

A Case Study in Developing a Graduate Studies Course Focusing on Soft Skills in Teamwork – Initial Evaluation

Gabriel Lefebvre¹, Melvyn Lees², Guillaume Daigneault³, and Francis Painchaud³
École de Technologie Supérieure¹, Birmingham City University², Université de Sherbrooke³

This paper describes the initial evaluation of the first three instances of the delivery of a new graduate studies course that focusses on the soft skills associated with the effective functioning of construction project teams. The evaluation uses a mixed methodology approach with quantitative data being collected by standard student evaluations and qualitative data collected by interviews with key participants. The data is then analyzed and presented to draw conclusions on the performance of the course and its future development. The findings show that course is successful and performs at an outstanding level (as determined by institutional evaluation). However, there are some issues around students' motivation and their ability to engage and absorb the knowledge and soft skills necessary to become effective practitioners in project management at the point of graduation. The paper concludes with some recommendations for improvement and advancement of the course that will allow it to become part of a longitudinal study.

Key Words: Soft skills, Teamwork, Leadership, Conflict, Negotiation

Introduction and Background

This paper is the second in a series of papers that collectively will form the case study focused on delivering a course in soft skills in the Department of Construction Management at the École de Technologie Supérieure (ETS), which is part of the Université de Québec in Montréal, Canada. The first paper (Lefebvre *et al*, 2024) focused on the design of the course and its development up to the point of first delivery. To provide context it is necessary to revisit some of the arguments presented in the first paper.

It is now the accepted position that soft skills play an important role in the performance of project teams (Chan & Kumaraswamy (1996), Kaming *et al*, 1997; Love & Gunasekaran, 1998; and Moore & Dainty, 1999). Furthermore, Dainty *et al* (2004) identified that 'superior managers' ranked teamwork and team leadership first and second in the skills and competences needed to perform well. Whereas 'average managers' scored these factors much lower. The success of construction projects is clearly linked to the success of the project team - both in terms of their function and their project outcomes.

Sumner & Slattery (2010) conducted a case study that used industry professionals to assess the performance of teams and concluded that organizations should provide individuals with training in

team building and team dynamics as this would help create successful teams. Other studies have reinforced the argument for including courses in soft skills in educational programs (Ahmed *et al*, 2014; and Vaz-Serra and Mitcheltree, 2021). A growing number of universities and colleges have, or are in the process of, developed courses in soft skills.

However, there is some evidence that not all courses in soft skills are having the desired effect. Bhattecharjee *et al* (2013) established that there are differences between industry expectations and student perceptions of what they need for their careers. McCord *et al* (2023) investigated the reviews of student internships and found that teamwork was ranked third by employers for improvement in the professional skills domain. Other studies found similar problems (Moradi *et al*, 2020; and Borg & Scott-Young, 2020).

As part of the design phase of the case study, a working hypothesis was determined: that if a course in soft skills could be developed that delivered the knowledge and skills associated with teams and leadership and at the same time addressed the unique circumstances in which construction project teams operate, then students would be more capable at the point of graduation and employer expectations would be met. Testing that hypothesis provides the key research question; is this new course able to develop the skills in its graduates that are required by their employers? The unique circumstances were set out in the previous paper (Lefebvre *et al*, 2024) and include: the temporary nature of construction project teams, the different professional and organizational background of individual team members, the divergent aims and objectives of the organizations represented by team members, and the high potential for conflict.

The pedagogical approach is experiential. While the acquisition of knowledge relevant to the subject is important, the time given over to teaching this is restricted so that emphasis can be given to experiencing the application of theory through role play. Students undertake a series of projects that give them the opportunity to experience different roles within the teams and different team compositions. Information is often amended at short notice and there are strict deadlines to reflect the 'real world' of construction where there is constant change and constant pressure on time.

