logistics

Article

Design of a Company-Engagement Model for Procurement and Supply Management Classes

Remko van Hoek [1,*] and Dominique Lebigot [2]

[1] Sam M. Walton College of Business, University of Arkansas, Fayetteville, AR 72701, USA
[2] Moet Hennessy, 75007 Paris, France
* Correspondence: rvanhoek@uark.edu

Abstract: *Background:* There are opportunities to enrich procurement and supply management classes to be more international and to engage with industry more deeply. *Methods:* Using a design science method this paper develops a course design for teaching procurement that enriches existing approaches to company engagement in courses. *Results:* Beyond the use of stand-alone guest lectures, case studies, or in-company projects, the design involved semester-long collaboration around core topics for the course, involving company lectures and multiple student projects aligned with the course topics, engaging multiple levels of managers from around the globe. Based upon an evaluation of the first-year collaboration, improvements were identified that were implemented in year two of the collaboration. *Conclsuions:* The design brings course learning into a real-world context and supports student skill development through project work.

Keywords: education; collaborative learning; guest lectures; company engagement

1. Introduction

With skills requirements in procurement and supply management (PSM) changing now and into the future [1], talent development has become key for the future of PSM [2]. Changing skill requirements require updates of educational plans and approaches [3]. An increase in focus on soft skills in PSM courses [4] and engaged scholarship have, for example, been called for. Bäckstrand and Halldórsson [5] identify company relations as a pillar of engaged scholarship that can support market-relevant talent development. The authors state that engaged scholarship drives access to practice and industry collaboration and helps achieve stronger practical implications for research. This is also expected to enable bringing practically relevant research into the classroom. However, Waller et al. [6] found that scholars tend to bring very little of their research into their classrooms. As a result, the evolution of PSM practice might call for engaged scholarship also focusing on education, not just engaged scholarship in research. There have been consistent calls for market-relevant skill development and education over the years [7,8] to help close the gap between employer needs and classroom teaching focus [9], and the gap between industry and education [10].

There have been several studies of what is covered in procurement curricula [4], as well as in the supply chain [11], logistics [12], and operations management [13] curricula. Both with a U.S. focus [14] and a European focus [15], and at the undergraduate [16] and the graduate levels [17]. These studies focus on what is taught, not on how these topics are taught. Learning outcomes are influenced by both curriculum design and teaching approaches [18]. For this, a more integrative approach to PSM education is needed, linking industry-relevant skill development with research skill development to prepare students for the real world [7]. Even more unfortunate, Lutz and Birou [8] found no references in syllabi to management skills such as problem-solving, while soft skills were found to be a clear necessity from an industry point of view. Traditional lectures hardly allow for

the development of such skills, but new course designs that incorporate new learning strategies require additional time for the design and are uncertain in terms of the learning process and outcomes. This seems to be a challenge for many educators [18]. New course designs may grow industry-relevant learning and prepare students better for the future and success in industry. However, it takes time to develop the design, requires innovative approaches to course design, and it may be hard to recruit company involvement in the engaged educational scholarship. Additionally, guest lectures are widely used as engagement techniques in classes, as are case study exercises and student projects. But these are not without limitations; guest lectures may be loosely connected to theory and class lessons, and case studies may be years old and not based upon current real-world challenges. To build upon these techniques and support the development of engaged scholarship, this paper aimed to develop a course design for PSM courses. This was done with the global procurement leadership of Moet Hennessy (MH) (the French wine and spirits company, part of the LVMH group) over a two-year period. Specifically, this paper aimed to develop an approach for growing education-focused engaged scholarship through academic-practitioner collaboration in PSM education. Unique features of the approach include a focus on:

(1) Moving company involvement from a one-off guest lecture or a single case study into multiple lectures, and ongoing collaboration throughout an entire semester on a multitude of course topics.
(2) Moving collaborative learning approaches from teaching case studies into a real-world setting, involving real and current unresolved supply chain challenges. and involving practitioners in collaborative learning.
(3) Increasing the international focus of the class by involving topics and teams from around the world in collaborative learning.
(4) Creating soft skill development opportunities for problem-solving.
(5) Future-proof topics and skills focus for example on sustainability and diversity.
(6) Avoiding the risk of lacking links to theory in the collaboration and guest lectures by focusing the company challenges on curricula topics and the theoretical perspective offered in lectures.

The remainder of this paper is structured as follows: the next section offers further background on the gap in literature and provides input to the collaboration design from the supply chain literature. After introducing the research method, the design is introduced, followed by an evaluation and identification of improvements to the design.

2. Literature Review

A strong link between academia and the business community can enrich the education of students preparing to enter the workforce and may help decrease the divide between what students experience in the classroom and what companies need from new employees entering the field of business [9]. The use of a varied set of learning and teaching methods in a course advances learning and contributes to the development of student skill sets to help close the gap between what practitioners require and what curricula set out to deliver [18]. As a result, there have been calls for descriptions of, and reflections on, novel course designs that can inspire colleagues around the world and help advance SCM and PSM teaching [6,18].

