our findings.

Ownership of projects: One main finding is that student experiences of having ownership of the projects enhanced intrinsic motivation and willingness to put in extra effort in the various phases of the project. Ownership of the process is rooted in Stages 1 and 2 of the model in 1.1 above. Informant A said: "As this was a project we could choose ourselves, we obviously got more involved in it than we would have been in a project we didn't get to choose. Choosing yourself is important". Informant C found that the brainstorming in Stage 2 was also important to enable students to choose between different ideas: "I liked the brainstorming because you often need help to get your thoughts going". Informant C continued: "We worked quite a lot at this subject (…) because it was so much fun. It was so exciting! It's more motivating when you can choose for yourself, so that you're not just told to do something, but you get ownership". Informant E stated: "We were very motivated, and worked much harder than we'd expected. That was really good". Our interpretation of the findings is that when students themselves create ideas for projects, they become much more interested in and committed to the group project work, which improves intrinsic motivation and learning in all phases of the project implementation. One of Pettersen's [22] basic principles of project work as a teaching strategy and learning method is that students themselves must design and choose the problem that will determine their learning. Based on Stages 1 and 2 in the model, the topic must be chosen on the basis of student interest and motivation in addition to academic relevance [22]. The students in our study found it highly important to be able to choose a meaningful and interesting project, which increased their desire to devote a great deal of time to the work in all phases of the project. This agrees with Raaheim's [15] argument that students will be more motivated in work they choose themselves; such motivation will be intrinsic and thus important for learning. Our findings show that ownership of and strong commitment to the project to be implemented were perceived as very important for continuity and intensity in students' efforts, which is in line with Reis, Coelho and Coelho's [2] finding that involvement in tasks students find interesting and enjoyable increases motivation and learning.

Regular feedback: Our study shows that regular feedback from the supervisor on presentations of the projects enhanced the students' sense of mastery, inspiration and continuity in their work (Stages 2, 3, 4 and 5 in the model). Informant B put it this way: "It was pretty good to get input from someone who had a kind of outsider perspective. (…) It made the project a bit more measurable and concrete". Informant C said: "I thought it was very helpful to get feedback on whether we were on the right track or not". Informant D explained: "We had a bit of pressure to

perform better, and we got good feedback from the supervisor". Finally, Informant E stated: "I think it's great that we had follow-up (…) she could tell us as we went along what we were doing well or badly, so we didn't get that after the project was finished. She might say, 'This part's good, but you'll have to do something about that part.' We really appreciated that, because it's important". The students also appreciated being able to drop by the supervisor's office outside scheduled meetings. Informant E said: "We had some meetings, some fixed dates, but we also just went to her office and asked her without an appointment. And I think it was really useful to get feedback". These findings show that the students' intrinsic motivation was strengthened through regular feedback and encouragement from the supervisor. According to Pettersen [22] learning will only take place when students themselves have an active role in the learning process, which involves the establishment and development of knowledge constructions. Our findings demonstrate that the supervisor's feedback helped the students to clarify issues and navigate their way forward, which provided a new impetus and motivation for their further work. In this way, the teaching was also perceived to be well adapted to the progress of each individual group, which Wittek [23] emphasizes as important for facilitating good learning. Hattie and Timperly [24] also emphasize that teaching must be structured to allow students to dare to challenge themselves, which will increase the joy of mastery. This is supported by our finding that students emphasized that the feedback informed them what they had done well and what needed improving, which led to mastery, control and a desire to perform even better. The students appreciated the opportunity to see the supervisor in her office, at both scheduled and unscheduled times, to receive feedback and answers to questions. This feedback was important because it enabled students to make regular adjustments, not only after completing the project. This is also mentioned by Hattie and Timperly [24], who stress the importance of creating appropriate learning strategies that provide students with help when they need it, which makes their efforts effective in relation to the goal to be achieved. Research shows that feedback is of great importance for learning [25], but that its effect will depend on the way it is given. Hattie and Timperly [24] consider it important to give specific feedback and help students to clarify their goals and tasks, in order to strengthen their sense of control. According to Bandura [26], such feedback should preferably come from competent others, such as a supervisor.

