

REFLECTIONS ON PRACTICE

A Reflection on Interdisciplinary Team-teaching in a Residential College

TOH Tai Chong and Yasmin Y. ORTIGA

College of Alice and Peter Tan, National University of Singapore

Correspondence:

Name: Dr. TOH Tai Chong

Address: College of Alice and Peter Tan, National University of Singapore, 8 College Avenue East,
Singapore 138615

Email: taichong.toh@nus.edu.sg

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ABSTRACT

Team-teaching is increasingly used in interdisciplinary university programmes to create unique learning environments that expose students to multiple perspectives. This approach encourages instructors to collaborate in areas like module design, lesson delivery and feedback. In the College of Alice and Peter Tan (CAPT) at the National University of Singapore (NUS), we offered an interdisciplinary class as part of the informal learning curriculum, called Reading Groups. This paper documents our personal reflections on team-teaching of this class and we supplement it with our students' reflection to enrich the discussion. We found that this programme provided a good test bed for new pedagogical approaches and teaching partnerships, and promoted effective student learning across disciplines. The scaffolding of our lessons and openness to learn alongside our students demonstrated how team-teaching can deepen our students' learning. We recommend that educators who are new to team-teaching consistently discuss and evaluate their pedagogical expectations, as this helps the instructors to adapt and integrate new teaching approaches into their practice.

INTRODUCTION

Team-teaching is now an increasingly common practice within universities, particularly among interdisciplinary programmes. Unlike the co-teaching model, in which the instructors share the workload but do not actively engage the class together (Brassard & Namrata, 2017), team-teaching encourages instructors to actively collaborate with each other, from module design to the actual delivery of lessons in class.

Classes team taught by educators from different disciplines can create unique learning environments that improve student performance and expose students to multiple perspectives (Anderson & Speck, 1998). However, this teaching model is not without its challenges. Instructors may have underlying differences in pedagogical views and teaching practice, and if left unresolved, may result in significant challenges in module implementation (Shibley, 2006). There are also few studies on how a collaborative interdisciplinary class *should* and *could* look like, with most scholars focused on the processes and outcomes of interdisciplinary research and academic partnerships with practitioners (see Rowland, 1996; Welch *et al.*, 1999; Letterman & Dugan, 2004). Hence, there is an impetus to document the instructors' and learners' reflections to assist educators in understanding how to plan, design and embark on interdisciplinary team-teaching.

In the National University of Singapore (NUS), the residential colleges create a living and learning environment by providing a wide range of formal curriculum and informal learning activities. The focus on thematic and multidisciplinary programmes defines each college's academic character, and all classes are conducted in a seminar setting with no more than 20 students per class. With the breadth of programmes available, residential colleges present ample opportunities for faculty members from different disciplines to collaborate in team-teaching. Prepared by a marine biologist (Tai Chong, henceforth known as "TC") and a sociologist (Yasmin, henceforth known as "YY"), this article discusses our team-teaching collaboration at the College and Alice and Peter Tan (CAPT), a residential college in NUS. In particular, we reflect on our experience implementing an informal reading group on the hidden stories behind Singapore's green spaces.

CONTEXT

Reading Groups (RGs) form part of the informal learning curriculum offered in the CAPT. This multidisciplinary programme brings together students, faculty, practitioners, and researchers to discuss topics specific to each RG's theme to deepen their knowledge. While RGs are not credit bearing, students are required to commit two to three hours per week during the semester, and the curriculum is structured to scaffold student learning. The convergence of interest in urban green spaces prompted us to develop an RG—Green Stories—to examine the socio-environmental implications of gardening in Singapore.

APPROACH

Effective interdisciplinary team-teaching depends on four principles: 1) organisation of module, 2) a supportive teaching and learning atmosphere, 3) active participation and engagement of students, and 4) strengths of the instructors (Rowland, 1996). While designing this RG, we were guided by the College's RG proposal format comprising the following categories:

- Instructors
- Theme for Discussion
- Project Structure and Learning Outcomes
- Participation Requirements for Student Participants
- Potential Case-study Sites
- Readings
- Tentative Guest Speakers
- Tentative Meeting Schedule
- Estimated Budget

This structure facilitated the organisation of our curriculum plans, teaching resources and learning outcomes, and provided the starting point to deliberate on the scope of the RG. The outcome of the discussion was summarised as an RG synopsis and meeting schedule, which were distributed to the students before the commencement of the RG.

To align to the other three principles, we agreed during the pre-RG discussion to both be present in all sessions, so that we can both draw on our strengths in teaching a topic that is outside our specialties (Shibley, 2006). There are several strategies in implementing this approach (Dynak *et al.*, 1997), but we eventually settled on a combination of complementary teaching (one leads and the other support) and alternative teaching (taking turns to instruct the students) for the RG (Table 1).

