

Conflicts within complex contexts: the relationship between facilitators and participants in interdisciplinary pedagogy

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Abstract

Interdisciplinary collaborations are complex environments which yield complex relationships and encourage conflict by nature. This paper explores three instances of conflict as viewed through the opposite perspectives of a participant and facilitator during a university project. This synthesis provides key insights which are positioned against the theoretical frameworks of Horwitz [7] and Clarke [5], leading to recommendations as to how scenarios of unhealthy conflict may be avoided in educative contexts. This paper builds upon existing knowledge around experiential learning and interdisciplinary pedagogy, and discusses future directions for further research

Keywords: *Interdisciplinary, conflict, pedagogy, design.*

1 Introduction

The nature of interdisciplinary collaboration in situated learning environments is complex. Complicated team dynamics are often discussed, however there are scarce publications which triangulate the viewpoints of both the student and facilitator of interdisciplinary projects. This paper explores three instances of conflict during an interdisciplinary project within an educative tertiary environment. The industry sponsored project was part of the curriculum within the Swinburne Design Factory at Swinburne University of Technology, Melbourne, Australia. We, the authors were involved with the project from both perspectives, firstly as a student participant and secondly an academic facilitator. We kept observational notes on team dynamics throughout the duration of the project. The triangulated viewpoints enable a robust exploration into team behaviours, and conflict arising amidst participant and facilitator interactions in the context of a situated learning approach. This paper proposes recommendations to foster positive conflict through a proactive and responsive interdisciplinary pedagogy.

Often the terms multidisciplinary, cross disciplinary, trans-disciplinary, interprofessional and interdisciplinary are used in this paper to describe similar ways of working. The term interdisciplinary throughout this work indicates a structure involving a number of individuals from different areas of expertise working jointly towards a common goal without allocating discipline specific tasks. The terms facilitator and participant are used to describe teacher and students alike so assimilation of findings to other contexts are easier to infer.

2 Literature

The relationships within educative interdisciplinary collaborations are complex entities [10]. Successful collaborations are frequently discussed [11], however incommensurate attention is paid to collaborations characterised by negative participant experiences. Rives-East & Lima advocate that in order to add to the existing knowledge concerning interdisciplinary education, the difficulties and frustrations associated with this pedagogy must be shared [11].

To provide a platform to encourage robust further discussion around interdisciplinary education, Clarke discusses five theoretical frameworks for approaching interdisciplinary collaboration in an educative context: (i) *cooperative, collaborative, or social learning*; (ii) *experiential learning*; (iii) *epistemology and ontology of interdisciplinary inquiry*; (iv) *cognitive and ethical student development*; and (v) *education of the reflective practitioner* [5]. In exploring these frameworks, Clarke highlights that learning is a continuous process grounded in experience, not an outcome [5]. Parallels can be drawn in Rousseau et al's discussion of team behaviours. Here it is identified that outputs are results and by-products of team activity, where team inputs are a transformation of collective behavioural, cognitive and affective phenomena existing in teams [12]. Both studies place emphasis on the importance of journey (experience or team activities), not the output, validating the relevance of learning approaches that aim to develop effective teamwork behaviours and practices through experience.

There are many different facets to teamwork behaviours, and can be classified in different ways. Rousseau et al provide a hierarchical breakdown in their integration of conceptual frameworks for teamwork behaviours. Behaviours fall into two main categories of '*regulation of team performance*' and '*management of team maintenance*' [12] which separate behaviours emerging in response to the teams working conditions from behaviours emerging from personalities. Horwitz provides a contemporaneous categorisation while investigating team diversity by defining traits as '*biodemographic attributes*', such as age and culture, or '*job-related attributes*', such as professional experience, domain knowledge and education [7].

These categorisations assist meaningful discussions around specific facets of team dynamics due to the extent of unique and contextually relative contributing factors. Howitz noted that if factors in team diversity are managed properly, team heterogeneity can create a significant operational synergy. Alternatively, mismanaged team diversity can become a major impediment to optimal functioning because of intragroup conflict, miscommunication, and lack of trust [7].

In interdisciplinary design, diverse disciplines attacking the same problem from different frames of reference can enhance innovative idea generation and increase shared knowledge [3]. Paradoxically, the same dispersion in background can generate apprehension [9] or engender a ‘*Babel Tower*’ phenomenon [2]. Students have experienced anxiety as a result of collaborative conflicts [1] and responded to these frustrations by directing animosity towards their team mates or blaming a lack of facilitator coordination known as ‘*scapegoating*’ [1]. Chan & Chen [4], Hirsch & Shwom [6], and Shibley [13] have considered student reflections in their publications, however there is lacuna in student led perspectives in multidisciplinary pedagogies. This paper attempts to build on the gap in literature concerning negative conflict in interdisciplinary pedagogy through exploring whether positive conflict can successfully taught through experiential learning approaches, by discussing instances of conflict from student and teacher perspectives.

