Facilitating Students Learning to Go Beyond Knowledge and Skills: A Case on Teaching Business Research by Action-Learning Project Approach

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Abstract
This paper presents the insights of a pilot case on teaching business research by action learning projects, or generally a project-based learning (PjBL) approach. The course was offered for full-time graduate students in Hong Kong by a local university. Students were engaged in groups of 7-8 each working on a real-company research project throughout the semester from problem definition through research proposal to final report presentation. Alongside, learning was supported by classroom activities (i.e., workshops and lectures), online discussions, and consultation meetings. Teaching effectiveness of the course was rated satisfactory (with an average score of 4.6 out of 5). Half of the class resulted accomplished-to-exemplary academic performances, on individual assignments and group projects respectively. Students reported that the project experience had helped them to acquire new knowledge and skills about research, deepen their prior learning, and identify shortfalls for further improvement. They however did not perceive the course as easier at the end of course as in the beginning, and neither hold more positive attitudes towards research and business statistics. They instead showed greater confidence in striving to do research through stages, and in looking for and making use of proper information. Besides, they came to realize the value and impact of teamwork, albeit challenges along. A few groups were also grappling with the sponsor along, for unclear demands and communication deficiency. In sum, PjBL brought about not only hand-on knowledge and skill in research to students, but also improved confidence in doing research and readiness for working in teams and with other stakeholders.

Keywords: project-based learning, action learning, teaching research methods, teamwork, sponsor, business education, MBA, mixed-method, scholarship of teaching and learning

Introduction

This paper features the insights of a pilot run in a graduate course on research methods adopting project-based learning (PjBL), particularly action learning projects, as the instructional strategy. The course is a core course offered for full-time Master of Science in Business and Management (MScBM) students by a local university in Hong Kong. The pilot idea was motivated by my couple of reflections as follows: -

- How might students get a real feel (and touch) of what business research is about in its entirety, rather than being grappled with particular processes (e.g., transcription), tactics (e.g., questionnaire design), tools (e.g., software), or merely a certain stage of research (e.g., data analysis)?
- What matters to business students in learning research methods nowadays, besides acquisitions of knowledge and skills? I pondered this with the notion a soaring demand on our students to be a smart research consumer (e.g., well-informed managers), who are able to discern truths from half-truths or fake reports, based on their judgment on the know-how (as well as know-what) of research. This demand comes more challenging nowadays in the digital world, which is being overwhelmed with voluminous data of various kinds and varied quality – Big Data - while ever producing them, and where data technologies and tools come one after another rapidly.

Pedagogical goals of research education and project-based learning

Adopting PjBL, and particularly action learning projects, in teaching business research is promising for students to gain not only hand-on experience of the entire research process, along with the knowledge and skills required of the practice, but also attitudinal qualities favorable to the development of research competence. The extant literatures on research methods teaching and the constructivist perspective of learning are lending substantive support.

It seems so many topics for research method teachers to choose from to teach, and yet something important for research students to learn been missing. Given the huge body of knowledge and skills in research, we are indeed not lacking of subjects to be taught, especially for a semester-long course in my case. Kilburn, Nind and Wiles (2014; 2016), drawing on the insights of the literature and expert panels, proposed three key pedagogical goals, namely (1) making research process visible, (2) learning by doing research, and (3) reflection on the research process, as the guiding principles for designing curriculum for research education. Nind and colleagues also pointed out that, research education – for social and business research alike – should be positioned as being conducive to the development of multiple transferrable skills (e.g., information literacy) that enhance employability in many sectors, instead of leading linearly to a dedicated career path (e.g., professional researchers) as used to be conceived (Nind, Kilburn & Luff, 2015). To this end, nurturing of attitudinal qualities (and even dispositions) conducive to the building of research capability, e.g., self-efficacy and trustworthiness should warrant research educators' attention and consideration in course design, apart from knowledge and skills about research.