Table 1
Sample schedule of the Green Stories reading group

Week	Topic	Activities	Teaching Mode
1	Module introduction and standards	Discussion	Alternative
2	How does the creation of gardens impact the environment?	Discussion	Complementary
3	How do ideas and people "make" gardens?	Discussion	Complementary
4	What does urban gardening look like in Singapore communities?	Guest lecture by NGO	Complementary
5	What does urban gardening look like in Singapore communities?	Field Trip to community garden	Alternative
6	How do we conduct interviews?	Workshop on conducting interviews	Complementary
7 to 9		Students conduct interviews	
10	How do we analyse qualitative data?	Workshop on analysing interviews	Complementary
11	Presentation of results	Student presentation	Alternative

For topics that were within our respective disciplines, the complementary approach enabled the supporting instructor to provide additional inputs by raising questions and alternative viewpoints to broaden the discussion. The alternative approach was used for discussions that were more spontaneous (e.g. field trips and student presentations) since both instructors were able to deepen the conversations through their reflections and comments. To facilitate alignment of expectations and synchronisation of roles among the instructors throughout the RG, we met up to discuss the scope and implementation of the lesson before each session. A post-lesson debrief was also done after each session to consolidate our learning points.

INTENDED LEARNING OUTCOMES

We used the SOLO taxonomy (Biggs & Collis, 1982) in mapping the following learning outcomes for the RG:

- Identify the parties involved in urban gardening (uni-structural)
- Describe the parties' role in urban gardening (multi-structural)
- Relate the parties' experiences to one another (relational)
- Discuss the parties' motivations in urban gardening (extended abstract)

IMPLEMENTING TEAM-TEACHING

The Green Stories RG ran from Weeks 3 and 11 of the semester (Table 1) comprising students from the Faculty of Science, Faculty of Arts and Social Sciences, and School of Design and Environment. For the first run of the RG, we decided to focus on urban farms and edible gardens in Singapore. We decided that the RG would first present and compare two different approaches to understanding green spaces: the social and the biophysical. The social approach emphasised how urban farms and gardens are a result of the social construction of nature (in particular, ideas about its control and purpose). In contrast, the biophysical approach emphasised how environmental change affects and is affected by the prevalence of urban gardening. The RG then situated discussions in the Singapore context, with the help of guest lectures, field visits and engagement with community gardeners. We also gave students a basic lesson on qualitative interviews, which they then used to interview young urban farmers about their motivations behind choosing to grow their own food in Singapore. The RG concluded with student presentations relating their empirical data with the theoretical approaches we learned at the beginning of the semester. In future runs of the RG, we envision exploring different types of urban green spaces (e.g. parks, botanical gardens, and more).

To gather the learner's views of team-teaching in this RG, we administered an online survey at the end of the semester. Students also wrote a 500-word reflection on what they learned from the reading group. We examined both sources in order to understand how students perceived and experienced our team-teaching approach. The following section highlights the personal reflections we both made in looking back at our teaching experience.

REFLECTIONS

Team dynamics and teaching expectations should be discussed

In Weeks 2 and 3, we took turns to lead the discussion each week to examine the biophysical and social impacts of urban gardens. Prior to each lesson, the lead instructor would brief the other on the lesson plan and the teaching aids. To complement each other's teaching, we agreed that one instructor would lead the discussion, while the other would raise questions to drive the discussion forward. We soon discovered that the delivery style for both instructors varied. TC was apprehensive about posing questions and offering responses excessively because he felt it would steer the discussion towards a fixed direction and limit the students' line of thought. On the other hand, YY felt that in order for the lesson to be "interdisciplinary", both instructors should actively engage the class, even if it meant interrupting the lead instructor's lecture. At our post-lesson debrief, we expressed our initial discomfort with each other's teaching approaches and clarified our expectations. Such open communication in team-teaching is needed to resolve differences in teaching approaches and expectations, since it affects the dynamics of the class. In subsequent lessons, both of us actively raised questions and we would also ask each other for comments. The classroom environment was significantly more vibrant and less instructional, as exchanges of ideas would continue to flow among the instructors and students. We were fortunate that this was sorted out early in the programme and learning was not hampered.

Openness to learning: The teacher as the student

Traditional modes of teaching tend to place the instructor as the subject matter expert, expected to present and lead the discussion. In this reading group, we realised that it was also useful to take on the role of a student to stimulate discussion. We believe that this approach allowed us to model for students a respect for different perspectives that may not necessarily align with their own disciplinary training and knowledge. In the Green Stories RG, we had students from different faculties, from a life science major who could not tell a difference between a survey and interview, to a history major who said she "did not believe in objectivity". As instructors leading the RG, we agreed that each would show a commitment to engaging with each other's chosen texts and lectures, so that students would take our lead in doing the same. As such, YY actively engaged with TC's lecture on the risks of invasive species in urban gardens, while TC actively participated in YY's lecture on migrant labour as the backbone of the topic of garden maintenance in affluent cities.

While we had little exposure to each other's fields, we found that our pre-class discussions provided us with the academic grounding needed to develop and brainstorm for questions to be raised during the RG session. They also helped us to critically evaluate our teaching aids and the scope of our lessons to ensure that they were pegged at a level suitable for the students.