As mentioned in the introduction, in addition to "what we teach", the question "how we teach" requires much greater attention and study [19]. Specific methods for achieving more market-relevant teaching suggested in the supply chain literature include the use of collaborative learning in student teams that tackle teaching cases [20], increasing global coverage of topics [8] and soft skills teaching [21], establishing industry support for programs generally [22], and specifically including guest lecturers in course design [11]. Table 1 lists these course design features from the literature.

Collaborative learning is an approach in which instruction moves from unidirectional (classroom instruction from faculty to students) to one where traditional instruction is sup-

plemented with learning in student teams [20]. By forming student teams to study teaching cases, learning also occurs between students, and students can be given opportunities to give each other feedback. This establishes an active learning experience in which the instructor takes on a part facilitator role. Zsidisin et al. [9] extend the collaborative learning approach to include real-world problems provided by companies. The authors suggest that the ideal class size is 15–25 students, and that the ideal student team size is up to five students to allow all students to participate in the analysis, report, and presentation in a meaningful way. For a successful learning experience, managers need to be willing to participate in the classroom, share information, and interact with students. The faculty workload is slightly higher for this collaborative learning and faculty must identify and recruit an acceptable company to collaborate with and coordinate with the company throughout the semester. As a specific example of collaborative learning, Handfield et al. [23] suggest the use of in-company projects in graduate programs to enable learning in a real-world setting. The authors identify benefits for students, university, and participating companies but find that company relationships are key to making the course design feasible and ensuring manager engagement is key to the success of the learning experience.

Table 1. Selected teaching design input from supply chain literature.

	Aspects	**Risks**
Collaborative learning [9,20,23]	Student teams to conduct teaching case study or real-world problems from companies to complement faculty-led instruction in order to create an active learning experience. Instruction moves to part facilitating. Ideal class size: 15–25 students; ideal team size: no more than five students.	Risk of poorly designed tasks and a lot of time spend on group formation and instruction, less teaching material covered. Company needs to be willing to engage with students and participate in classes. Faculty workload is slightly higher and faculty must identify and recruit an acceptable company and coordinate with the company throughout the semester. Faculty, company, and student benefits and risks need to be considered in course design.
Global perspective, future-oriented/market-relevant focus including soft skills [8,21]	Include international topic coverage, increase case content and focus on key topics for the future, such as sustainability. Increase focus on problem analysis and tools, including soft skills such as teamwork, and written and oral communication,	Change in educational approaches and course offerings is slow and lacking.
Guest lectures [24]	Focus guest lecture contributions to reflect guest lecturer's perspective; strategy for C-level guest lecturers and project-level senior managers.	Ensure link to faculty-taught course content and theories of focus in the course; need to avoid "talking shop". Limited integration into course design; need to avoid "fun side steps" loosely integrated into the learning experience.

Birou et al. [24] and Lutz and Birou [8] found the international coverage of topics and coverage of soft skills, such as problem-solving and analysis, to be very limited in most curricula, despite their criticality in the eyes of managers [3]. They offer recommendations for improving market-relevant skill development, including increasing the focus on case studies and key topics for the future, such as sustainability. Gammelgaard and Larson [21] complemented the call for a greater focus on soft skills with findings that indicate an interest of managers in improved teamwork, and the written and oral communication skills of (future) employees.

Guest lectures are a way to bridge the divide between industry and the classroom [4,9], and offer a range of different guest lecture contributions. The advice is to focus guest lecture contributions around the guest lecturer's perspective; strategic topics for C-level guest lecturers, and project-level focus for senior managers. With this comes the need to avoid the pitfalls and downsides of guest lecturers, including the risk of a lack of theoretical

foundation or linkages in the guest lectures. Put simply, there is a risk of "war storytelling" and "talking shop," not necessarily related to the course educational focus or theories being taught, and there is the risk of a guest lecturer being a fun side-step during the semester who is not well integrated into the learning experience.

3. Method

A design science method was used in this paper. The value of closer researcher-practitioner collaboration is well accepted [25] and it is one of the benefits of design science [26]. The case company participated in the development of the course design, its implementation, evaluation, and improvement of the course design. Design science studies often cover a longer period of engagement [27], and our study covers a two-year collaboration that continues today. In terms of the stages of design science [28], our study covered the first three phases, from solution incubation at the start of the collaboration to solution refinement based upon lessons learned from the first year run, going into year two.