Kilburn et al.'s (2014; 2016) guidelines corroborate well with the constructivist perspective of instructional design for project-based learning (and actually problem-

based learning as well), which emphasizes anchoring all learning tasks to a problem (c.f. making research visible), involving authentic tasks in a complex environment (c.f. learning by doing), and providing opportunity and support for reflection on the content as well as the process (c.f. reflection on the research process), among others (DeFillippi & Milter, 2009). By project-based learning (PjBL), learning is facilitated to take place "through a series of activities based in authentic, real-world problems in which the learner has some degree of control over the learning environment and the design of the learning activities" (DeFillippi & Milter, 2009, p. 349). The approach was evidenced to contribute to attitudinal qualities such as self-confidence and self-directed learning readiness, as well as academic performance, in the past studies (Chen & Yang, 2019; DeFillippi & Milter, 2009). Action learning projects, as one early invention of PjBL, underline action and learning as the dual objectives of such projects (usually slightly favoring learning over action for development purpose), and their inter-entangling nature, as postured by the statement that "there is no learning without action, and no action without learning" (Revans, 1998, p. 53). Therefore, PjBL, specifically by action learning projects (they are used interchangeably henceforth), looks a particularly compelling approach for teaching research methods, whereby student groups may each take charge of a research project aiming to inform a real-world problem faced by a particular client or sponsor, and follow through the entire research cycle from inception to completion, for instance.

The pilot case in point

For the proven success in PjBL and its potential benefit in teaching research methods, I tried out the approach in one of my courses on research methods in the academic year of 2016. This is a 3-credit core course of the MScBM programme lasting for one semester (i.e., 14 weeks effectively), used to run in two parts – qualitative and quantitative - with lectures in combination with laboratory exercises (e.g., on software and fieldwork). With the aim to help students to better grasp the big picture of research, and hence a holistic view of the entire research cycle, I set out learning outcomes below, with the learning plan for the pilot course as shown in Figure 1.

Students would be able to:

- *Identify business needs for research, and plan and implement it with clients (or stakeholders)*
- *Devise relevant research proposal*
- *Apply data collection and analysis strategies – qualitative and quantitative*
- *Interpret and present research findings, and make recommendations for the decision-making and actions of stakeholders*

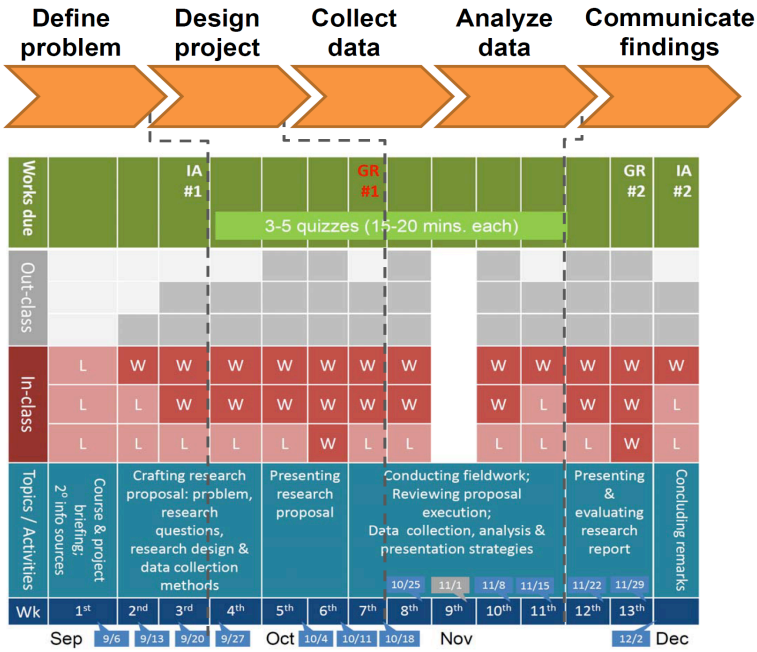

Figure 1: Learning plan at a glance for the pilot class

Instructions were given primarily in-class in the forms of workshops (denoted as "W" on the learning plan) in combination with lectures (denoted as "L"), supplemented by online materials and discussions as well as pre-appointed or ad hoc consultation meetings. Project works were taken mainly out-class, except project update (in the form of stand-up meetings) and discussion on specific project issues of common interests.