A tight structure and student autonomy create flow experiences: The combination of a tight structure and a large degree of freedom within the framework is also seen as constructive, and in this study it created intrinsic motivation and flow experiences characterized by joy, satisfaction and perceived meaningfulness. The students emphasized the importance of a clearly defined schedule with stated milestones and deadlines for submitting and presenting the project description, status reports and final report. Informant C said: "I am also very pleased that we had to submit it [the project report]. Because if we hadn't been followed up, we might not have done it. And the clear structure also helped us". Another example of the tight structure was the requirements in stage 3 that students had to provide a written account of the roles and tasks of each group member, and that all members should sign a binding cooperation agreement. Informant B put it this way: "There were quite a lot of us, so to get it in writing, this is your role and your task, maybe a name for your role, that made things more effective towards the end, because then the work piled up. That made it easy to distribute responsibilities for the various parts of the work". The informants found it so interesting and enjoyable to work on their projects that they had flow experiences. Informant D said: "I've never put in so much work in a subject before. I felt like I was working on it every day. I thought about the magazine [the project] before I went to bed and when I got up. It was like I felt that flow. And I've never worked so hard at a subject before. (…) I think it was just that we came up with an idea that everyone wanted to work on. So we were all kind of intrinsically motivated, and we all did our bit to make it a good product". Informant C said: "We did quite a lot of work in this subject (…) it was like we had to stop ourselves working, so that we could give priority to the other subjects too". We interpret the findings as showing that the combination of a tight structure and freedom to work on enjoyable projects within a set framework made the students work hard in all phases of the project. All the informants pointed out that they had never put so much work into a subject before, but that it was enjoyable, fun and interesting and gave them flow experiences. An important task for teachers is to enable good learning [7], and to this end various approaches can be chosen. One of these is for teachers to see themselves as facilitators, with a main focus on establishing a clear framework and structure for classes, which are carefully planned and organized. Another main approach is where teachers view themselves as narrators on a stage, while students are passive listeners in a lecture hall. A third approach is to see oneself as a conversation partner, and here students are involved in the teaching and in knowledge production [15]. The project management classes at WNUAS use a combination of these approaches, but mostly the teacher acts as facilitator. Our findings suggest that

facilitation of learning, with strict control and freedom with responsibility, improves motivation, mastery and flow experiences. Kember and Leung [27] state that high work demands do not necessarily mean that students experience a heavy workload. Instead, if high work demands are combined with teaching that emphasizes understanding more than rote learning, includes regular constructive feedback and uses varied forms of assessment that test understanding, students will not feel that their workload is excessive [15]-[3]. Our students' stories of experiences of flow in their work are in line with Csikszentmihalyi's [19]-[20] descriptions of becoming so engrossed in work that one forgets time and place and loses self-awareness. The students' stories also reflected Csikszentmihalyi's [19]-[20] descriptions of a deep feeling of enjoyment in flow experiences, which in turn motivated them to make renewed efforts.

Participation in project groups: autonomy, competence, relatedness and competition: Our findings show that relatedness in the form of a feeling of belonging to project groups promotes intrinsic motivation and collective social learning processes (Stages 2, 3, 4 and 5 in the model). Informant C found it positive to work in groups on a joint project through the various phases: "I think it was a very good thing that we could work on a project, we learned a lot by working in groups in that way. Because we've done group work before, but it wasn't like this". Informant C felt that the feeling of belonging to the class was also important for motivation and learning: "The group presentations of 5-10 minutes in front of the class were also a learning experience. It was good to hear what the others in the class were working on, and that gave us ideas and input too". Informant D also praised the group work and said that a competitive spirit developed in the class to try to be best: "We all wanted to do good work and get a top mark. It would have been different if the group hadn't been so ambitious. For some students, it's kind of okay to get a C, but everyone in our group wanted top marks. We all worked as hard as we could and did what we wanted to do, and that was a very positive thing. It helped a lot that the group really wanted to be successful. If one of us had just needed to pass or get a low mark, it would have been quite different". Informant D went on to say that a driving force in their work was that the groups compared themselves to each other and competed in terms of both progress and marks: "How far has that group come?" "How far have we come?" Our interpretation of the findings is that cooperating in groups was important for the individual student's motivation and learning. A basic principle in problem-oriented project work is that it is group-based and participant-driven [22], which in our study proved to be important. The groups varied in size from three to eight students, and working together in groups was felt to be rewarding and interesting. In line with other studies [8]-[9]-[10]-[11]-[22], the groups formed a collective social community that enabled learning and development for each individual. An important success factor for the group work was the requirement to write and sign a binding cooperation agreement, which clearly stated the individual's role and tasks. This ensured that all students actively participated in the various phases of the project, which Wittek [23] underlines as an important pedagogical principle. Learning and motivation were enhanced through active interaction and dialogue in the project groups, where the individual had to argue for his/her views in possible confrontation with others' ideas and input.