Design Steps

The initial connection with this paper's co-author was made when Moet Hennessy (MH) appointed a new chief financial officer who was a former colleague of the paper's first author when he was a CPO at a Dow30 company. The CFO suggested that there may be opportunities to collaborate around the procurement strategy of MH. Having personal connections at the C-level and CFO-level sponsorship provided a unique relationship context that may not be available to all faculty and for all courses. Furthermore, C-level support is not necessary, as long as there is managerial commitment for the collaboration, preferably over a long period of time, as also recommended by Handfield et al. [23]. Collaboration also does not have to be based on strategic priorities but can be about specific project challenges; for example, when the collaborating manager is less senior. But faculty should be aware that with their more narrow, focus student options to focus on projects and collaborative learning within areas of student interest may reduce the ability to have differing focus across teams. With this, final presentations may become more of a sequence of similar discussions of the same challenge, like in traditional case study exercises, as opposed to a range of distinct presentations on related but different challenges.

Figure 1 presents a flowchart for the collaboration design and Table S1 details design elements by step. A key element to the design of the collaboration with MH was an early start to the preparations. A semester-long intense collaboration was not designed overnight, just before the first class; this would be too risky for the course design and possibly not lead to sufficient alignment and engagement from the company. The MH collaboration began over a semester before the actual course was being taught. The reason for engaging early was the need to avoid risks raised in the literature of poor assignment preparations, limited company engagement, and weak links between guest lectures and course content and teachings. Across a period of seven months leading up to the start of the semester, the faculty shared with MH the course focus areas and ensured these focus areas were featured in the strategic ambition of MH. There were several rounds of drafting student project challenges against MH's strategic focus and within the course focus areas. Within this process, faculty was not only able to learn about MH's strategy but also offer suggestions for the framing of the strategic challenges within the course focus.

Finally, the plan for the semester was discussed at length in order to ensure sufficient company engagement and collaboration. This involved a degree of expectation-setting from faculty around realistic expectations and the level of engagement from MH required for a good learning experience and possible outcomes for MH. As a result, MH agreed to guest lecture during the opening class. In order to ensure sufficient engagement, the CPO assigned semester-long project-level sponsors from among his direct reports to each of the five project challenges. He also agreed to return for project presentations in the final class of the semester. It may be anticipated that the amount of upfront time needed for faculty and

collaborating companies may decrease as the collaboration continues across semesters and experience in the collaboration and the relationship grows. This type and level of company engagement throughout the course design go beyond the use of company projects as part of a course learning opportunity. The participating company does not just provide a project challenge, it engages in all key course topics and offers several projects in alignment with the course topics.
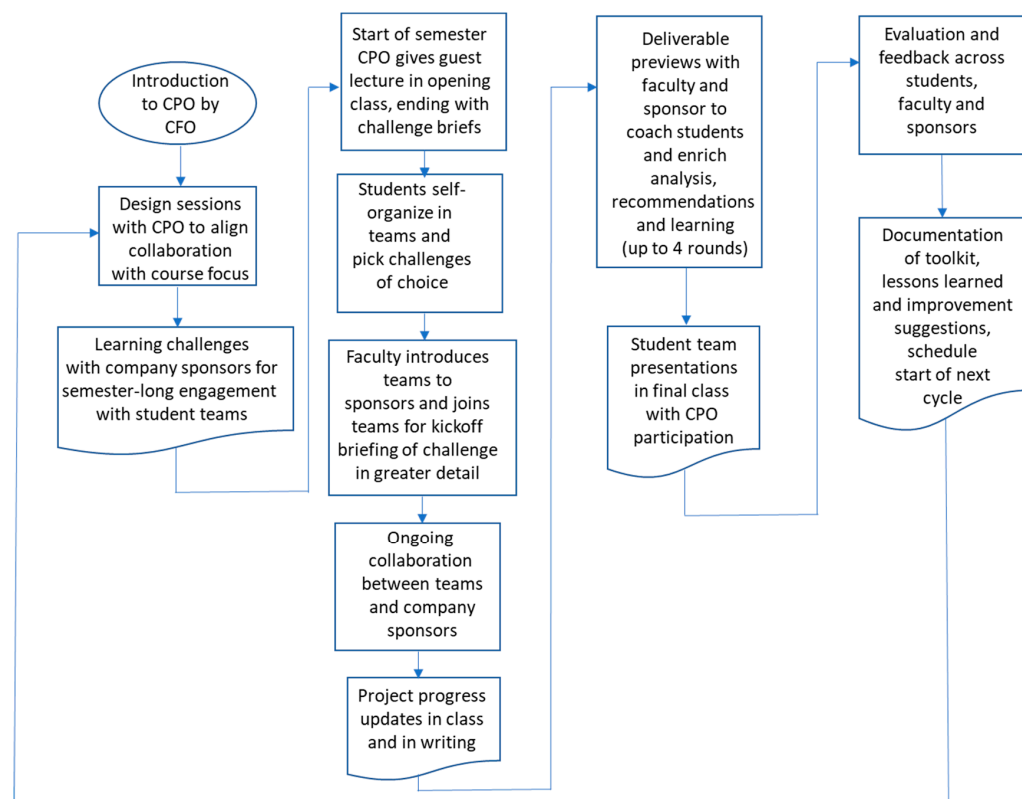
Figure 1. Flowchart for the collaboration design.