The class had 57 students in male-to-female ratio of 1 to 2, coming from 10 nationalities (mostly from the Mainland China) and varied undergraduate background (mostly business-related) with little to no working experience. They were teamed up on their own in groups of 7-8, with the requirements that each group had to have 2-3 Cantonese-speaking (a Chinese dialect) members, and be in a mix of Chinese and non-Chinese members. Eight groups were hence formed, and each assigned (with consideration of their initial selections) to work with a sponsor organization on a research project around pre-solicited problem area(s) throughout the course. The eight sponsor organizations participated in the pilot included five social enterprises and three commercial companies, all based in Hong Kong. They offered real problems calling for insights from research of quantitative (e.g., survey) and qualitative (e.g., interview and observation) orientations for the purpose of student projects.

Student academic performance was assessed by group reports (denoted as "GR#" on the learning plan, including project proposal and project report, accounting for 40%), individual assignments (denoted as "IA#", including problem orientation paper and reflective paper, accounting for 25%), individual quizzes (three during the course, accounting for 15%), and participation (in-class and online, accounting for 20%) (see Appendix A for the SIPOC diagram for all the written assignments at a glance). Individual scores on group reports were adjusted based on peer assessment results provided by other group members, according to Conway, Kember, Sivan and Wu's (1993) method.

Student achievement in terms of attitudinal qualities in particular was evaluated with mixed methods, specifically a concurrent triangulation design (Creswell, 2014). Questionnaires and reflective papers submitted by individual students offered the major sources of quantitative and qualitative inputs for analysis respectively. Questionnaires were distributed online to the class at the beginning and near the end of the course to solicit students' voluntary participation. A total of 19 matched samples (i.e., n_{paired} = 19) was accomplished, on which pretest-posttest paired comparison was conducted to evaluate attitudinal changes towards research, statistics, and information literacy, among others. Specifically, the scales of Attitudes Toward Research (ATR; Papanastasiou, 2014; 12 items; α = .645), Attitude Towards Business Statistics (ABS; adapted from Nguyen, Charity & Robson, 2016; 13 items; α = .595), Research Self-Efficacy (RSE; adapted from Forester, Kahn & Hesson-McInnis, 2004; 16 items; α = .901), and Information Literacy Self-Efficacy (IISE; Usluel, 2007; 20 items; α = .927) were used for measurement. On the other hand, document analysis of reflective papers received from the students was conducted to identify intriguing themes regarding their learning experiences and reflections. Two representing works (i.e., rated accomplished-to-exemplary) were selected purposively from each of the eight teams, amounting to a total of 16 samples (n = 16), with a view to achieve maximum variation of learning experiences of the students (Merriam, 2009).

Conclusion

The class showed a satisfactory evaluation of the teaching effectiveness in general (scored 4.61 out of 5 on average), indicating the piloted teaching approach (PjBL) being well received by the students. About half of the class exhibited accomplished-to-exemplary academic performances (i.e., scores ranged between 3.0 and 4.0) individually (on individual papers, quizzes, and participation), in group projects (with peer assessment results factored in), and in overall term, respectively (see Figure 2). This result is encouraging, if not exciting, though unable to compare with that of the course run in the past, due to different sets of assessment methods and criteria applied.