3 Research Methods

The case study is an industry-engaged, interdisciplinary research project in which both authors took part. One author was a participating student who had the role of team manager. While the other a facilitating educator who maintained the role of research mentor. The study focuses on three instances of conflict, explored through the triangulation of participant and facilitator perspectives. We draw upon observational data collected throughout the project in the form of regular written accounts, reflecting upon the experiences and practices to identify catalysts and conditions for conflict.

4 Case Study

In 2013, a team of interdisciplinary students, collaborated on a brief provided by the Commonwealth Scientific and Industrial Research Organisation (CSIRO). This team was tasked with exploring new applications for recent advancements in biopolymer composite manufacturing technologies. The group was supported and assessed by a teaching team of academic staff from varying discipline backgrounds. The project spanned two academic semesters and this case study focuses on three instances of conflict during the second semester as illustrated in Figure 1.

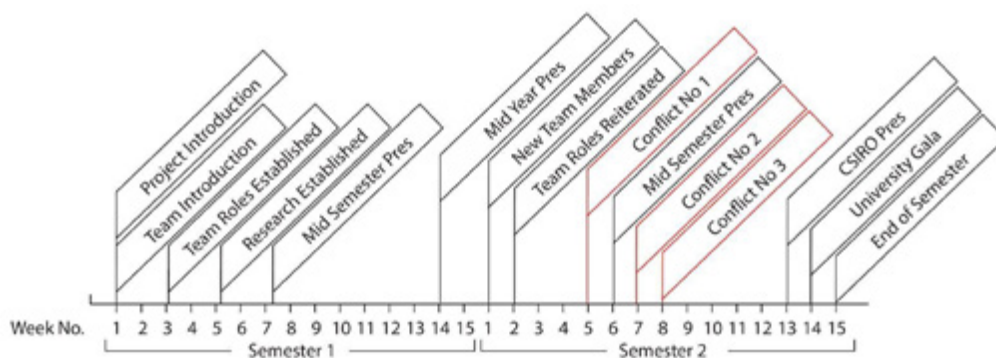


Figure 1 Project timeline and key events.

4.1 The learning environment

Swinburne Design Factory is an entity that exists within a university structure, simulating real-world interdisciplinary practices that support a culture for open, creative mind-sets. Pedagogy engages design-led innovation processes and draws upon a number of learning theories where students are immersed and play an active role in the classroom, including situated learning, experiential learning and problem-based learning. The physical space is configured to support a serendipitous model of innovation, encouraging social interaction and collaboration. Curriculum replicates time pressures and milestone deliverables of a professional environment by requiring students to assume responsibility and self-direction for real project briefs provided by external organisations and businesses. There is a blend of learning activities, including information lectures, exercises, dedicated group-work time and consultation. Students elect to apply and enrol in subjects to participate in these industry engaged projects, where they are assessed to gain credit points towards their degree. It is a challenging environment as the low hierarchy is often an unfamiliar pedagogy, filled with new discourse, heightened motivation to deliver for a real client, plus the expected challenges posed by teamwork.

4.2 Complexity within participant and facilitating teams

The following explores participant and facilitator teams dynamics using Horwitz's [7] classification regarding team diversity into biodemographic attributes and job related attributes, to describe team diversity in addition to describing general team dynamics.

4.2.1 The Participants

In semester two the team composition changed with four of the original members leaving for a variety of external commitments. Two new members joined the team making a group of six.

In terms of biodemographic attributes, the team members were male, in their 20's and shared an upbringing through the Australian education system. There was a heterogeneity in their motivations for studying, cultural heritage, interests, hobbies and personality traits, spanning introverted and extroverted tendencies. Four of the participants were aged between 20-21 and two participants were 28. The latter two shared a greater range of varied life experiences that had shaped higher levels of maturity, motivation, leadership and ability to deal with stress.

Professional attributes of the team ranged across four discipline domains, (i) industrial design, (ii) communication design, (iii) product design engineering, and (iv) interior design. Although varied, all had embedded familiarity with design process. Study levels of education ranged from third year bachelor to master students and differing levels of time dedication and general motivation were apparent. The whole team met regularly twice a week for approximately four hours each session, and additionally, two to four members would meet on an informal basis twice weekly.

Despite the project direction being ambiguous, the participant team as a whole was feeling confident embarking on the second semester. The team shared respect, trust, and friendship, and cultivated a unique humour-based project vernacular. The new team members quickly

assimilated into the group however naturally stronger bonds existing amongst the continuing team members.