Methodology

The research strategy is a case study methodology. Yin (2009) defined a case study as an empirical inquiry which investigates a phenomenon in its real-life context. Creswell (2014) added that a case study is a qualitative design where the researcher explores an event, activity, or process in depth. In order to answer the research question, a longitudinal study is proposed to track individual students into the world of work after graduation and to seek information from their employers regarding the student's performance. This study will take several years, and papers will be produced at various times to present findings.

In this paper, the findings from an evaluation of the first three instances of the course delivery are presented. The methodology used for this evaluation is a mixed methodology that combines quantitative data from student evaluations with qualitative data derived from follow-up interviews with students, tutors and the program director.

Research process

Quantitative data collection and analysis

The quantitative data comes from student evaluations of teaching. These have become ubiquitous in education all over the world. However, many researchers have challenged the validity of this approach with Stroebe (2020) and Kreitzer & Sweet-Cushman (2022) being two of the most recent. They cite problems with bias and unintended and negative consequences such as grade inflation.

However, in a world where students are increasingly seen as consumers, it is inevitable that their opinions will be sought on their experiences in class and this data is used to inform course and program dashboards (Lucio *et al*, 2018). Given the challenges from researchers, it is important that this data is treated with care.

In the case of ETS, each student is asked to complete an evaluation prior to them finding out their outcome grade. Each student is asked to score the performance of 26 different characteristics of the course on a scale of 1 to 5, where 1 is low and 5 is high. The scores from students are then used to derive an aggregated score for each characteristic based on a weighted average using the formula:

$$((\text{Nr of "1"} \times 1) + (\text{Nr of "2"} \times 2) + (\text{Nr of "3"} \times 3) + (\text{Nr of "4"} \times 4) + (\text{Nr of "5"} \times 5)) / \text{Nr of respondents}$$

This aggregated score is then used to benchmark against other courses in the program. ETS gives strong guidance to program directors to use the results of student evaluations as a snapshot of the health of a course only and not to treat the numeric outcome as definitive of performance. To support this approach, the results are then graded as ‘outstanding’ (4.5 and above), ‘good’ (4.0 to 4.4), ‘satisfactory’ (3.5 to 3.9), and ‘requires improvement’ (less than 3.5) see figure 1.

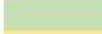
Outstanding	4.50 and above	
Good	4.00 to 4.49	
Satisfactory	3.50 to 3.99	
Requires improvement	less than 3.50	

Figure 1. Grading of course characteristics

The course in soft skills is offered as part of the graduate studies program leading to the award of a master’s in construction project management. Data from the three instances of the delivery of the course have been collected. The data sets are small as each course is limited to 24 students and not all students complete the evaluation. The number of registered students and completed evaluations is shown in see Table 1.

Table 1. Students registered and student evaluations completed		
Semester	Registered students	Completed evaluations
2023 summer	24	18
2024 winter	19	15
2024 summer	23	15

While the individual datasets for each instance of the course are small, when added together there are 48 completed evaluations from a total of 66 students, which represents a 73% response rate and it is, therefore, considered reasonable that the results will reflect the overall experience of all students. The benchmark dataset is drawn from the evaluation across the whole program that includes more than 30 courses and has over 1600 students currently registered.

Qualitative data collection

The qualitative data collection was conducted using interviews. Brinkmann & Kvale (2014) stated that qualitative research interviews are an attempt to understand the experiences of the interviewees – to see the world from their point of view. Rubin & Rubin (2011) argue that semi-structured interviews are conversations where the interviewer guides the respondent to consider a pre-determined set of issues.

Semi-structured interviews were conducted with five students and both tutors. The questions used in the interviews were designed to require interviewees to focus on their positive and negative experiences and open an exploratory conversation around any issues they identify. The interviews concluded with a discussion of possible improvements to the course.

The Program Director interview was an opportunity to reflect on the findings from the analysis of the student evaluations and the interviews with students and tutors. The purpose being to draw up a plan of action for the future development of the course. This was necessary for continuous improvement of the course and to progress the research case study.