The first run of the course evaluations for the design took place with students, participating managers, and the instructor. Based upon this evaluation, design improvements were developed and implemented in the year two collaboration.

4. Design

MH is the wines and spirits division of the luxury brands group LVMH. As well as in France, the company has operations in several parts of the world including California, Scotland, Australia, and New Zealand, and it operates in a total of 160 countries. Procurement at MH is responsible for EUR 4 billion in annual spending with MH's suppliers and has a team of 100 buyers active across all five continents.

4.1. Ensuring Theory-Based and Future-Oriented Focus of the Collaboration

In order to avoid the risk of a guest lecturer being weakly or loosely related to course content, to ensure integration of the collaboration in the semester-long learning journey, and to ensure sufficient preparation for the student challenges, several steps were taken. Firstly, the faculty member put forward a framework for the course, basing the perspective on the future of procurement from van Hoek et al. [2], as shown in Figure 2. The framework articulates the importance of sustainability, digitization, risk management, supplier innovation, and collaboration for the future of procurement. The framework also stresses the need for a focus on soft skills and change management for a successful future strategy in procurement. All these aspects featured prominently in MH's strategy (reinforcing the relevance of the theory and the value of teaching it to students). In the absence of such a

preexisting framework, faculty can consider pulling in topics from several publications as an alternative approach.
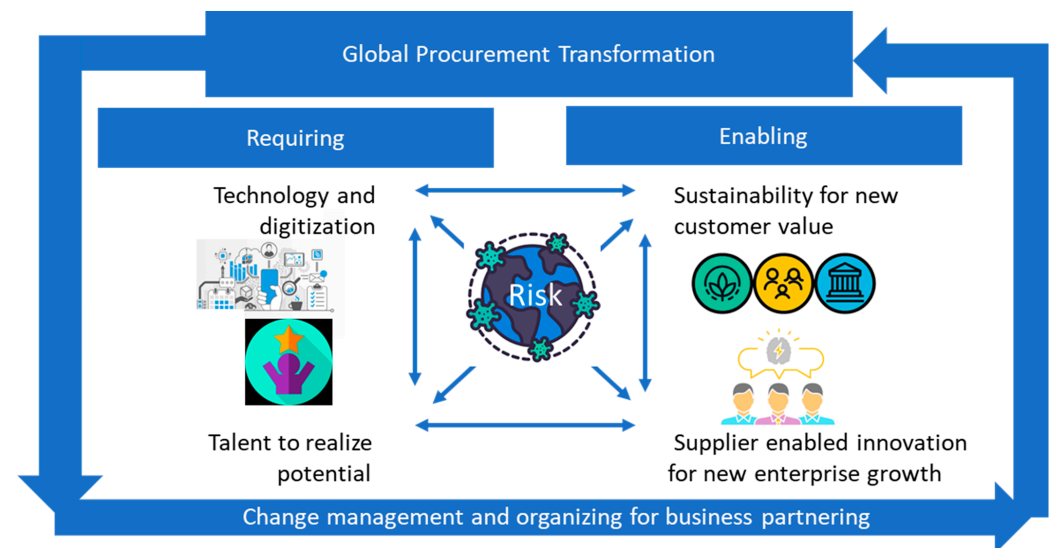
Figure 2. Theory-based course framework based upon van Hoek et al. (2020) [2].

Adopting this focus achieved several benefits: the collaboration was related to theory, as called for by van Hoek [7], focused on future-proof topics and considered soft skills, as called for by Lutz and Birou [8], and ensured strong three-way linkage between the MH guest lectures, student challenges and the focus of the course, as called for by van Hoek et al. [23]. In order to ensure sufficient preparation of the student challenges (as called for by Thomchick [20]), multiple meetings were held to help develop and articulate student challenges that directly related to not only the course framework but also specific lessons during the semester. This helped create an opportunity for students to use class learning in addressing the real-world problems shared by MH. By keeping the challenge focus topical but fairly broad within the course topic areas, students were presented with plenty of opportunity to pick a challenge of interest and carve out a project focus that was interesting and doable.

4.2. From One-Off to Semester-Long Engagement, Factoring in Global Perspective and Soft Skill Requirements

As Figure 1 shows, the opening class of the semester was used for the faculty to introduce the course framework (Figure 2), the course calendar of topics, and the collaborative learning opportunity. The CPO of MH joined the class for a guest lecture to introduce the MH procurement organization, its strategy for the future, and in the end, five challenges that MH leadership faces in developing and implementing the future strategy. These challenges covered the core topic areas for the course (sustainability, digitization, risk management, supplier innovation, and supplier collaboration). Along with introducing the challenges, the CPO also introduced the direct reports on the members of his leadership team who were assigned to the project challenges as sponsors and contacts for the student teams during the semester. Finally, he indicated that he would rejoin the course for the last class of the semester to help discuss and provide feedback on student project presentations. The use of multiple occasions for guest lectures and the use of multiple formats reduced the risk that guest lecturers were one-off side steps of the learning plan, it drove ongoing engagement, and it helped to further embed the guest contributions into the semester-long course design. The use of project-specific briefings with sponsors also created flexibility in scheduling and structuring the engagement, to the advantage of the student teams.