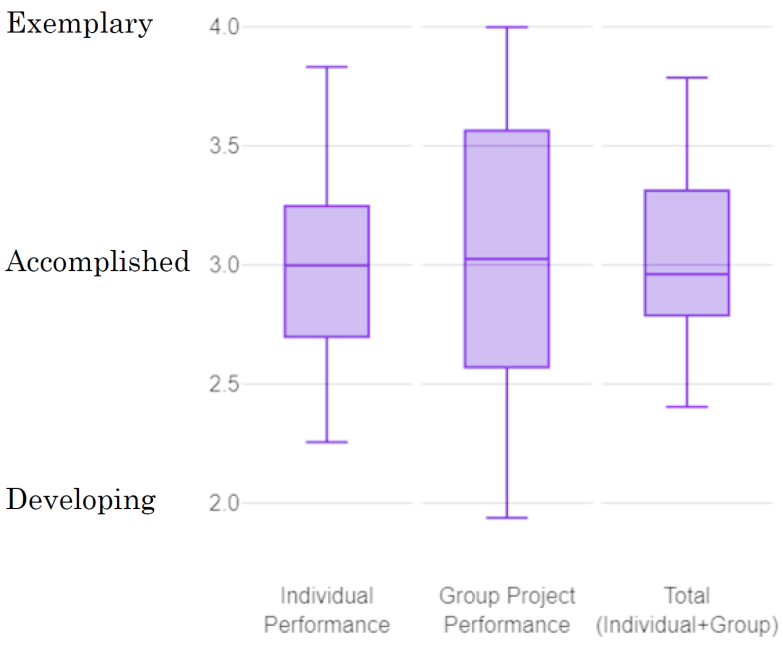

Figure 2: Academic performances of the students in the pilot course

Did the project approach make the course, or the content knowledge of research (e.g., statistics), easier for the students? It seemed not! Course difficulty as perceived (i.e., expected and felt) by the students before and after the course did not differ significantly (Paired $t(19) = -1.189$; $p = .250$) (see Figure 3). And neither did their attitudes towards statistics and research, as measured by the Attitude Towards Business Statistics (ABS) scale in terms anxiety (5 items; $\alpha = .907$; Paired $t(18) = -.412$; $p = .685$), enjoyment (5 items; $\alpha = .903$; Paired $t(18) = -.494$; $p = .665$), and perceived usefulness (2 items; $\alpha = .838$; Paired $t(18) = -1.566$; $p = .627$), and the Attitudes Toward Research (ATR) scale in terms of anxiety (5 items; $\alpha = .811$; Paired $t(19) = -1.317$; $p = .204$), positive research predispositions (4 items; $\alpha = .820$; Paired $t(19) = 1.207$; $p = .318$), and research usefulness (4 items; $\alpha = .880$; Paired $t(18) = -1.189$; $p = .250$), respectively.

Intriguingly, students showed significant improvement in their self-efficacy after the course with PjBL, as measured by the scales of Research Self-Efficacy (RSE; Paired $t(19) = 2.315$; $p = .033$) and Information Literacy Self-Efficacy (IISE; Paired $t(17) = 2.772$; $p = .014$) in particular (see Figure 3). As for research self-efficacy, students were found more confident after the course in aspects of research integration – to formulate research questions as informed by existing literature and evidences – (5 items; $\alpha = .771$; Paired $t(19) = 2.533$; $p = .021$) and data collection (3 items; $\alpha = .777$; Paired $t(19) = 2.608$; $p = .018$, as well as mildly in data analysis (5 items; $\alpha = .859$; Paired $t(19) = 1.853$; $p = .080$). Whereas for self-efficacy in information literacy, students showed significantly better confidence after the course in terms of citing information resources (4 items; $\alpha = .647$; Paired $t(17) = 3.181$; $p = .006$), using information and communication technology (ICT) to access information and developing searching strategies (6 items; $\alpha = .826$; Paired $t(17) = 2.622$; $p = .018$), and also mildly in analysis and evaluation of information (6 items; $\alpha = .845$; Paired $t(17) = 2.024$; $p = .060$). In sum, the results from the questionnaires seemed to suggest that the PjBL approach did not have made business research an easier subject to learn as perceived by the students, and neither their attitudes towards research and statistics become more positive. However, the piloted approach was found conducive to improvement of students' self-efficacies in research and information literacy. In other words, the PjBL approach is promising to bring about increased capacity for students striving to learn and do research.