4.2.2 The Facilitators

The facilitator team also evolved in semester two with the addition of two new members. An industrial design mentor who was new to the interdisciplinary pedagogy, but experienced in studio based teaching became the only male and youngest in the facilitating team. Simultaneously a digital media designer joined as an observer to learn about interdisciplinary pedagogy and provided an extra viewpoint.

The facilitators presented a broad spectrum of biodemographic attributes with ages ranging from 28 to 53, and various cultural heritages. Interpersonal approaches ranged from informal to formal displaying both introverted and extroverted tendencies.

The professional disciplines of the team varied across four domains, (i) design business management, (ii) business, (iii) digital media design, and two members sharing a discipline in (iv) industrial design. The design business management professional had the role of interdisciplinary coach, the second industrial designer held the role of research mentor and the business professional was a business mentor. Equally varied was the range of experience working as educators or for external organisations. Education experience ranged from one to eleven years, with some new to interdisciplinary pedagogy as described earlier. The members shared professional respect for each other and a common motivation to teach well, however allocated workloads permitted only a one hour weekly meeting together outside of class, whereby the business mentor was not able to attend. A symptom of this was that relationships did not have the time to develop in a similar way to the participant team, although a strong friendship already existed between the research mentor and interdisciplinary coach, who both shared greater familiarity with the project.

4.2.3 Participants and Facilitators as a pedagogical unit

When the eleven individuals came together to communicate, the biodemographic and professional attributes naturally broadened the discourse styles and created a more complicated dynamic between the two groups. The dynamic between participants and facilitators was also shaped by the facilitating team being in an advisory position concomitant to the participants. At the beginning of the semester the participant-facilitator dynamic was trustful and supportive, encouraging new ideas and cross-disciplinary integration.

4.3 First instance of conflict: Negative Experience

The first instance of conflict occurred between the participant team and facilitator team in a thirty minute class consultation during week five of semester two as shown in Figure 1. Both groups entered the meeting with vastly different expectations about what would be discussed. The facilitating team opened the weekly consultation by asking for an update on the project. The student team responded with developments since the previous week's consultation, and details on goals for the coming weeks, with the expectation that the whole facilitating team was familiar of the full history of the project. However the industrial design mentor was not

familiar with the research presented in the previous semester of the project and misinterpreted the answer as a representation of the trajectorial goals for the entire second semester and responded accordingly. Feedback delivered from the facilitating team conveyed an expectation that more work should have been done towards defining project direction validated by real-world constraints and opportunities.

The participants were shocked and confounded at how the consultation transpired, as they were expecting a balanced conversational meeting but encountered negative feedback unrelated to the recently articulated goals. Lack of clarity on each team's position led to a wholly negative experience for the participant team with responses including heightened levels of stress, anger, frustration, disempowerment, and feeling disrespected and unsupported by the facilitators. The participants withdrew from the classroom to debrief and the ensuing discussion focussed the team's animadversions toward the most verbal of the facilitating team and those with whom a lesser rapport was shared.

To the facilitators, it was clear that the team were defensive about the feedback, however at the time, the facilitation team did not realise the extent to which the participants were negatively impacted. It was not until the participant team removed themselves from the classroom to de-brief that this started to resonate. Later, given the existing rapport, the participants disclosed to the interdisciplinary coach their concerns and following this the facilitating team were able to agree upon an approach to adjust the nature of interactions and learning specific to the participant team.

Upon reflection, the catalyst for negative conflict can be traced to the opening of the consultation that did not clearly set expectations. However with other pressures building from the situated learning environment itself, in addition to external pressures and commitments, the trigger did not need to be great. The participant's self-directed debrief aided in maintaining unison within the team, and unpacking the conflict formed a clear position to communicate back to individual facilitators. The effectiveness of this debrief lay predominantly in the leadership and actions of the two more experienced and mature team members, who led the way in not taking the conflict personally. The levels of trust and respect the participant team held for the facilitating team in general were drastically diminished following the conflict and required a number of weeks to return to the positive normal.

4.4 Second Instance of Conflict: Neutral Experience

The consultation opened with the facilitating team acknowledging that conflict had occurred, and that expectations should be clarified at the outset. The consultation continued with equal dialogue, and a perspicacity for triggers of negative conflict, however residual tension from the previous week was present. After hearing a directional proposal from the participants, the industrial design mentor suggested alternative directions to help the participants find the best solution for the project. The research mentor and interdisciplinary coach interjected with an opposing view and identified that time would not permit directional changes at this point.

Amongst the participants there were feelings of relief for the interjection and some of the members felt that the scapegoating [1] from the previous conflict was somewhat justified. It was clear however, that the participants needed to present clearer research to justify their decisions.

