

Stronger together: A case study of a joint industry/higher hospitality education student project to raise awareness of water-scarcity

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Abstract

It is imperative that hospitality and tourism students understand the importance of sustainable initiatives in the industry. This paper focuses on an applied project at a Swiss higher education institution undertaken by 4th semester undergraduates in collaboration with a specific innovative hotel chain to imagine out-of-the-box awareness-raising campaigns to save water in some of its properties. This paper reflects on the way project design and teaching practice were implemented and considers feedback from the faculty and students involved. Authentic projects are shown to be valuable for all parties, particularly if undertaken with a solid well-paced andragogical framework. However, climate-change fatigue might be impacting on students' motivation and willingness to engage with real-world sustainability projects leading to a need for educators and their industry partners to implement creative solutions to enthuse their students in the future.

Key Words

Applied projects, sustainability, project-based learning, climate-change fatigue, hospitality and tourism education

Introduction

Sustainability is relevant to all students, as is evidenced by the Advance HE (n.d.) which provides practice guides for including sustainable development as a strategic priority in education. Google scholar reflects this popularity with, as of 4th October 2024, over 6 million entries for “sustainability + education” and more than 4 million entries when the term “hospitality” is added. It is evident therefore that the hospitality education sector needs to prepare its students for what Hussain et al. (2023) describe as an industry which will have a greater focus on sustainability in the future. Writing a year or so ago, Munjal and Sharma (2023), could not have expressed the situation more clearly when they stated, “There is an urgent need for hospitality education in the higher education sector to give space and focus to sustainability practices in their curriculum and ensure that the content is embedded and delivered in a contemporary way” (p. 322). One means of enabling students to engage with such practices is to collaborate with the industry. This paper describes how such a collaborative project was undertaken in an international higher hospitality education institution in conjunction with, and at the behest of, a pioneering hotel company to find an innovative solution to an intractable problem: How to raise awareness about water scarcity in staff and or guests of a hotel chain in Spain. This case study explores the undergraduate hospitality students’ and their faculty’s perspective on the usefulness and value of this joint project as part of an undergraduate degree program.

Reviewing the literature on project-based learning for sustainability studies in higher hospitality education

The concept of developing students’ abilities by engaging them in meaningful, real world issues through experiential learning compared to them learning through memorization is far from new. Indeed, in 450BC Confucius is famously quoted as saying, “I hear and I forget, I see and I remember, I do and I understand.” Rather more recently, these ideas have been developed by educational psychologists such as Dewey (1938), Kolb (1984) and Rogers and Freiburg (1994) and gained much traction throughout educational levels. A common means of integrating experiential learning is through project based-learning (PBL) with research demonstrating its varied use at university-level: in language classes in tourism and hospitality (Hanak, 2021), in writing classes (Mantra et al., 2023), to teach a service quality model (Shatzkin et al., 2022), and statistics (Elder, 2023) and at post-graduate level in MBA classrooms (Cummings & Yur-Austin, 2022). The definition of PBL used in this work is that of Wiek et al. (2014): “Project-Based Learning models focus on developing case-specific problem understanding to create feasible solution options” in contrast to problem-based learning which they define as being “centred on complex problems,” leading to “hypotheses building and testing to develop a deeper understanding of ... problems” (p. 434). Examining the overlap between project- and problem-based learning, Brundiers and Wiek (2013) established a commonality between the two, notably, in which students are, amongst others, engaged in real-world tasks, work in small groups, have a teacher as facilitator and are exposed to formative evaluations.

In order to ensure that “gold standard PBL” is facilitated well by placing student learning through problem solving at the heart of the endeavor, several design elements are required: sustained inquiry, authenticity, student voice and choice, reflection, critique and revision, public product and a challenging problem or question (Buck Institute for Education, 2015, 2019a) as shown in.

Figure 1: Design elements and teaching practices of gold standard PBL


(Buck Institute for Education, 2019b, 2019a)