Our findings suggest that a feeling of relatedness in groups led to collective learning processes, where individual students contributed their knowledge and skills in authentic learning contexts, which is emphasized as key aspects of learning [7]-[13]-[14]-[27]. Further, the presentations in class were highlighted as important for the continuity of the project work. Here students received ideas and input from others and compared themselves to the other groups as to how far they had come in their work. A competitive spirit was developed in the class to do one's best and achieve the best mark, which increased the students' motivation even more. Similarly, Kahu [28] states: "Engagement breeds engagement". We could see that the competitive element created and strengthened cognitive engagement; the students became more aware of their own learning and chose strategies that strengthened their knowledge. This corresponds with findings by Berg and Eriksen [4] on engagement among students of administration and management. They found that the element of competition triggered commitment that made students work hard to learn the subject matter, which led to in-depth learning. The competitive element was also one of the success factors found in a study by Reis, Coelho and Coelho [2] of project-based learning among engineering students.

Work relevance: A basic principle of problem-oriented project work is that it is outward-looking, and often produced in collaboration with actors outside the educational institution [22]. Our findings suggest that contact with external actors was a particularly important factor for students' intrinsic motivation and learning, since they saw the theories applied in practice. Informant E expressed it as follows: "We found that the meetings with external partners in the project were inspiring and educational". The same informant added: "What I also like so much about these

projects is that they're not only useful for us, but also for others. Lots of people participated and benefited from it, and we managed to do that kind of project". Informant B said: "Being able to create something yourself, and being challenged by using your subject knowledge on something that developed in practice. That was my motivation for choosing the subject. It seemed very interesting". Our interpretation of the findings is that theory combined with subsequent practical work on a project in collaboration with the field of practice enhances understanding and mastery. Interaction with external actors gave the students insight into the issues faced by various actors in the field of practice and the partners' preferred goals of the project. Not only did the students find it motivating to receive feedback from the field of practice that the projects were useful for others than themselves, it was also motivating and instructive for them to see how the theories were applied in practice. This concurs with Reis, Coelho & Coelho`s [2] statement that the experience of being competent and effective in practice is important for motivation and learning. According to Hattie and Timperley [24], feedback from practice can minimize the discrepancy between what we want to understand and what we already understand, which then generates motivation and engagement. It is also more likely that learners will make a greater effort to achieve clear and distinct goals from the field of practice to which they are committed and which they believe they can achieve [24].