In the opening guest lecture, sufficient attention was paid to change management and leadership approaches to stress the importance and role of soft skills and change

management in strategy development and implementation. This merely served as an initial hallmark of the focus on soft skills. During faculty teaching and project work, the focus on soft skills and change management needs was deepened. This was illustrated with MH examples from around the world, the globally distributed and mobile nature of the procurement team, and project sponsors located in different parts of the world.

After the first class of the semester, students were asked to self-organize in teams of 3–5 or 4–5, and self-select the two challenges they were most interested in and share these with the faculty member. This followed guidance on team size and class size from Zsidisin et al. (2013) [9] and ensured that all students could meaningfully contribute, that teams had sufficient project choice, and that there was a sufficient presentation and discussion time for each team in the final class of the semester. In two sections of the class, two teams selected the same topic and this was approved by the faculty so that all teams could pick their favorite project challenge. The challenges were sufficiently broadly defined to allow teams to take differing and unique directions, avoiding the risk of major overlap in team presentations.

Next, teams were connected directly with their sponsors and asked to coordinate an initial online meeting with their sponsors and faculty. During these meetings, MH sponsors offered a further presentation and explanation of the challenges, and the state of play at MH, and invited questions and ongoing engagement from the students. Faculty joined these sessions to achieve familiarity with the additional briefing and help set realistic expectations for student projects where needed. Additionally, this provided a basis for faculty coaching of the student teams on their projects. During the initial briefing, students were mostly consuming the presentation and not yet articulating a lot of questions. They came away even more excited about the collaborative opportunity and in good shape to begin to brainstorm their project focus and plan. Several of the sponsors also invited 1–2 of their team members to the briefing, to further broaden their collaborative engagement with the MH organization and to the advantage of the students.

4.3. Ongoing Collaboration with Stage Gates to Level-Set Expectations and Ensure Progress and Engagement from Students

After the initial meeting with sponsors, the faculty asked all students to draft a short project plan and an initial set of follow-up questions for the sponsor. Faculty requested a timely draft and offered feedback to support students with their writing and project approach. This began to support the development of soft skills as part of the learning experience. Additional benefits of the written communication were expectation-setting with the sponsor and driving the early engagement of students. While concern has been expressed in the literature over the need to ensure sufficient company engagement (Thomchick, 1997 [20]) it has been found that driving early student team engagement is also key. Students needed to get accustomed to the active and proactive approach needed in collaborative learning and displayed a tendency to be somewhat slow to engage with MH initially.

During the semester, instructor-led classes were used to cover course and project topics with theories, tools, and literature. In doing so, this provided students with insights and theory to use in their analysis of the project challenges, and with tools that they can use in developing project answers. This provided a setup whereby students had the opportunity to use course teachings and apply them in a real-world setting. Additionally, other guest lectures from non-MH executives around the globe were used to offer alternative examples and additional perspectives. Students found this inspiring and guest lecturer content was often used as part of team analysis.

During the semester, faculty set some stage gates for teams to ensure engagement and progress. These included verbal team updates during class times on the project focus, plans, and action plans. This ensured the continued progress of student teams and gave students the opportunity to provide feedback and ask questions of other teams. This helped achieve student-to-student feedback, as called for in Thomchick [20]. The stage

gates also created further coaching moments and opportunities for faculty to support student success. While the stage gates provide some structure around the timeline and deliverables, it did not take away from the student teams' flexibility to focus their project and workflow design within the team and during the semester. This further enabled soft skill development (project management for example) while accommodating for the work schedules of graduate students.

4.4. Deliverable and Presentation Set Up and Enriched Feedback and Evaluation

Toward the end of the semester, approaching teams were asked to submit a first full draft of their presentation to the course instructor for review and feedback. Teams were asked to share a version, improved based upon instructor feedback, with their sponsor. Teams were also offered the chance to ask for further rounds of feedback from the course instructor as they developed their presentation. While this illustrated that collaborative learning does require an additional time commitment from faculty, as expected by Thomchick [20], it also provided excellent coaching opportunities about soft skills, analysis, problem-solving, and recommendation development. Furthermore, it enabled the faculty to ensure that project sponsors would receive reasonable quality drafted material, to avoid disappointing and disengaging MH. To further reduce this risk, it proved advisable to set early deadlines so that case teams had sufficient time draft deliverables and avoid a last-minute rush.