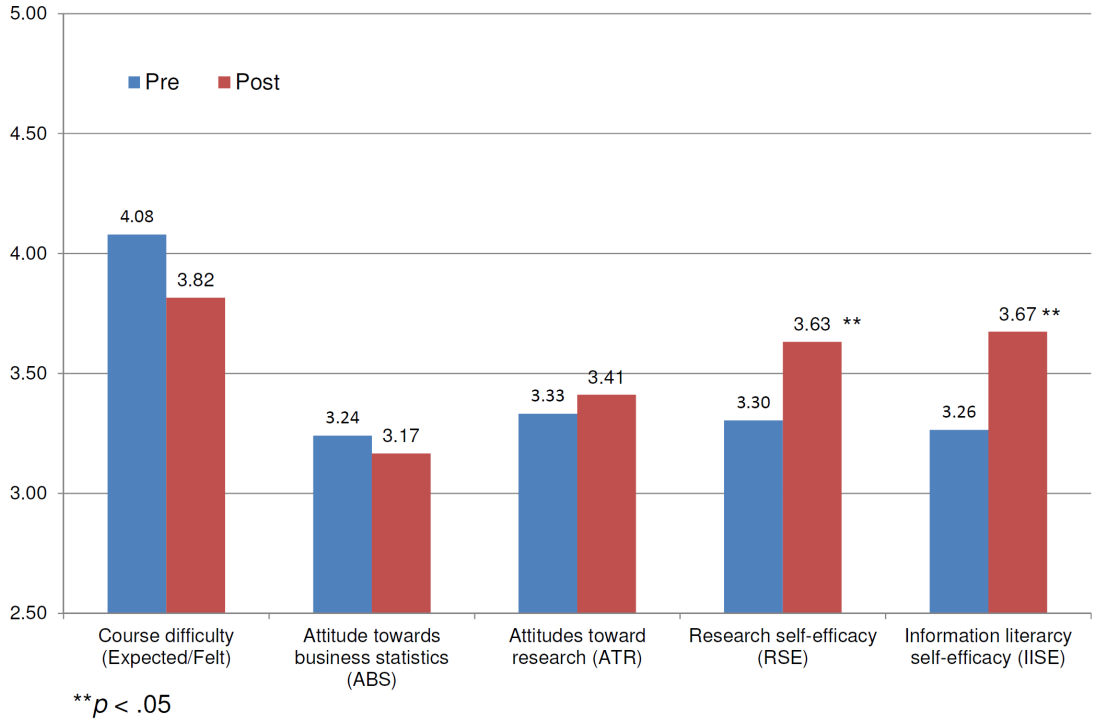

Figure 3: Paired comparison of students' perception and attitudes before and after the course

What were the students' experiences of the course as reported in their reflective papers (submitted at the course end)? The document analysis (n = 16) revealed students' experiences classified in three categories, namely their learning about research, teamwork experiences, and dealing with the sponsor respectively (see Table 1).

First, students found the course, and the project work in particular, being helpful for them to acquire new knowledge (e.g., on particular research processes) and skills (e.g., certain tools) in research. Some others got improved understanding of certain concepts (e.g., sampling) or confidence in certain skills (e.g., presentation), or both, when given to practice in the project work. This notion was particularly pronounced for those students who had had prior knowledge or experience in research, characterizing embodied familiarization (Yanchar, Spackman & Faulconer, 2013). Most intriguingly, some students identified their own deficiency in knowledge and skills (e.g., defining research problem and interviewing) upon reflection of their own practice. The practice seems to have offered an important basis for reflection and insights to emerge that motivate students to make improvement by themselves as a reflective practitioner (Schön, 1987).

Second, most of the students came to realize the importance and contribution of teamwork through the project, along with tips come up for working together effectively as a team (e.g., common goal, and commitments to each other). Despite the rewarding experience (e.g., working with diverse members), they also noticed the challenges along (e.g., in reaching consensus) as well as the need to strive for improvement. Team development, albeit an atypical outcome for conventional teaching approaches, is a signature contribution of action learning projects and PjBL (Marquardt, 2004; Schwering, 2015).

Third, a few project teams expressed concern, and even complaint, about the dealing with sponsors. They felt it challenging to cope with unclear or ever changing demands of the sponsor on the project, be it due to the working style of individual managers-in-charge (e.g., due to lack of commitment to student projects), or the changing business environment faced by the sponsor organization (e.g., that called for rapid adaptation). Perhaps worse still, they found effective communication hardly established or maintained with the concerned personnel of the sponsor organizations for the project to proceed adequately. Managing sponsor has been acknowledged as one common challenge of the project approach (Schwering, 2015). In fact, the challenge is not only faced by students, but also the instructor, where in my case, despite communication with the sponsors to solicit for support and commitment been made before and during the project. Apart from my ongoing assistance offered to the student groups in need, students had also been reminded that such challenges might come as normal rather than exceptional to business projects in the real world, and so advised to take it as a pre-boarding 'test'. Such kind of learning through "authentic, real-world problems in which the learner has some (only some!) degree of control" (DeFillippi & Milter, 2009, p. 349) is what PjBL is all about, and valued by business executives and hiring managers who preferred most strongly graduates having real experiences working with a company or organization (Hart Research Associates, 2018).

