

Students' Opinions on Financial Compensation from Project Work

Juho Heikkinen^{1,2} and Ville Isomöttönen²

¹*Agora Center, University of Jyväskylä, P.O. Box 35, FI-40014 University of Jyväskylä, Jyväskylä, Finland*

²*Department of Mathematical Information Technology, University of Jyväskylä, P.O. Box 35, FI-40014, Jyväskylä, Finland*

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Abstract: Project-based learning with real customers arguably offer value for all stakeholders. This value has been discussed in literature both from the viewpoint of customers and the related economic value, and the enhanced learning of students. This paper presents the results from an empirical study on students who have completed a multidisciplinary project course with real customers. A qualitative survey was focused on how students see the value of project-based learning and whether there should be financial compensation to students. The students placed a higher value on learning than financial compensation, and while they argued that it would be fair and nice if some compensation was paid, they did not see it as a necessity. They also considered financial compensation problematic: how should it be distributed within the team, and could it affect students' and customers' motivation to participate in the project course. Students emphasized that the issues related to financial compensation should be discussed openly.

1 INTRODUCTION

Many problems can emerge during project courses, although student enthusiasm toward authentic project participation usually yields a positive overall learning experience no matter what problems occur (Isomöttönen, 2011). The starting point of this paper is that this overall positive experience can mean that students are not comfortable raising important but sensitive questions during the project course.

Project-based learning can be organized as a "Project with a client", where students realize a project for a real customer and are faced with real-world problems (Fincher *et al.*, 2001). In some cases, the economic value that customers gain from this type of projects is significant, while the value for students is in the learning (Mann and Smith, 2006).

One somewhat analogous situation in higher education is unpaid internships, which have received negative publicity in the mainstream media over the last few years¹. In these cases, interns are essentially doing the same tasks as employees of the company, but without pay, and the learning aspect essential to internships is left out².

¹<http://www.businessweek.com/articles/2013-06-27/unpaid-intern-lawsuits-explained>

²<http://www.forbes.com/sites/theyec/2013/04/19/6-legal-requirements-for-unpaid-internship-programs/>

The present qualitative study originates from a project course where multidisciplinary student teams realize projects for real customers. In each project, a project contract is signed by the customer, each student, and the university. Customers are billed an administrative fee by the university, and the university grants credits to the students.

While the students are generally satisfied with the course, we have received (sometimes anonymous) feedback from students not participating on the project course, arguing that students should get some financial compensation since they are in one sense "working without pay" for their customer. Thus, the course has been labeled as "exploiting students for the benefit of customers" by some. With this in mind, we sent out a questionnaire to students who had completed our project course to find out how they see the value of project-based learning and the work they do in projects.

A total of 38 students answered a qualitative survey (Jansen, 2010) that explored students' opinions on the project course arrangements in general, the number of credits they are granted, and whether they should be paid. The research focused on the issue of financial compensation and the related fairness in project work.

One can argue that the premise of this research is trivial and students are satisfied with conditions in

project-based courses as they have been organized for decades, and are fixed part of curricula in many higher education institutes. However, there seems to be little to none empirical research on financial compensation to students.

2 RELATED WORK

Industry often participates in capstone courses as a sponsor, providing resources such as funding and expertise, and sometimes acting as customers offering “authentic involvement” (Dutson *et al.*, 1997). Warnick and Todd (2011) describe a project model in which customers allocate an educational grant worth \$20,000 to the organizing school. A total of \$1,500 of this is allocated to each team’s internal budget to be used on realizing the project. The cost of projects to customers seems to be low in general: according to a survey of 165 programs, less than 10% of the respondents reported utilizing project model where customers pay more than \$5,000 (Warnick and Todd, 2011).

Warnick and Todd (2011) describe the results from surveys conducted with current and potential customers of their school’s project course. The researchers observed that granting IPR (Intellectual property rights) to customers was essential in ensuring meaningful projects for students as companies would not join as customers without being granted IPR. The authors also discuss how this IPR policy can be seen as exploiting the students. They argue that the value from learning enhanced by real-world problems compensates granting IPR to customers, since the focus of project courses should be on learning. Similar issues are discussed by Isomöttönen and Kärkkäinen (2008): the role of a real customer in the students’ learning process is valuable, but at the same time, one has to pay attention to the students’ rights and ethical issues that may arise from project work.