The CPO of MH rejoined the class for the last session of the semester, the majority of which was devoted to team presentations of their deliverables. Time allotments for the presentations were assigned in advance so that students knew how much time to prepare for, and teams were given the flexibility to decide who presented what. While most teams had every member participate in the presentation, students appreciated this flexibility, and it was beneficial for helping teams to think through their presentation setup more, as opposed to them just following directions. In the presentation slots, time was ensured for questions and discussion, not only for feedback from the CPO of MH and the course instructor, but also from fellow students. This achieved further three-way and peer-to-peer feedback. It also helped the students realize how many connections there were between the projects. This was possible because of the linkages in the course framework and the common focus on future-proof strategy and change management, and it was eye-opening for many students. Much of the teachings throughout the semester were bought together in an integrated manner during the final class, very much reflecting the integrated approach called for [7].

Additional feedback was sought during a classroom open forum feedback exchange and students appreciated the opportunity to provide feedback and suggestions for future runs of the course. Hearing the feedback from peers also helped reinforce the unique learning experience for students a little further. Multiple feedback discussions were also held with MH collaborators; a session with all sponsors together was held, as well as one-on-one follow-ups with selected sponsors about project-specific takeaways. An initial and final feedback discussion was also held with the CPO of MH. Not only did these discussions help capture lessons learned in the collaboration and identify improvement opportunities, but the discussions also helped engage the collaborators in consideration of extending the collaboration into future semesters.

5. Evaluation and Improvements

Table S2 offers a summary of benefits, lessons learned, and improvement suggestions from three stakeholders: students, collaborating managers, and faculty. Example quotes from unsolicited student emails and class discussion board comments are included.

As can be gleaned from the comments, students reflected very positively and honestly on their learning experience, from being intimidated and overwhelmed by the many parts and the collaborative learning challenge, to appreciating the engagement and coaching, to being highly impressed with how parts of the course design all came together and connected

in an integrated manner at the end of the semester. Students also specifically commented on how market-relevant the experience was, how uniquely global and future-proof the focus was, and how they also learned from each other during the learning collaboration. Lessons learned from the student perspective hold implications for faculty and can improve the course design and reduce the time commitment of faculty in the future.

The MH team of collaborators offered very generous, patient, and open support and engagement in the learning experiences of students. A degree of expectation-setting about student expectations and the primary focus on learning was needed. It was important to clarify that the objective was not to consult with MH but that MH provided an opportunity to engage in real-world problem solving, that critical reflection was welcome and that feedback from MH served the purpose of guidance around the actionability of recommendations. The MH team enjoyed the collaboration and while not all projects were as concrete and actionable as they perhaps could have been, they received great perspective, challenging takeaways, and highly valuable deliverables. While this was not the upfront objective or expectation, MH did end up adopting many recommendations in their organization. As a result, they opted to continue the collaboration, going beyond the initial three sections into future semesters.

While innovation takes extra time and effort for faculty, great benefits were also achieved. This was not just an excellent learning experience with higher than normal student engagement and student success, the development of the close working relationship continued into the future and provided a great service to the university and its students.

6. Contributions

Table 2 summarizes the unique level of education-focused engaged scholarship developed in comparison to tactics commonly used such as case studies, class projects, and guest lectures. The collaborative approach shared in this paper drove longer-lasting engagement, aligned projects to all key parts of the course design, not just in selected areas, and engaged managers much deeper and wider in the company's organization. As a result, students did not just get a "dose of the real world", they engaged in real-world problem-solving using course content and developed problem-solving and soft skills in an international setting.

Table 2. Advancing education-focused engaged scholarship.

	Tactics Commonly Used	Design in This Paper
Duration of engagement	One-off guest lecture or case study	Semester-long
Scope of curriculum engagement	A case study or project	Projects covering all key curriculum topic areas
Organizational depth of engagement	Individual manager or executive	Executive and direct reports and their team members engaged inside the company
Impact of engagement	Illustrating a course lesson or offering an example of a topic	Problem-solving and applying learnings to real world settings

Collaborative learning holds the risk of poorly designed tasks, and lots of time spend on group formation and instruction, leading to less teaching material being covered in class. The design developed in this paper ensured alignment of the project challenges with the course content and framework so that the tasks complemented learning, not took away from it. Most of the project engagement was done outside of class time so that teaching content could be covered in class and then used in project work. The design advanced the original Thomchick (1997) [20] approach by moving from teaching cases to a real-world case with not just one (as in Zsidisin et al., 2013 [9]) but several project challenges to enrich the learning opportunity. The use of multiple challenges, interrelated within a course framework that was covered throughout the semester, also helped the student experience and recognize linkages and interconnections, especially leveling up their appreciation for an integrated supply chain perspective. To ensure the progress of student teams, stage gates and interim deliverables were used; these also provided opportunities

for student-to-student feedback on multiple occasions and focused on project progress, not team formation and instruction. The project work was more embedded in the course design and around the strategy of a single participating company rather than being several stand-alone projects sponsored by different companies, as in Handfield et al. [23]. This further ensured an integrated and consistent setting across projects and improved links between projects.