Specifically in the higher hospitality education context, Molintas et al. (2023) explain that for collaborative learning to take place, effective working in teams needs to be explicitly taught and scaffolded, not expected, the task needs to be challenging, complex and difficult to complete alone, grading requires “careful deliberation” (p. 297) and groups should be carefully and heterogeneously crafted rather than randomly assigned. Although the Buck Institute for Education requirements are more detailed, Molintas et al.’s (2023) work is notable in that it specifically focuses on using collaborative learning in the context of higher hospitality education institutions on the theme of sustainability. This topic has grown in importance in higher education in recent years with PBL being used as a teaching method, particularly in engineering education (Bolstad et al., 2023). Cities, businesses and other organizations have worked hand-in-hand with educational institutions to provide PBL to higher education students (Wiek et al., 2014). Such projects have enabled students to have a “positive impact on the world” (Rowe, 2007, p. 324) demonstrating the value of PBL in sustainability education (Wiek et al., 2014). However, while it can be challenging to build trustworthy relationships with relevant industrial bodies (Whitmer et al., 2010), these are encouraged (HQPBL.org, 2018) so that students can focus on specific cases from which to create feasible solutions (Wiek et al., 2014). Such engagement “Enables students to master academic content and skills, develop skills necessary for future success, and build the personal agency needed to tackle life’s and the world’s challenges” (HQPBL.org, 2018). In order for PBL to be successful, students need to be motivated to engage in and complete the project. A recent paper by Wijnia et al., (2024) breaks down student motivation into three themes: “Can I do it,” “Do I want to do it,” and “Why am I doing it?”, as can be seen in Figure 2 below. They demonstrate that PBL increases student motivation across these constructs but its impact specifically on motivation for sustainability projects has yet to be explored.

Figure 2: Overview of motivation constructs



(Wijnia et al., 2024, p. 29)

Having established the value of project-based learning in sustainable studies in higher hospitality education and identified best practice elements of design and teaching, the next section will describe the project which is the focus of this case study.

Building bridges – the project

As part of the bachelor's degree offered at the context Swiss international higher hospitality education institution, students in their 4th semester undertake a 6-ECTS credit integrated project course. The first six weeks of this course involve an introduction to research while the second nine weeks comprise a group project which is the focus of this paper. The project was instigated by an external body, in this case, a hotel chain with a strong sustainable ethic which approached the context institution with a project to raise awareness in guests and / or staff of water scarcity, a serious issue in Spain where the chain is based. All students received the same overarching project: using innovative ideas, create or increase awareness in staff and or guests of the hotel (one particular property or the whole chain) about water scarcity. The two relevant learning outcomes for this project which can be found on the course syllabus indicate that at the end of the course, the student should be able to formulate an appropriate research project to address a specific business case and propose a feasible response to a specific business case based on research findings. The students were allocated 24 hours of class time to undertake this

project in three to four person groups of their choosing. The author taught one of the two classes (groups 1-6) in the cohort.

Cohort breakdown

The cohort consisted of 32 students spread among 11 groups with the demographic breakdown indicated in Table 1 below.

Table 1 Demographics of the 11 groups

Group 1	male	Pakistan
	female	Mexico
Group 2	male	South Africa
	female	China
	male	China
Group 3	female	United Kingdom
	female	Vietnam
	male	Vietnam
Group 4	female	China
	female	United States
	female	Tanzania
Group 5	female	Norway
	male	Switzerland
	male	Saudi Arabia
	male	Italy
Group 6	female	India
	male	United States
	male	United States
	male	United States

Group 7	male	Hong Kong
	female	Myanmar
Group 8	female	Japan
	female	United States
	female	Switzerland
Group 9	male	Saudi Arabia
	male	India
	male	Philippines
Group 10	male	Republic of Korea
	female	Vietnam
	female	United Kingdom
Group 11	female	Thailand
	male	Switzerland
	male	India
Group 11	male	France
	male	France
	female	The Democratic Republic of Congo

Presentation of the assessment to the students

Initially, the company presented itself and the project directly to the students via video link. The task was deliberately open enough to allow for creative ideas under an “innovative awareness raising” concept but sufficiently structured to provide guidance and a certain degree of systematisation for assessment purposes. Notes were taken on the classroom whiteboard by the teacher as the company presented the project, and a photograph of these notes was later shared on the class’s learning management system to enable subsequent reference to the initial shared concept. It was made clear to the students that there were two “customers” of this work who were looking for different but complimentary outcomes: the company looking for engagingly presented innovative solutions and the teachers with their academic requirements laid out in the rubrics. The faculty involved drew up an assessment schedule for the students as shown in Table 2 below and a week-by-week plan of suggested action as shown in Table 3 below. After two weeks of study, students were required to complete an initial literature review on which their peers provided structured feedback. This was a formative assessment, so students were graded for task completion rather than on the quality of work submitted. A short presentation two-weeks later enabled each group to present its progress to date, its planned future tasks, as well as a reflection on teamwork efficiency. The final assessments were due at the end of the course. They consisted of a two-part written component: an executive summary for the company and a more comprehensive academic report for the faculty, as well as a group presentation attended by the company’s representative via video link. A peer review was included in the assessment which enabled grades to be reduced if students were evaluated consistently negatively by their peers.