Mann and Smith (2006) propose a four-factor model for estimating the value of capstone projects and list several examples from the literature of significant financial benefits for the customers, including savings up to \$50,000 in consulting services. Another example by the same authors demonstrates that customers can profit from the project deliverables, which support customers’ everyday business, resulting in savings through more efficient use of resources, or directly through sales of the finished products. By participating in student projects customers also get to evaluate their potential new employees in a real-life setting (Todd and Magleby, 2005).

In summary, companies that participate in student

projects as a customer seem to be in a profitable position: the price of student projects is relatively low (Warnick and Todd, 2011), especially when the cost is compared to professional consulting services, but the value for customers can be significant (Mann and Smith, 2006).

For students, the value of project-based learning is in the enhanced learning. Project work reinforces learning, enables the students to demonstrate that they have mastered their needed skills, and, when project work is done in teams, provides an authentic working environment (Fincher *et al.*, 2001). The educational benefits are also one reason universities organize student projects, since “many stakeholders in the discipline believe that an ‘apprentice approach’ is a key component of inculcating learners into the discipline” (Fincher *et al.*, 2001). Although student projects require more resources from the faculty, they offer “substantial and sustained learning” (Brownell and Jameson, 2004).

Multidisciplinary project work, which is the specific context of the course under study, is seen as necessary to prepare students for the working life after graduation (Burnell *et al.*, 2003) and this realistic setting has a positive influence on student motivation and work spirit (Daniels and Asplund, 2000). Students consider these experiences invaluable and the course as the most important during their studies (Brownell and Jameson, 2004). Multidisciplinary projects done in the first year with real customers and real projects are excellent preparation for later studies as students gain important skills (Hirsch *et al.*, 2001).

When designing a capstone course, the university and teaching staff must consider several aspects (Clear *et al.*, 2001): if the capstone course is organized as a project with a real customer, one important and sensitive issue is the financial relationship between the customer and the students. However, whether students should get financial compensation from the projects is not thoroughly discussed in the literature. Clear *et al.* (2001) discuss the policies regarding students being paid: it can be permitted, disallowed, or permitted under certain conditions.

Another approach to experimental learning is cooperative education. Reichlmay (2006) describes a cooperative education program, in which students get paid for the work they do during their studies. Students get work experience in a long-term realistic setting, and companies acting as customers get to know their potential future employees. Similarly, Huggins (2010) discusses cooperative education that in general can be paid or non-paid, but does not go deeper in analyzing these two options. Including payment to students however increases the employers’ expectations

while students get some income which is a bonus for them (Huggins, 2010).

Neagle *et al.* (2010) discuss student companies: when organizing a student company in their university “a secondary, but not unimportant, driver was to provide students with earnings” as students often need to work part-time to support their living. One challenge was to assure the potential customers of the quality of work provided by the student company. The authors also discuss two other student company models in different universities. In both cases payment to students was later replaced with granting credits to students as compensation. Interestingly, granting credits instead of payment improved students’ motivation and quality of work (Neagle *et al.*, 2010).

The value customers gain from the projects can be quantified through increased efficiency of business processes or sales of new or improved products (Mann and Smith, 2006). The value for students is in the learning, which is more difficult to measure and compare with the value customers gain. This raises the question about the fairness of the situation: does the students’ enhanced learning balance the customers’ economic benefits.

3 THE PROJECT COURSE

During the project course under study, multidisciplinary teams of 4-5 students realize a project for a real customer. Project topics are “open-ended” (Daniels and Cajander, 2010) and the course is open to students in all faculties, enabling, together with the multidisciplinary approach, a wide spectrum of project topics from local companies and non-profit organizations. The multidisciplinary approach also means that the focus is in the learning general working life skills rather than enhancing substance skills.

The course is organized in collaboration between a research unit and the university’s administration. This further reasserts the multidisciplinary approach of the course since no single faculty is in charge. While the project topics are multidisciplinary, computer science is present in majority of the projects in one way or another.

The pedagogical approach used is project-based learning, to which two aspects are essential (Helle *et al.*, 2006): students produce a solution to a problem, and the projects produce an end result, such as a report or a product. Further, the project course emphasizes the “thrown in the deep end” approach, meaning that students have to take responsibility for their work without constant supervision. Tutoring, however, is available from the course coordinators when

requested. Students are encouraged to work independently, but also instructed to ask for help if needed.