Findings and discussion

Student evaluation

In ETS, the standard student evaluation questionnaire contains 26 questions that can be roughly grouped into two categories: course design and course delivery. In the course delivery section of the evaluation is shown in figure 2.

Question	2023 Summer		2024 Winter		2024 Summer		Overall	
	Course score	Prog score	Course score	Prog score	Course score	Prog score	Course ave score	Prog ave score
1 Course content	4.81	4.49	4.59	4.50	4.70	4.58	4.71	4.52
2 Course aims	4.78	4.40	4.42	4.41	4.67	4.48	4.63	4.43
3 Course structure	4.78	4.38	4.42	4.39	4.64	4.46	4.62	4.41
4 Relevance of the course	4.81	4.36	4.39	4.38	4.70	4.46	4.64	4.40
5 Integration	4.56	4.24	4.39	4.23	4.60	4.33	4.52	4.27
6 Course subject	4.78	4.36	4.26	4.35	4.52	4.42	4.54	4.38
7 Workload expectations	4.72	4.24	4.64	4.25	4.73	4.32	4.70	4.27
8 Practical work sessions	4.78	4.25	4.54	4.24	4.69	4.30	4.68	4.26
9 Resources	4.83	4.24	4.42	4.25	4.63	4.29	4.64	4.26
10 Assessment method	4.81	4.33	4.60	4.32	4.71	4.38	4.71	4.34
11 Overall satisfaction	4.83	4.29	4.52	4.25	4.70	4.29	4.69	4.28
Average of 1 to 11	4.77	4.33	4.47	4.32	4.66	4.39	4.64	4.35

Figure 2. Student Evaluations scores for course design

In figure 2, the overall performance of the course is ‘outstanding’ (see figure 1 for grades). This compares well with the average performance across the whole program, which is generally in the

‘good’ category. In the winter 2024 instance, the score of some characteristics dropped into the ‘good’ category but remained higher than the whole program scores. The scores for the new course are included in the calculation for the average for the whole program as it was not possible to remove them. If they had been removed the average score for the program would have been lower; further emphasizing the strength of the design of the new course.

The picture is similar for the course delivery section of the student evaluation. Figure 3 shows once again the course is performing at an ‘outstanding’ level. Questions 12 to 15 relate to the personal attributes of the tutors, and these show the highest scores; particularly when compared to the whole program scores. The lowest program scores are for feedback on evaluation and correction times, but in the new course these scored highly – probably because the roleplay style of teaching involves a significant amount of time for reflection and feedback allowing students to develop their skills.

Question	2023 Summer		2024 Winter		2024 Summer		Overall	
	Course score	Prog score	Course score	Prog score	Course score	Prog score	Course ave score	Prog ave score
12 Respect of objectives	4.81	4.53	4.56	4.48	4.74	4.52	4.71	4.51
13 Preparation for sessions	4.83	4.53	4.62	4.50	4.87	4.52	4.78	4.52
14 Clear communication	4.83	4.45	4.69	4.39	4.87	4.42	4.80	4.42
15 Interest and enthusiasm	4.83	4.52	4.59	4.50	4.87	4.54	4.77	4.52
16 Pace of learning	4.81	4.37	4.59	4.35	4.84	4.37	4.75	4.36
17 Concrete examples	4.81	4.45	4.52	4.45	4.64	4.49	4.67	4.46
18 Appropriate answers	4.81	4.49	4.62	4.47	4.77	4.52	4.74	4.49
19 Availability	4.83	4.45	4.39	4.43	4.65	4.47	4.64	4.45
20 Active participation	4.83	4.41	4.62	4.41	4.73	4.44	4.73	4.42
21 Teaching materials	4.78	4.42	4.45	4.42	4.84	4.43	4.70	4.42
22 Explanations	4.81	4.42	4.66	4.41	4.84	4.44	4.77	4.42
23 Administration	4.81	4.40	4.62	4.38	4.77	4.41	4.74	4.40
24 Feedback on evaluation	4.78	4.25	4.26	4.22	4.53	4.24	4.54	4.24
25 Correction time	4.80	4.36	4.15	4.34	4.40	4.34	4.47	4.35
26 Satisfaction with teaching	4.81	4.39	4.55	4.36	4.77	4.39	4.72	4.38
Average of 12 to 26	4.81	4.43	4.53	4.41	4.74	4.44	4.70	4.43