Table 2 Assessment breakdown

What	When	Weighting
Submission and review of others' literature reviews	Midnight Wednesday and midnight Sunday Week 10	10%
This will be done through Moodle and by email.		
5-minute presentation – where you are up to now and what is left to do	Week 12	10%
You have 5 minutes to tell your classmates and faculty what you have done so far, what has gone well, what needs working on and what you have left to do.		
Executive summary	Week 16	10%
One-page executive summary for the company summarizing the project, solutions, conclusions, and possibly recommendations must be submitted. Here is a suggested framework:		
<ul style="list-style-type: none"> • Introduction: states the document's purpose, the content to follow and then the rationale behind it. It should grab and hold the reader's attention. • Presenters' information: introduce the team presenting or responsible for the findings. • Development of solutions: Explanation and justification of how solutions were arrived at. • Solutions: Solutions that are logical and well presented. • Conclusion: recap your solutions, possibly make recommendations. • Close the executive summary with a strong statement that sets up the theme or central message to the story you tell in the presentation. 		
Final report	Week 16	40%
The report must be submitted using the template provided, in MS Word format, and be 2,000 words (+/- 10%).		
Presentation	Week 16	30%
You will have 10 minutes to present the solutions to the company and the faculty (questions from the audience are not included). The use of PowerPoint and/or handouts is not mandatory but highly encouraged. You will be evaluated on the quality of the presentation. Every group member must speak. We recommend you try to find an interesting and stimulating way to present your project - points will be awarded for creativity. Each team member must complete the peer assessment , available on Moodle. This evaluation can negatively affect the individual grade by up to 10%.		

A week-by-week breakdown (see Table 3) of activities was shared with the students to enable them to pace themselves and manage their time.

Table 3 Week-by-week breakdown of tasks

Week 7	Presentation to all students by the hotel
Week 8	Group formation, task clarification, drawing up of ground rules
Week 9	Group work, literature review
Week 10	Submission of literature review, review of others' work
Week 11	Working on ideas for the campaign. Prepare the mini-presentation
Week 12	Mini-presentation showing current progress
Week 13	Continue collecting ideas
Week 14	Prepare presentation, write executive summary, work on final report
Week 15	Practice presentation in front of peers
Week 16	Presentation to the hotel, submission of executive summary, final report and peer evaluation

Results

All groups submitted the work required of them to varying standards. Students demonstrated some creativity in their presentations and reports, with one group using generative AI to produce artwork. Suggestions for awareness-raising included a water-consumption counter in the lobby linked to a rewards system for guests, a water-consumption-reduction competition per department across the hotels in the chain with a reward for the winning department, a rewards system for guests linked to partnering local green companies, using digital technologies such as the Internet of Things linked to an app to encourage water saving behaviors in customers, an encouragement of the use of grey water in addition to rewarding the use of showers instead of the bathtubs, and, finally, a rewards system informed by smart meters in the hotel enabling guests to further engage with the hotel chain.

In their presentations to the hotel representative, all students behaved with the expected high level of professionalism.

Student feedback indicated a divided response to the project. While there were no comments on the groups' composition and the course was described as "great," "perfect" and also "fun and different," other students' feedback thought the course was "boring," "childish" and "repetitive." Not all students appreciated the topic: "I don't feel very much inspired by the project ... I don't feel the need of it, even though raising awareness on water saving is necessary worldwide," or its location despite its evident real-life relevance, but they appreciated a structured approach and being able to address their concerns to a real industry expert: "We got the opportunity to actually be able to talk personally with someone from the hotel if we had any concerns or doubts." Students having the agency to choose the topic and location of future projects was raised as a suggested improvement.

Faculty reflection echoes one of the student's comments: "I believe doing multiple deadlines throughout the semester so that the work load at the end of the semester is decreased could be useful. This also strips people from doing it last second, myself included." While there were deadlines in the first month, during the subsequent month, students had time either to work on their project in a timely fashion or, as this student and the author noted in other groups, procrastinate. As a result, the teacher could not provide the input she expected to on the literature review, the ideation stage regarding the awareness-raising campaign or the structure and content of the report.