The projects are supervised with a similar “light” process, which focuses on giving students and teams feedback on their deliverables and teamwork throughout the project. The students write a mid-term report, and feedback is given in a meeting with the project managers and another meeting with all course participants.

The project contract signed by all three stakeholders (customer, students, university) stipulates that students must spend between 120 and 180 hours on the project and they receive 4-6 credits (European Credit Transfer and Accumulation System, ECTS) based on the hours spent (in the case of this course, 1 credit equals 30 hours of work), and an additional credit for participating introductory lectures before the actual project.

The possibility of variation in the credits and work hours within team members was added after the first course instance based on student feedback. Students have to plan the project according to the tentative assignment from the customer and decide how many hours they can and have to use to complete the project, and then keep track of their work hours. Granting credits according to the actual hours spent prevents situations where students might do non-essential tasks just to achieve planned hours, while the project is already completed. Similarly, it allows them to work up to 6 credits to achieve the project goals even though the project would have been planned to match 4 or 5 credits. Further, it offers an authentic working life experience, as the goal of any project should never be to spend all planned resources, and sometimes projects take more time than expected. In addition to credits, students receive an individual “project certificate” that they can use as a reference.

The university collects an administrative fee (750 euros + 24% VAT) from the customers after the course, and the customers pay for all the running costs the teams need to realize the project. The project contract stipulates that the customers are granted the IPR to the results, and in case of “significant economic benefit,” the students and customers are obligated to negotiate additional compensation for the students. Students also maintain the right to use the results of the project in their own studies at the university, and have the right to use the project as a reference.

4 QUALITATIVE SURVEY

4.1 Research Questions

The research was initiated by four research questions:

- RQ1: What is the general opinion of the students regarding the course model and the arrangements?
- RQ2: Are students satisfied with the number of credits they get for the course and the model on which the credits are based?
- RQ3: What are the students' opinions regarding financial compensation in coursework with external customers?
- RQ4: Does the issue of financial compensation emerge without specifically leading the students to this topic?

While being the fourth RQ on this list, RQ4 was actually the starting point for this research. The research was initiated by the discussions between the two authors of this paper on the issue of financial compensation: if the comments from non-participating students regarding the unfairness of the lack of payment were relevant, why the students attending the course had not commented on the issue. This whole research revolves around the issue of value of project-based learning to students, and thus more direct research questions RQ1, RQ2, and RQ3 were included. These three questions also enabled us to potentially answer RQ4, as explained in the section describing the questionnaire.

4.2 Questionnaire

After the summer 2013 course was completed, a link to an anonymous questionnaire accompanied by a foreword explaining the purpose of the study was sent by email to all 114 students who had completed the course in the four previous course instances, covering a time period of two years. The email reached 111 students with three emails bouncing back due to inactive email accounts. A total of 38 students answered at least some parts of the questionnaire.

The questionnaire consisted of an introductory text that described the purpose of the study and the basic course arrangements essential to remember when answering the survey:

- In this project course, multidisciplinary teams planned and realized a project for a real-life customer.
- The course yields value and benefits for students, customers, and the university.

- There was a project contract stipulating the work hours, administrative fee, and IPR.
- Students were granted credits based on work hours but were not paid.

The questionnaire was implemented using a web-based system offered by our university. The questionnaire consisted of three background questions: faculty, sex, and whether the respondent had been employed during the past 12 months, and four open-ended questions that directly followed from the research questions:

- “Q1: How do you see the basic arrangements of the project course from a student perspective?”
- “Q2: Is the model used in granting credits good? Is the number of credits reasonable?”
- “Q3: Should students be financially compensated in addition to credits for the coursework that has external customer that benefits from the work?”
- “Q4: Has completing the project course helped you get employed?”

The first page of the questionnaire consisted of the foreword, background questions, and the Q1. The Q2 was on the second page with a short foreword related to that question. The third page included Q3 and Q4, again with a short foreword related to Q3. Further, Q3 was formulated to avoid limiting the answers to the course under study; students could comment on the issue also generally. The Q4 was included to be used in evaluating the course from the management perspective, and thus the answers are not analyzed thoroughly in this paper.