Figure 3. Student Evaluations scores for course delivery

Student interviews

Five students were interviewed who had just completed the 2024 summer course. They were overwhelmingly complimentary about the experience, which is not surprising given the student evaluation above. The three positive things that came out of the interviews were the pedagogy, the structure and the tutors.

The students very much enjoyed the experiential nature of the learning process, describing it as ‘active experimentation’, ‘an opportunity to practice’, and ‘it makes it easier to see the relevance when you do practical applications of theory’. All the students commended the mini projects that they worked on in teams and recognized the importance of mixing up the team membership and the roles that they were asked to perform. However, one student said that the formation of teams was ‘a bit

haphazard' and when pressed on the issue, went on to say that they would have preferred to be allowed to form their own teams based on the friendships they had with other groups.

The structure of the course where theory was taught in the morning and then applied in practice through the mini projects in the afternoon was universally praised by the students. They said this 'gave them concrete examples', 'helped embed theory by demonstrating its use', and 'encouraged them to attend as the learning was better'.

The tutors were recognized for their input to the course with comments like 'the dynamism of the teachers', 'kindness and availability', and 'fluid exchanges' being cited as positives. It would appear that the team-teaching approach of using two tutors was very well received. Furthermore, several students praised the 'buzz and vibe' of the afternoon sessions, which they said was down to the tutors.

The evaluation of the course that is predominantly based on project work was also identified as a positive. Students engage in a series of mini projects and one larger semester long project, and it was clear that this was considered to be more appropriate and supportive of experiential learning.

When it came to identifying negative aspects of the course the students had less to contribute and there was also less consensus between them. There was some criticism of other students for not engaging fully in the learning process and the way project teams were formed was a factor in this. In terms of structure, one student said that the 'theory part of the day was sometimes too long'.

On assessment, one student said that the time to complete the semester project was not long enough. There was also criticism of the formative feedback during the project sessions where it was felt that it was too positive and not consistent with the final grade given for the work.

In terms of those aspects that the students identified that could be improved, the issue of formation of groups was cited again. Other issues raised related to assessment with requests for more formative feedback during the project sessions and more time for the mini projects and the semester long project.

These findings then informed the interview with the Program Director.

Tutor interviews

The two tutors involved in the delivery of the course were interviewed separately following a similar structure to that used in the student interviews.

Both tutors were highly complimentary of the pedagogic approach. They argued that learning theory and then experiencing it in practice allowed students to develop 'concrete notions of interpersonal skills' and 'to mobilize personality to affect student interaction', and the whole process was transformative for the students.

The tutors enjoyed the team-teaching approach and felt that it benefitted the learning process by 'creating a dynamism in the classroom', and 'allowed for more observation of student actions, leading to better feedback'. The tutors are both psychologists and they felt it was especially rewarding for them to see theory being applied in a very different and very specialized field. They could see that their efforts were having an effect on future practitioners of project management.

Four things were identified as negative aspects of the course. Firstly, the tutors identified that the students had limited experience of the industry. This meant that the students were short of context when it came to undertaking some of the mini projects. Furthermore, it also reduced the apparent relevance of the learning as students were not always able to see how it would transfer to practice.

Secondly, the tutors questioned the motivation of some students in choosing the course. They developed the impression that some students thought that the module would be easy and that they were likely to get a better grade than if they chose other courses the perceived were more challenging.