Surprisingly, the students responded very well to having their instructors raise questions and take on a learner role during the RG session. They appreciated the informal and conducive learning environment that was created and emphasised that this participatory approach encouraged deeper discussion of the issues. As one student noted,

“It was especially conducive for learning to take place because the learning itself was mutual. Both the instructors as well as the students were learning from one another, while bringing our individual expertise to the table.”

Other students appreciated that “facilitators were learning as much as they were teaching”, and how it was “a nice experience seeing a teacher learn.”

The immense value of interdisciplinary team-teaching

Prior to this module, our exposure to interdisciplinary teaching was limited to having one instructor draw from other disciplines through the class readings and supplementary lectures with guest lecturers who were either practitioners or experts in other fields. In CAPT, the lecturers practice co-teaching strategies, where instructors from different disciplines take turns teaching a module throughout the semester. In the Green Stories RG, we tried to use more complementary approaches to conduct team-teaching as a means of creating an interdisciplinary learning environment. We explicitly framed the reading group as a collaboration between a sociologist and biologist. We also took the time to explain the “biases” or assumptions that our own disciplines make when studying green spaces. For example, YY discussed how sociologists would pay special attention to how different societies define the purpose of “nature”, and how such views often shape how people treat the environment. In contrast, TC talked about how biologists would define the ideal natural environment with minimal human intervention and would adopt a precautionary approach to any attempts to create green spaces. When such disciplinary assumptions are made explicit, the class discussion can be quickly steered towards exploring an alternative perspective or to create cognitive discourses that would challenge the students to reconcile the differences. In one example, the students readily

picked up the contrast between how gardens were perceived by urban ecologists as a provider of ecosystem services, when in reality, they could be the source of social conflicts. Another student commented,

“People and spaces naturally give rise to conflicts, and when spaces are encroached upon, conflicts and tensions increases. This anecdote was a stark contrast to what we discussed in the first few weeks, where we spoke about how gardens can be perceived as having a therapeutic effect and how it brings people together.”

While we do not necessarily have the expertise on green spaces, we hope that our different approaches (shaped by two vastly different disciplines) could stimulate critical thinking and deeper learning amongst students in the classroom. We believe that having both instructors present in the classroom prompts students to consider different forms of knowledge, and appreciate the complexity of the issue. As shared by one student,

“I feel that it is a good collaboration whereby we can just view one issue and with the knowledge of one issue in Singapore, be able to view it from both a biologist and sociologist point of view.”

Another student added,

“Really appreciated the sharing from both lecturers and how they shared information and knowledge from their own respective fields. This really enriched the lessons for me, and I do enjoy it quite a bit.”

In many ways, such feedback show how efforts at creating interdisciplinarity can be made explicit to a class, allowing students to observe how it plays out throughout the semester. While other RGs in CAPT are run by lecturers from different disciplinary backgrounds, students are not always aware of how this would shape their learning experience. One of our students even suggested that other RGs adapt the interdisciplinary approach, despite the fact that most already do. Perhaps making the interdisciplinary aspect of team-teaching more obvious will lead to a more enriching experience for students.

CONCLUDING REMARKS

While our experience with interdisciplinary team-teaching worked well for the Green Stories RG, we acknowledge that this is partly due to the unique nature of reading groups in NUS residential colleges. As part of the informal curriculum, reading groups are designed as opportunities for students to explore a topic of interest outside their disciplines without the pressures of a regular module.

We believe this environment also makes students more open to having instructors who are not necessarily experts in the particular RG topic, and are acting more as “learners” in the classroom. Admittedly, we are unsure if we would be able to take on such an approach if we were teaching a module and grading students on a more defined set of assessments.

Interestingly, our observations suggest that team-teaching is less common in higher education institutions in Singapore. Brassard and Namrata (2017) emphasised that this approach is more demanding and time consuming for the faculty to pursue than co-teaching. Within the institution, structured training resources have to be devoted to faculty members who are new to team-teaching to forge good relations. Furthermore, a shift in mindset is essential so that administrators would be able to recognise and more clearly define the teaching load for team-teaching. Collectively, these challenges may account for the low take-up rate of this teaching approach in higher education institutions in Singapore despite its distinct benefits.

We believe that our reading group experience serves as a useful venue to test different approaches to team-teaching (which we may adopt later on), as well as talk through possible differences in teaching approaches and philosophies. The reflections and feedback we present in this paper also show that students find such efforts rewarding and enriching. Perhaps, if provided with similar opportunities beyond the formal curriculum, instructors can use the RG to try out different pedagogical approaches (such as interdisciplinary team-teaching) without the formal expectations that make it difficult to do so in regular classes.

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ABOUT THE CORRESPONDING AUTHOR

TOH Tai Chong is a Lecturer at the College of Alice and Peter Tan and a Research Affiliate at the Tropical Marine Science Institute. His research interests include marine conservation, interdisciplinary teaching, experiential and research-based learning. He has published in a range of journals such as *Scientific Reports*, *PLOS One*, *Marine Biology* and *Coral Reefs*. Within NUS, he teaches modules related to environmental conservation and sustainability.

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