RQ1, RQ2, and RQ3 correspond directly to the first three open-ended questions, and RQ4 was enabled through the structure of the questionnaire, as the issue of financial compensation was not emphasized in any way in the survey title, introduction, and the first two questions. We could thus review if the financial compensation in an unprompted manner emerges from the first two questions, and compare such observations with the answers to direct question on financial compensation.

4.3 Analysis Procedure

The analysis followed the procedure presented by Jansen (2010). Our approach was first-level analysis (unidimensional description), where the data is coded and then organized “into objects, dimensions for each object and categories for each dimension” (Jansen, 2010). We utilized downward coding, where we specified “diversity within an object by distinguishing dimensions and diversity within dimensions by distinguishing categories” (Jansen, 2010), moving towards

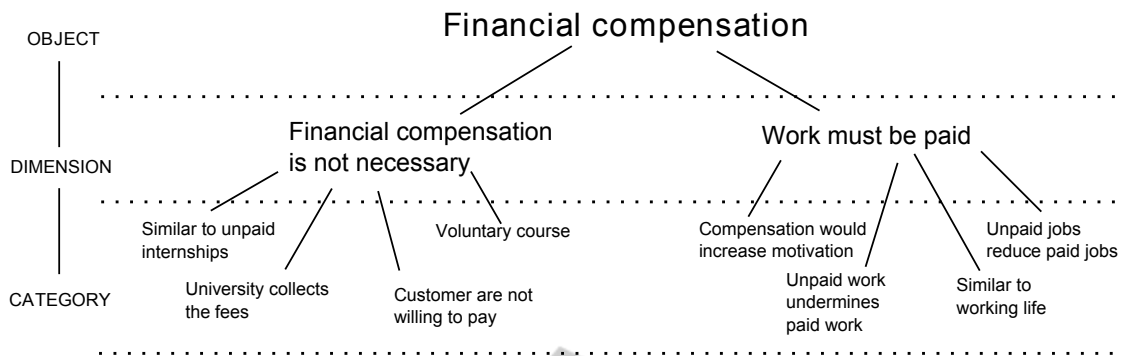


Figure 1: Example of the outcome of analysis procedure. Adapted from Jansen (2010).

lower level of abstraction. From our research setting and the use of downward coding, it follows that each object corresponds with the theme of a predetermined survey question. For each object, students' answers were first coded into dimensions. Then, coding continued within each dimension, and categories were identified as the level of abstraction lowered. During the iterative reviews of the coding some upward coding was also done. In these cases a data fragment representing a dimension or its category was moved to a dimension that was deemed to be better fitting. Example of this structure is presented in Figure 1, where the object "Financial Compensation", two of its dimensions and some their related categories are depicted. In Section 5, these objects are presented as subsections. Dimensions for each object are identified at the beginning of paragraphs in quotation marks, with paragraphs describing the categories related to that particular dimension.

Since the topic of students' opinions on financial compensation is not widely researched empirically, we wanted to perform this first-level analysis to achieve preliminary findings and thus give directions for future research that will utilize students' interviews, instead of using a more explanatory analysis such as pattern coding (Miles and Huberman, 1994). The quantitative background information was purposefully left out for future research. As the answers to the Q1 did not include themes related to the financial compensation, the analysis of students' answers to Q1 is not reported in this paper.

5 RESULTS

The main interest in this paper is the students' opinions on financial compensation from project work. The answers to Q4 did not contribute to this theme; for what reason we only show the summary of students' answers here, in Table 1.

Table 1: Student answers to question "Has completing the project course helped you get employed?", where n = number of students and f = frequency.

Answer	n	f
Course has helped getting me employed	6	20,7%
Hopefully it will help	5	17,2%
Has not help but I gained useful skills	10	34,5%
Course has not helped getting me employed	3	10,3%
I do not know	5	17,2%
TOTAL	29	100%

5.1 RQ2: Are Students Satisfied with the Number of Credits They Get for the Course and the Model on Which the Credits Are Based?

Students' comments regarding credits focused on three main themes: number of credits, the model used in granting credits, and the amount of work compared to credits. Another theme that emerged from this question was the tracking of work hours.