Discussion and recommendations

The lack of commentary in the feedback on other group members' contributions indicates that allowing students to choose their own colleagues leads to a harmonious working experience. Whether more learning would have been achieved if students had been carefully allocated to create more **heterogenous** and potentially less harmonious **groups** as suggested by Molintas et al. (2023) is a possibility. Reflecting on the design elements of a successful project-based learning task as recommended by the Buck Institute for Education (2015, 2019), the case study under investigation required **sustained inquiry** through the engagement necessary to achieve the task. Students had to undertake a review of the literature in their chosen domain and then reflect on a potential, innovative, awareness-raising campaign. The project was, through its partnership with an existing and motivated company, **authentic**, as demonstrated to the students by the repeated intervention of the person of reference who demonstrated a keen interest in the students' work. It might however have been lacking the "personal authenticity", or speaking to students' concerns discussed by the Buck Institute for Education. The "younger generation" have a heightened awareness of sustainability (Canova & Paladino, 2023) but in this study, this supposed awareness did not translate into a systematic interest in the subject. Although it was later dropped from the list of design elements, **student voice and choice** was included in the earlier (Buck Institute for Education, 2015) version. While the company and overarching guidance was the same for all groups, students were able to choose their own audience for their water-scarcity awareness-raising campaign (to staff and or guests) as well as its implementation. The ability to **critique and revise** was integral to the beginning of the project when the groups' literature reviews were reviewed by peers as a formative, yet graded, assessment. In addition, teacher oversight of the ongoing written work was provided during class time and the notion of re-writing was repeatedly

referred to in class. By presenting their work and submitting an executive summary to the company, the students' work was **public** while the nature of the project itself, in that a simple solution to the problem of awareness-raising of water scarcity has yet to be found in the industry, demonstrated the project's **challenging** nature. Student feedback indicated however that not all students grasped the inherent difficulty of the task.

The second layer of the Buck Institute of Education's (2015, 2019) guidance concerns the teaching practices required for high-quality project-based learning. The first of these relates to **aligning the work to standards**. Rubrics were provided to students for all of the assessed work (so not for the formative submission of the literature review) to ensure students were aware of the standard required. The assignment in its entirety was reviewed through the institution's internal verification process to ensure it adhered to the requirements of the semester-4 curriculum and led the students to successful completion of the learning outcomes. Regarding **building the appropriate culture**, class time and faculty interaction fostered the promotion of "Student independence and growth, open-ended inquiry [and] team spirit" (Buck Institute for Education, 2019b) while faculty feedback provided a focus on the qualitative element of the submitted work. Faculty interaction with the students who then worked together inside and outside the classroom provided an environment which **scaffolded student learning** while the structured scheme of work ensured **activities were managed in a timely fashion**. However, time management was problematic as mentioned above. Assessment of student learning was on-going, through lower-, formative, and later higher-stakes, summative work, with the topic, tasks and scheme of work structured to **engage** the students in a real-world project.

Using Buck Institute for Education's (2015, 2019b) guidance, this flexible yet structured sustainability-focused project should have provided valuable project-based learning for the students undertaking it. Feedback from the hotel indicated satisfaction with some of the groups' work and some of the student feedback demonstrated the benefits of such a study. However, surprisingly, student feedback indicated neither the topic, raising awareness of water scarcity in staff and or guests, nor the company, a particularly socially-aware hotel company, engendered the level of student enthusiasm faculty had expected. Engaging current students with sustainable practices and thinking is indeed challenging, despite their generation's supposed interest in the topic. "Sustainability fatigue" (Costa, 2020), "climate fatigue" (Kerr, 2009) and even "apocalypse fatigue" (Suttie, 2018) are terms which reflect feeling helpless and overwhelmed regarding one's individual agency toward the climate crisis. Referring back to Wijnia et al.'s (2024) motivational constructs, it can be considered from this feedback that the "value" and "reasons", more specifically the importance as well as the intrinsic and extrinsic reasons for the project, had been inadequately communicated by the faculty and poorly internalized by the students. Such findings require hospitality educators to reflect carefully about how they can frame sustainability projects, even well-conceived ones such as this case study, to engage and motivate students, inspiring them to engage rather than foster a more passive attitude in the face of such enormous potential existential challenges. Projects need to be paced to encourage students' focus and productivity throughout the course, not merely towards the end, but this must be balanced with constraints linked to an excessive assessment burden on both students and faculty.

Conclusion

Well-conceived project-based learning assessments with their inherent involvement with the real world have potential for engaging higher education hospitality students in topics related to sustainability. Providing authentic learning in a well-structured learning environment and involving learners in solving existing problems for real entities such as hotel companies should, theoretically, enable students to learn independently and deepen their knowledge of, and engagement with, sustainability issues. However, this study shows that sustainability is not a topic which all students find inspiring and motivating, leading to the question of whether the current undergraduate student body is feeling climate fatigue and challenging faculty to think creatively on the ways they can provide the new generation of learners with projects which build impactful bridges between practitioners and academia in the realm of sustainability education. Higher education providers should privilege partnerships with the industry but all actors need to be mindful of current young people's sensitivity to the issue of climate change and ensure that students appreciate the value of and the reasons for collaborative projects in the field of sustainability.

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