A specific product and end result: The findings demonstrate that the students found it a motivating and learning experience to work together on a final project report and give an oral presentation of the project, as part of their course examination (Stage 5 in the model). A group examination helped individual students to feel more secure and led to deep learning. Informant E emphasized the co-writing of the final project report as follows: "We wrote the whole report together (…) everyone participated, whether they were good at writing or not. We didn't say: 'You write one page and you write one page.' We wrote together to make it coherent. It was very useful to cooperate". Informant F described the writing of the report in this way: "We learned a lot and that was what we'd had in the lecture and in the textbooks, to write about what we'd learned. Great. I really feel I learned a lot". Informant F continued: "It was perfect, putting together what we'd been working on for several months and the girls [in the group] had very clear ideas about it and wanted to deliver quality. Since we'd spent months on the project, it was important to complete it properly. And that's reflected in our mark. Because we worked hard for the result. We were very focused. It ended up the way we wanted". Informant B highlighted the advantages of the oral exam: "I think that was a good way to do it. Then they'll point it out if there's something you didn't put in writing, so you can explain it or make it clearer in your oral presentation. Then you also show that you understand what you've written, and that's a very good thing. You might be afraid of getting questions you can't answer [in an oral exam], because it's a broad syllabus. But when you're in a group, you can support each other and we noticed that too. You might also learn something there and then. Like you suddenly realize and understand different things that maybe weren't clear". Informant E said: "I think the oral exam was very good, that we had to present our project in 10 to 15 minutes. And a bit more challenging with several students, because everyone wants to say something more here and there, so we needed to practise a lot: 'OK, your time's up' and 'Two minutes for you, two for you', etc. Even if you know more and want to say more, that doesn't work, because you're taking up others' time. It was an excellent learning experience". Informant F described the group's experience of the oral examination as follows: "In the oral we could talk about our experience and we used the subject matter in our report and it was a good combination of written and oral". Our findings suggest that the students were both intrinsically and extrinsically motivated when writing the final project report as well as in their oral defence/presentation of the project, and that this involved considerable learning. By writing a joint project report in groups, the students had the opportunity to reflect on their experiences through the various phases of the project work, and they discovered relationships and gained an overall picture of what they had learned in light of theory. Their oral presentations resulted in further motivation and learning, as all the groups wanted all the efforts they had made throughout the project to be reflected in a good mark. A basic principle of problem-oriented project work is that the project should lead to a specific product and end result where summative assessment is used [22]. Our findings show that extrinsic motivation was important in the final phase of the project, as the students wanted good marks for all the work they had done. According to Kuvaas and Dysvik [18], extrinsic motivation is important in increasing learners' effort; this is reflected in our findings, where the students' extrinsic motivation led to a general feeling of collective responsibility to contribute what they could to achieve a good end result. Participation in project groups provided students with a social community of learning [9]-[13]-[14], which gave individual students a greater sense of security. By writing together in groups, each individual could contribute his/her reflections and knowledge, which in total led to a comprehensive understanding of what

they had implemented and learned during the project management period. Similarly, Putnam and Borko [8] and Kyndt et.al.,[11] argue that learning takes place as part of distributed knowledge between individuals. The oral presentation of the project also reinforced motivation and learning. The group feeling provided security and helped reduce stress and nervousness, because students could support each other during the presentation. If one group member got stuck, the next one could supplement the information; thus they were there to support each other. This is in line with Bandura's [26] theory that a feeling of belonging in a social community of learning provides competence that aids motivation and mastery. The collective learning community helps to reduce stress and anxiety in the situation. The oral presentation also enhanced the learning effect since extrinsic motivation was then at its peak. All students were strongly motivated to achieve a good end result, which led to additional work in the form of several meetings before the presentation to ensure that they were well-prepared for the presentation situation.

5. Conclusion and implications

Project-based teaching enhances student motivation and learning. Students' formulation and development of their own problems and project ideas creates considerable intrinsic motivation, flow and enthusiasm. Participant-driven team learning provides meaning and mastery when students plan and implement projects with external actors that will lead to concrete results. Competition between the groups and the desire for good results also promote strong intrinsic motivation and enthusiasm. Students are motivated by receiving regular feedback during the project period, and by the close link between theory and practice on the course. The final phase of evaluation of students' project practice in relation to theory and their reflections on their practice through written and oral group examinations lead to deep learning. A project-based teaching model facilitates intrinsic motivation, flow and enthusiasm, which in turn improve mastery and learning, as well as leading to good results due to work-relevant projects. More research is needed in the field of student engagement and learning in relation to work relevance in project management classes, which is in fact an important criterion in all higher education. It would be interesting to implement the teaching model of Project Management learning in other subjects in higher education to see if there are equivalent results.

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