Clearly, this course design would not have been possible without the engagement and generous time allocation of the MH global procurement team. Early engagement with the company about the course design and the development of project challenges greatly supported the setting of expectations about engagement requirements and intensity. The ongoing engagement from faculty with sponsors and the student teams not only provided coaching opportunities with students; the ongoing engagement also helped sustain engagement throughout the semester. Another lesson learned was the value of including a three-way evaluation process of the course design and learning about collaboration in addition to normal course evaluation processes. This drove the further engagement of the students and the collaborating company and supported further benefit capture in future collaborations. This can reduce the extra workload for faculty moving forward. Hopefully, the documentation of the design and lessons learned in this paper can further reduce the extra faculty workload for other faculties considering a similar design in the future. Maybe it can even help inspire or engage more companies to engage in such learning collaboration.

The international design of the collaboration helped achieve a global perspective on topics taught and the focus on real-world problem solving and recommendations helped to achieve a focus on problem-solving in the project and soft skill development in the collaboration. The course framework and project challenges complemented each other in focusing on topics such as sustainability, which are highly market-relevant and crucial for the future of supply chains. The reflection for faculty would be to "think big and start small". The learning collaboration in this paper began with just one semester and three sections. But based on the course experience, students started calling for the administration to include more collaborative learning collaborations in the programs offered. The administration also has access to course evaluations and had some exposure to the CPO of MH, and they expressed support for furthering the collaboration into future semesters, which MH agreed to do.

Building upon the guidance from the literature to focus guest lecturer contributions with the seniority of the guest lecturer, and focus the guest lecture on course core topics and teachings to avoid a weak link with course content, the design develops an enriched adoption of guest lecturers in the course design. Not only did the C-level opening lecture bring the course framework to life from the very start of the semester, but the lecture was complemented by sponsor briefings to teams on specific topic challenges. By having the C-level guest lecturer return for the final class, the guest lecturing was woven throughout the entire semester, was consistent, and was embedded in the semester-long learning experience. This not only reduced the risks involved with using guest lectures, but it also enhanced the use of guest lecturers to an element of a unique collaboration that grew student engagement and success, as well as the returns on the invested time of collaborating companies.

7. Conclusions

This paper shares the design for a course with a unique type and level of company engagement. The design developed in this paper contributes to the more traditional approaches of case studies and stand-alone guest lectures, engages companies all semester long, aligns the opening guest lecture with the course topical focus, and introduces student project challenges in the course topic focus areas. It deepens company engagement beyond the guest lecture to include project sponsors and access to the company because students can utilize class learnings to address and consider real-world challenges and opportunities

in the course topic areas. Working with one, not several, company projects enhance an integrated setting across projects and drives connections between projects.

Throughout the two-year collaborative design journey, many lessons were learned that informed improvement in the design for year two of the collaboration. It is hoped that this paper can serve as a partial toolkit that can facilitate faculty interested in education-focused engaged scholarship and the development of PSM education that responds to changing skill needs in the PSM profession. Hopefully, this paper can also serve as a tool for engaging other companies in guest lecturing and integrated collaborative learning designs to help improve and innovate PSM education. This may grow contributions to student success and the development of market-relevant skilled talent that has a global perspective on key topics for the future, is collaborative, develops problem-solving soft skills, and can use class teachings to help drive PSM forward into the future.

This paper only offers one design study for one course. Future research can test design features in other parts of the supply chain field such as transportation and manufacturing. The design was developed at the graduate class level and future research can explore to what degree or with what moderation the design can be used in undergraduate courses. Finally, with the collaboration featured in this paper continuing into year three and possibly year four, it will be interesting to study how the design further develops, as topics are covered in advance and progress.

Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/logistics7010007/s1, Table S1: Course design template—key aspects and additional considerations for faculty; Table S2: Three stakeholder evaluation.