"Sufficient, Suitable, and Limited Number of Credits." Students found the number of credits suitable and reasonable for this type of course. It enabled them to focus on other tasks during the summer, because the amount of work and credits were limited to 180 hours and 7 credits. However, students noted that maximum number of the credits is not enough for the summer term to obtain the study grant for that period. **"Fitting and Flexible Model but Prone to Cause Unfairness."** The model used to grant credits was considered to be good and fitting. It enabled variation in workload between different teams as customers' needs and project topics varied. It was deemed flexible to individual students, because individual contributions were reflected in their credits. Students com-

mented, however, that the number of credits should be the same for each team member on each team, because the allowed variation in credits and workload caused disruptions in teamwork.

Students argued that the model is good in principle, but changes should be made. These proposed changes included the possibility of have variation in credits between team members and awarding extra credits if the project quality was good. The model was considered good if followed; one student said their team spent more than the required hours per credit, meaning that even though the hours and credits were limited, students felt motivated to complete the project.

“Suitable Workload in a Vacuum, but a Heavy Workload Compared to Other Courses.” Students compared the workload of the course to other lecture-based and project courses. In both cases, they felt this course had a heavier workload because they spent 30 hours for each credit, and the project was done during a 3.5 month period compared to a full semester in other project courses. The traditional model used in almost all lecture-based courses is one where the teacher estimates hours students have to spend studying and sets credits accordingly.

Another factor contributing to the workload was the existence of a real customer. Students felt this was an external motivating factor that increased the pressure to perform, and thus made the workload seem bigger. When students evaluated the course “in a vacuum”, the workload was seen as suitable. One reason students mentioned to explain this was that the project was so enjoyable it did not feel like work.

The workload compared to credits gained divided students’ opinions. Some considered them to correspond well with the workload, while others found the number of credits small compared to the workload. Because the course covers a time period of 3.5 months, the students felt committed to the project, which, again, made them feel the workload was bigger.

“Tracking Work Hours Was Important to Learn to Some but Useless to Others.” Mandatory tracking of work hours was considered time-consuming and challenging by some students. This was related to their opinions regarding project management being in excess of their expectations and, how it detracted from actual project work. Some commented that tracking work hours was a waste of time, and it was more important to establish solid team work and realize a successful project.

Challenges were also related to personal differences between team members. Students commented that team members had different concepts about what

types of tasks constituted work to be included in the project. They had different skills and competencies, which made distributing the workload difficult. Similarly, understanding other disciplines’ tasks and the hours required to perform them was a challenge.

Conversely, tracking work hours was seen as an important learning experience. Most of the students’ previous courses had not included a similar system, but they recognized that tracking work hours is not uncommon in the working life. Tracking work hours also helped with project management by keeping them on schedule. It increased motivation because progress, or lack thereof, could be monitored. Students suggested that more instructions should be included how to efficiently track work hours.

“Learning Is More Important than Credits.” Students felt the learning experiences gained from the course were more important than credits. Thus, they emphasized that the project course’s focus should be in the learning and networking, not providing cheap labor for customers. Additionally, one student commented regarding financial compensation. The student argued that a salary or grant would help students during the summer, because they cannot have summer jobs due to the project’s heavy workload.

5.2 RQ3: What Are the Students’ Opinions Regarding Financial Compensation in Coursework with External Customers?

Although there was only one comment related to financial compensation in the previous answers, the students reflected on and analyzed - with great detail - possible financial compensation and the factors related to it when directly asked.

“Financial Compensation Is Not Necessary.” Students analyzed this project course against their experiences in working life and internships. Because the project course is voluntary and additional to their studies, the terms are agreed upon before the course, and all parties involved are aware of the lack of financial compensation, students felt that financial compensation was not needed and the current situation is suitable. They compared the situation to prior unpaid internships, and argued that, similarly, no payment was necessary. Students argued that the university should be paid by the customer; they organize the project course, tutor students, and are responsible for the projects. Analyzing the situation from the viewpoint of customers, they felt customers would not be willing to pay students, therefore asking for additional compensation would be pointless.

“Learning and Credits Are More Important than Money.” Students placed great value on the learning experiences gained from the project course. Although they acknowledged that their customers had gained useful tools from the project, the students considered other factors more important than payment; learning experiences, credits, references, and networking with customers were seen as suitable and reasonable compensation. Possible future employment with the customer was also seen as a suitable reward for project work. In that sense, students saw the project as an “investment in the future.”