Thirdly, the tutors recognized that the balance between learning theory and practical application was not always correct. The structure of the day imposed the allocation of time between the two activities, and they wondered whether a more flexible approach would allow for a better balance. And finally, there were some language issues with some students that affected the quality of the learning experience.

As for areas of improvement, the tutors would like a mark for class participation as this would encourage students to make a full contribution to sessions rather than cruising or absenting themselves. They also want to reflect on whether the mini projects promote sufficient discussion and interchange between the students and make some adjustments to the project briefs. Finally, they would like to see the course being offered to students who have more work experience and who, therefore, can better contextualize their learning.

These findings then informed the interview with the Program Director.

Program Director interview

The Program Director was interviewed and the findings of the evaluation of the course were used to promote a reflective discussion.

The Program Director, while very much involved in the design and development of the course, was not involved in its delivery. The outcome of the student evaluation is clearly very positive with most of the scores falling into the 'outstanding' category. None of the course characteristics was graded as needing improvement. Overall, the course is amongst the best performing courses in the program.

The formation of groups was identified by students as an issue with some of those interviewed expressing a preference for the students themselves to formulate the groups. There can be no doubt that if the students were allowed to form their own groups, they would do so around existing relationships. It can be further argued that those stronger relationships would help the group perform better. However, in the real world of construction project teams, the choice of who is in the team is usually made outside the team. Building relationships with new team members, therefore, becomes an important skill. On balance, the current position of prescribing team membership is seen as more important, and the current approach will remain.

Both the students and the tutors raised the matter of formative feedback through class discussion. The current structure of the day is quite rigid and does not allow sufficient flexibility to allow tutors to change the balance between theory and practice; nor does it permit extended discussion time where appropriate. This issue will be addressed with a more flexible approach in the future.

The students would like more time for the semester project. The brief for the project is issued at the beginning of the course and it is hard to see, therefore, how the length of time available for it could be

extended. It may be that some students struggle to get started on the project and in the end run out of time to complete it. Consequently, 'soft gate reviews' will be introduced throughout the semester to ensure students stay on track and make progress.

The course is currently part of the graduate studies program and most of the students are international. Some of the students come from countries where French is an official language, but not necessarily the first language spoken by all the population. This has led to language issues – particularly in class. The current proposal is consider introducing a language competence test as part of the entry requirements for the program.

The tutors have asked for a class mark that reflects attendance and contribution to the course. This requires a minor change and will be put into effect from the next instance of the course.

The last issue to consider is the limited industry experience of students. As mentioned earlier, the course is largely populated by international students who have minimal or no experience of industry. The graduate studies program does not include an internship, which would have provided some practical experience. However, there is a proposal to allow undergraduate students to register for the course in the future. The undergraduate studies program does include an internship and provided some sequencing is applied so that the course can only be taken after completing the internship, some of the students registered on the course will have some experience of industry. Furthermore, mixing the undergraduates with the graduate students will allow some transfer of industrial experiences through the mini project teamwork.

Summary and next steps

The overall evaluation of the course in this initial stage is that the design of the course has proved to be very effective and facilitated a very successful delivery. The student evaluations and the follow up interviews clearly show very positive results. The tutors received significant praise for they way they have executed the delivery. Finally, the Program Director has reflected on the outcome and some changes will be implemented that will further improve the course.

This initial evaluation has highlighted one issue for the longitudinal study and that is none of the students completed the course intend to stay in the local industry. This means that they will not be able to form part of a longitudinal study group. The decision to open the course to undergraduates who are more likely to be employed locally should afford an opportunity to establish a group of students and employers for the longitudinal study.

The Program Director also has plans to open a version of the course as continuing professional development. Delegates from industry will register for the course and after completion could become part of an industrially based study group. This would provide for some interesting comparisons between the education group and the industry group.

The case study continues and further papers on the findings will be presented.

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