Table 1: Students' learning experiences in the course as revealed in the reflective papers

Experiences	Insights	Illustrative Quotes / Examples
Learning about research	New concepts or skills acquired	● *"Working on XYZ case… have (has) gained brand-new knowledge of each (research) procedure."* (ID#8*)* ● *"Knowing how to use excel as an analytical tool is not only interesting but also very helpful.."* (ID #1)
	Prior understanding reinforced and renewed	● *"These lectures and activities helped us to strengthen the concepts while helping us revised (refresh the understanding of) the knowledge that I had learnt."* (ID#16) ● *"Practiced self-learning skills, …became more skilled in presenting ideas, and lastly more confident."* (ID#3)
	Gaps revealed	● *"If our team worked on this project again, we should define the business problem and set the business (research) questions more correctly and efficiently."* (ID#8) ● *"Interviews did not go very well, and we should have learnt or practiced a little more before doing it for an actual case."* (ID#4)
Team-working	Importance recognized	● *"I came to realize the significance of teamwork and commitments from each individual (member)."* (ID#2)

		● *"I also learned teamwork. I am glad that our team work in unity and help each other…. A successful team should have a common goal and special goal(s)."* (ID#6a)
	As challenging as rewarding	● *"There was a general feeling of disagreement between us in the way we communicated and presented the materials to our manager."* (ID#1) ● *"…gained valuable experience of working with people from different backgrounds…"* (ID#3)
Grappling with the sponsor	Demands kept changing	● *"The manager gave us few suggestions and then approved that plan. However, things didn't develop as we expected while beginning to do the research. The manager refused us to do the questionnaire and the interview in the shop, but they agreed to help us to collect the data (in the first place)."* (ID#7) ● *One company changed its business model while the project was going on based on the prior requirement*
	Lack of effective communication	● *"…there seemed to be kind of a misunderstanding (of our intention) between our group…and the owner of ABC, which clearly impeded our research report."* (ID#11) ● *Groups found hard to meet up with the manager in charge in general*

Taken the results altogether, the PjBL approach piloted in the course on business research did not make research methods an easier subject for students to learn, and neither convert them to hold more positive attitudes toward research and business statistics. The project experience however facilitated student to learn new knowledge and skills of research, take their prior understanding or skills to the next level through practice, and recognize rooms for improvement by themselves in reflection. It was also evidenced to have brought about increased self-efficacy in research and information literacy to the students, promoting their capacity for striving through stages of research and looking for and making use of proper information in particular. By working in teams throughout the project, students came to realize the value and power of teamwork. Tactics emerged and got refined as challenges came along. They were also grappling with the sponsor along in varied degree. Unclear or changing demands by the sponsor, probably coupled with communication deficiency, in particular was found to have impeded the project progress. Managing teamwork and sponsor relationship however had provided students with authentic, real-world challenges for learning to take place that goes beyond academic domains, characterizing the contribution of the PjBL approach.

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Appendix A

BUS7040 (AY2016-17) Deliverables at a Glance

Supplier	Input	Process	Output	Customer	Owner
Instructor Library, www, and etc.	Briefing note Information relevant to the case organization and related problems	Information search, selection, and review, and writing problem context	Problem context (by Sep 19)	Team members; Instructor	Individual
Team members Client Library, www, and etc.	Problem context Problems facing, research needs, requirements & constraints Information relevant to the case organization and related problems	Identifying client's problems and reseach needs, and formulating research proposal	15-min presentation of preliminary ideas for the research proposal (starting Sep 27)	Class; Instructor	Team
Class, instructor Client	Feedback and comments on the preliminary ideas presented Further comments and approval; Internal data	Finalizng the research proposal with the client	Final research proposal (by Oct 10)	Client; Instructor	Team
Respondents / informants Client Library, www, and etc.	Responses, data Internal data Information relevant to the case organization and related problems	Data compilation and analysis	Presentation of interim / top-line findings#	Client	Team
Client	Feedback and comments on the interim / top-line findings; Internal data	Report writing	Final presentation (15-min.) of the summary findings, conclusions, and recommendations (Nov 29 & Dec 2) Final report (Dec 5)	Class; Instructor Instructor	Team
Team Class, instructor	Research proposal & final report Feedback and comments on the final presentation, if any	Reflection and paper writing	Reflective paper (Dec 12)	Instructor	Individual
Class, instructor	Feedback and comments on the final presentation, if any	Preparing presentation	Project presentation#	Client	Team

#Highly recommended, though not part of the course requirement

Table A1: SIPOC diagram for the written assignments of the course