“Fairness of the Situation” Again, students acknowledged that customers might gain significant benefits from their projects. In this light, students felt that there should be the possibility of negotiating with the customer regarding additional compensation. The opportunity to be paid after significant results would, in their opinion, be fair, and it would increase motivation. Students’ opinions here emphasized the significance of the results and benefit to the customers, as well as the fairness of the situation as an argument supporting compensation. Students felt that financial compensation would help them during the summer, and while not necessary, it would be a nice bonus for the work.

One comment raised an important issue: whatever the model regarding the financial compensation and fees collected by the university, it should be transparent and visible to all stakeholders; they should know who pays for what and how the money is used.

“Work Must Be Paid.” Students made an argument that project work does not differ from “real working life”. In that sense, they commented quite strictly that there should be a payment of services, just as in normal working life. They argued that unpaid jobs can reduce paid jobs, as customers opt to participate in a project course instead of using other commercial services, such as consulting companies. Related to this, one strong statement in favor of financial compensation was that “unpaid work undermines paid work”. Since the project course is organized during the summer term and it takes a lot of work and time, students commented that some students might be unable to take a summer job at the same time, and thus, compensation would be in place. In students’ opinion financial compensation would also increase their motivation to perform. Students also commented that the running expenses should be covered by the customer.

“Payment Might Cause Problems.” Some students argued that compensation might cause unfairness within the team due to the unequal distribution of work: some team members’ contribution to the results could be more significant, making it difficult to dis-

tribute the compensation fairly. Students speculated that similar situation might occur between different teams who have different customers, some more willing to compensate for good results, thus putting different teams within the same course in unequal positions. In students’ opinion, compensation might affect the students’ motivation to participate in the course and even dilute the teamwork as team members might start competing against each other instead of working together as a team.

Students analyzed financial compensation from customers’ point of view as well: students understood that customers sometimes participate in the project course in order to test ideas outside their normal business or product development. Students realized that customers might not be eager to participate if the costs of this type of experimental R&D were increased through financial compensation to students. Students acknowledged that increase in payment from customers would also mean increase in requirements and deliverables of the projects.

5.3 RQ4: Does the Issue of Financial Compensation Emerge Without Specifically Leading the Students to This Topic?

The results regarding RQ4 seem quite clear. Additional financial compensation did not emerge in the students’ answers (except in a single comment) when they evaluated the course model (Q1) or the credits (Q2). However, the students analyzed this issue deeply when specifically asked (Q3). We assume that this can be caused by two things. First, students can be cautious when sensitive issues need to be discussed (Isomöttönen, 2011). Second, students simply are more interested in learning experiences and do not consider financial compensation an essential part of the project work, as our analysis of RQ3 seems to point out. While financial compensation would be fair and a nice bonus for the work, students consider project work as an investment in the future, and they highly value learning experiences.

6 CONCLUSIONS AND DISCUSSION

In this paper, we analyzed how students see the value of project-based learning, focusing on students’ opinions of whether or not they should get financial compensation for their work. Based on the qualitative survey, students were satisfied with the course and its ar-

rangements, including the number of credits granted. While additional financial compensation would be a nice bonus, the lack of it does not constitute a severe flaw. Students' positive or negative attitudes towards the course arrangements stems from comparison to other traditional courses and students' expectations. This is apparent when they compare general experiences and the workload of projects to other courses, similar to what has been reported before (Isomöttönen, 2011).

The main results of this paper concern financial compensation for students. Financial compensation had no dominant role when students generally assessed the project course, even when slightly led towards the topic. When asked directly, however, they analyzed the situation more thoroughly.

Two opposing viewpoints regarding financial compensation were identified: first, students valued learning experiences higher than financial compensation and felt that financial compensation was not necessary. However, compensation would be a nice bonus and improve the fairness of project course arrangements. Similarly, providing earnings to students was one reason to establish student companies as reported by Neagle *et al.* (2010).

Second, some students drew a parallel between doing projects and being employed by the customer, and thus they felt they should be paid. Students argued that there should be compensation if the project produces significant profit for the customer, as stipulated by the project contract. We must acknowledge that defining whether or not a project has "significant value" can be problematic; it can take years for the value of deliverables to be identified.