Author Contributions: Conceptualization, R.v.H. and D.L.; methodology, R.v.H.; validation, R.v.H. and D.L.; formal analysis, writing—original draft preparation, R.v.H.; writing—review and editing, R.v.H. and D.L. All authors have read and agreed to the published version of the manuscript.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Bals, L.; Schulze, H.; Kelly, S.; Stek, K. Purchasing and supply management (PSM) competencies: Current and future requirements. *J. Purch. Supply Manag.* **2019**, *25*, 100572. [CrossRef]
2. van Hoek, R.; Sankararaman, V.; Udesen, T.; Geurts, T.; Palumbo-Miele, D. Where we are heading and the research that can help us get there—Executive perspectives on the anniversary of the Journal of Purchasing and Supply Management. *J. Purch. Supply Manag.* **2020**, *26*, 100621. [CrossRef]
3. Stek, K.; Schiele, H. How to train supply managers—Necessary and sufficient purchasing skills leading to success. *J. Purch. Supply Manag.* **2021**, *27*, 100700. [CrossRef]
4. Birou, L.; Lutz, H.; Zsidisin, G. Current state of the art and science: A survey of purchasing and supply management courses and teaching approaches. *Int. J. Procure. Manag.* **2016**, *9*, 71. [CrossRef]
5. Bäckstrand, J.; Halldórsson, A. Engaged Scholar(ship) in purchasing and supply management (PSM): Creative tension or squeezed in the middle? *J. Purch. Supply Manag.* **2019**, *25*, 100557. [CrossRef]
6. Waller, M.A.; Fawcett, S.E.; van Hoek, R. Thought leaders and thoughtful leaders: Advancing logistics and supply chain management. *J. Bus. Logist.* **2012**, *33*, 75–77. [CrossRef]
7. van Hoek, R.I. Logistics education-achieving market and research driven skill development. *Int. J. Phys. Distrib. Logist. Manag.* **2001**, *31*, 505–519. [CrossRef]
8. Lutz, H.; Birou, L. Logistics education: A look at the current state of the art and science. *Supply Chain Manag. Int. J.* **2013**, *18*, 455–467. [CrossRef]
9. Zsidisin, G.A.; Hartley, J.L.; Collins, W.A. Integrating student projects with real-world problems: The case of managing commodity price risk. *Supply Chain Manag. Int. J.* **2013**, *18*, 389–397. [CrossRef]
10. Smith, C.N.; Langley, C.J.; Mundy, R. Removing the barriers between education and practice: Tools and techniques for lo-gistics management. *J. Bus. Logist.* **1998**, *19*, 173–195.
11. Johnson, E.; Pyke, D. A framework for teaching supply chain management. *Prod. Oper. Manag.* **2000**, *9*, 2–18. [CrossRef]
12. Wu, Y.-C.J. Contemporary logistics education: An international perspective. *Int. J. Phys. Distrib. Logist. Manag.* **2007**, *37*, 504–528. [CrossRef]

13. Lutz, H.; Birou, L.; Kannan, V. Analysis of higher educational offerings in operations management. *Int. J. Inf. Oper. Manag. Educ.* **2014**, *5*, 4. [CrossRef]

14. Closs, D.J.; Stank, T.P. A cross-functional curriculum for supply chain education at Michigan State University. *J. Bus. Logist.* **1999**, *20*, 59–72.

15. Onar, S.C.; Aktas, E.; Topcu, Y.I.; Doran, D. An analysis of supply chain related graduate programmes in Europe. *Supply Chain Manag. Int. J.* **2013**, *18*, 398–412. [CrossRef]

16. Birou, L.; Lutz, H.; Walden, J.L. Undergraduate supply chain management courses: Content, coverage, assessment and gaps. *Supply Chain Manag. Int. J.* **2021**, *27*, 1–11. [CrossRef]

17. Lutz, H.; Birou, L.; Walden, J. Survey of graduate supply chain courses: Content, coverage and gaps. *Supply Chain. Manag. Int. J.* **2021**, *27*, 625–636. [CrossRef]

18. Scholten, K.; Dubois, A. Advancing the skill set of SCM graduates—An active learning approach. *Int. J. Oper. Prod. Manag.* **2017**, *37*, 1683–1699. [CrossRef]

19. van Hoek, R.; Wagner, B. Supply chain management (SCM): Current education provision and practitioner future needs. *Sup-Ply Chain. Manag. Int. J.* **2013**, *18*, 4. [CrossRef]

20. Thomchick, E. The use of collaborative learning in logistics classes. *J. Bus. Logist.* **1997**, *18*, 191–205.

21. Gammelgaard, B.; Larson, P.D. Logistics skills and competencies for supply chain management. *J. Bus. Logist.* **2001**, *22*, 27–50. [CrossRef]

22. Lancioni, R.; Forman, H.; Smith, M. Logistics and supply chain education: Roadblocks and challenges. *Int. J. Phys. Distrib. Logist. Manag.* **2001**, *31*, 733–745. [CrossRef]

23. Handfield, R.B.; Edwards, S.A.; Stonebraker, J.S. NC state's supply chain resource cooperative educates in the real world. *INFORMS J. Appl. Anal.* **2011**, *41*, 548–563. [CrossRef]

24. Van Hoek, R.; Godsell, J.; Harrison, A. Embedding 'insights from industry' in supply chain programmes: The role of guest lecturers. *Supply Chain. Manag. Int. J.* **2011**, *16*, 142–147. [CrossRef]

25. van Aken, J.; Chandrasekaran, A.; Halman, J. Conducting and publishing design science research: Inaugural essay of the design science department of the Journal of Operations Mangement. *J. Oper. Manag.* **2016**, *47–48*, 1–8. [CrossRef]

26. Chandrasekaran, A.; de Treville, S.; Browning, T. Intervention-based research (IBR)—What, where, and how to use it in operations man-agement. *J. Oper. Manag.* **2020**, *66*, 370–378. [CrossRef]

27. Holmström, J.; Ketokivi, M.; Hameri, A.-P. Bridging practice and theory: A design science approach. *Decis. Sci.* **2009**, *40*, 65–87. [CrossRef]

28. CSCMP. *State of Sustainable Supply Chain Report*; Council of Supply Chain Management: Oak Brook, IL, USA, 2022.