As previously mentioned, there are some similarities between project courses and unpaid internships, and from the pedagogical point of view both of them fall in the same category of experiential learning (Burke and Carton, 2013). United States Department of Labor has listed six criteria³ to determine whether a person is employed, or considered to be in an internship, which can be unpaid under the Fair Labor Standards Act. Five of these criteria apply to project-based learning in most cases, but one criterion defines that there should be "no immediate advantage" to employers. Project courses with real customers do not generally satisfy this criterion, as the universities at least claim the projects to be beneficial to customers (Mann and Smith, 2006). This dilemma corresponds to the students' opinions that there should be possibility to negotiate with the customer in case they gain financial benefit from the project. One could argue that based on this criterion, project courses transform

³<http://www.dol.gov/whd/regs/compliance/whdfs71.htm>

from "learning experience to students" to "work that should be paid" if customers gain immediate benefit from projects; more research on contract models used on project courses is likely to be needed.

Students were satisfied with credits as the compensation for the project course, and, when again drawing a parallel with unpaid internships, this can be seen acceptable as the project course is voluntary (Burke and Carton, 2013). In unpaid internships the university does not have to provide instruction or classroom, for example, and thus granting credits for internship can be problematic: students have to pay tuition fees to the university fees for the work they do for their employers (Burke and Carton, 2013). The Finnish university system does not have tuition fees, and this can be one reason why our students felt that the university should collect the payment from customers, as they understood that organizing project courses requires more resources than standard lecture courses. Further research could focus on financial compensation from the viewpoint of educational-cultural differences, especially free higher education (Nordic countries⁴) versus one subject to tuition fees (USA).

Burke and Carton (2013) in fact argue that unpaid internships should undoubtedly be voluntary. This viewpoint showed up on our survey as well, as students acknowledged that they were participating on an optional course, where conditions (no payment) were known beforehand. In computer science curricula, however, it is not uncommon to have mandatory project course, leaving students with no options other than participate on the course if they want to graduate. From this premise, it would be interesting to target this same questionnaire to students on mandatory, real customer project courses.

Students reflected on other problematic issues related to financial compensation as well, such as division of compensation within the team and possible distraction. They argued that the negatives might outweigh the positives if financial compensation was provided for students. They also acknowledged that customers' expectations of the quality of project deliverables would increase, similar to what was reported by Neagle *et al.* (2010).

Differences of opinion were present when students analyzed financial compensation from the customers' viewpoint. Some argued that students should be paid, as they are essentially employed by the customer. This implies that in students' opinion the customer would realize the project, even if student

⁴<https://theconversation.com/why-finland-and-norway-still-shun-university-tuition-fees-even-for-international-students-36922>

projects were not available, by utilizing commercial services. Other students argued against financial compensation on the grounds that these projects are more experimental in nature, and they could not be realized without students' participation as the price of student projects is low.

As one student noted, no matter how the financial issues are arranged between customers, students, and the university, they should be discussed openly. Based on our experiences with project courses, we propose a similar approach; financial arrangements should be discussed and explained thoroughly to all stakeholders and clearly included in contracts. Keeping financial issues, especially compensation to students, open and visible for each stakeholder is suggested by Clear *et al.* (2001) as well. If sensitive issues are constructively discussed by teachers, students might become more willing to bring up flaws regarding course arrangements, thus enabling the development and improvement of project course models.

This research was motivated by comments received concerning the claimed unfairness of the situation ("Students are not paid for the project work"). Based on these results, we can conclude that these comments are not concerning for the most part. However, since the students highly value the learning from the projects, focus must be on continued development of the educational areas of projects. Discussion regarding the financial and other sensitive issues should remain open as well. The comments show that financial compensation for students is a complicated issue that can be viewed and analyzed from several perspectives. This issue is not thoroughly discussed in literature, and in our view, needs further research.

Our data set includes background variables useful for further analysis, and we plan to reproduce the survey presented here to new student cohorts. We also plan to use semi-structured interviews based on our preliminary insights into students' opinions and use additional material, such as students' learning diaries, in further research. Types of projects and customers need to be analyzed as far as if the project is product development for a company with ready-to-use deliverables or basic research for a non-profit organization. These compositions can make a difference in student opinion on financial compensation. For future research, it is necessary to investigate different concepts, such as student companies, cooperative education, and students' experiences in them.

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