From the facilitator's viewpoint, the acknowledgement of time constraints was well received and had a positive effect. It was clear there was still tension; however the participants were more confident and willing to engage with certain members of the facilitating team.

The realisation that the facilitating team will not put forward a united perspective 100% of the time resonated well with the participant team. So too did the acknowledgement that time schedules are a real issue. Through clear communication, responsivity to body language and deeper rationalisation of feedback maintained, the conflict in week six was a neutral experience amongst both teams.

4.5 Third Instance of Conflict: Positive Experience

In week eight the consultation focused around the deliverables for the project. The research mentor and interdisciplinary coach had a difference of opinions over what could be considered a successful outcome, and communicated these views to the participant team. Each rationalised their viewpoint and explicated that neither opinion was the superior. They advised the participants that if appropriate evidence was provided for their selected direction, then the outcome would be successful. The unifying factor being that if the participants could rationalise their decisions, it didn't matter what the nature of the prototype was.

The participants were initially confused by this juxtaposition of views but ultimately realised that a differing of perspectives was essential to collaborative work and that the way in which it is communicated will make it a positive or negative conflict. The participants could see that the two facilitators showed unity in their values while holding different opinions.

To the facilitators it appeared that the participant team had become comfortable with the engagement of conflict. Having had four weeks and many conversations passed since the first instance of conflict. Some students seemed a little surprised, but appeared to accept this quite quickly.

4.6 Collective conflict experience.

Interestingly the relationships within the participant team did not suffer drastically as a result of the first negative conflict nor the subsequent instances. The fluctuations between neutrality and positive dynamics coincide with levels of stress however the team was very supportive of its members. Rather than divide, bonded reaction to the conflict and made the industrial design mentor the focus of their frustrations, as described by Allen et al as '*scapegoating*' [1]

5 Discussion

The first conflict shows how unfamiliarity with situated, experiential learning, time constraints and the pressures associated with this pedagogy can impact relationships within a

collaborative project. Following this first conflict we saw that a proactive and reflective approach by the facilitators enabled successful relationship reparations. The conflicts show that experiential learning for interdisciplinary, industry engaged projects can create a high pressure environment in which conflict can be construed negatively. The biodemographic, professional and external variables which contribute to all collaborative relationships are too numerous to quantify, rendering a prescriptive pedagogy impossible. Educators must also become learners and reflective practitioners [5], in order to ensure that conflicts within interdisciplinary projects are positive engagements we propose recommendations for a responsive pedagogy.

5.1 Recommendations for interdisciplinary pedagogy

The cycles of conflict reveal a recognisable application of experiential learning from one conflict to the next progressing from negative to positive. Enabled by key individuals who processed the events instinctively leading to the enacting of Kolb's experiential learning theory [8] as seen in Figure 2, whereby the conflicts were experienced, reflected upon, cognized, and insights actualised in the subsequent conflicts.

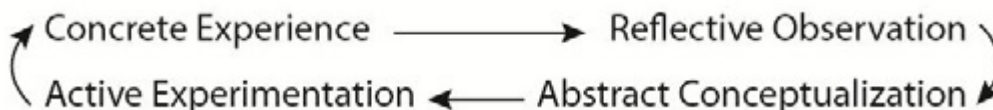


Figure 2 Kolb's experiential learning theory

Those individuals with an existing cross team rapport encouraged communication improvements and were proactive in avoiding triggers for future negative conflict. With this in mind consulting and mentoring teams should be observant to body language, intonation, and tendencies towards introversion or extroversion. Interactions should be tailored, iterative and continually evolving as a 'one-size-fits-all' approach is inappropriate in interdependent relationships. To do this, the facilitators should meet often to share reflections and interpretations in response to the project teams progress. Facilitators must be sensitive to potential influences upon participant behaviours such as sleep deprivation, extra curricular pressures, emotional maturity, and adaptability to learn new processes. Reiteration to remind the participants that they are operating within a different pedagogy, which is self driven, is helpful to maintain clear and transparent expectations [12]. Tools and exercises should be employed to develop empathy and reflective practice within team dynamics. Both the facilitators and participants need to take proactive roles in developing and actualising the environment however the facilitators must foster and remind the student participants of this responsibility.

5.2 Further Research

Despite the conflicts the pedagogical outcome was a successful collaboration by the facilitators and participants. The study of one project is not without its learning limitations and moving forward we propose further research to continue building knowledge in interdisciplinary pedagogy. Contrasting case studies and the interrogation of each case study

could be improved with extra participant and facilitator input through focus groups or interviews. The results of this study should be contrasted with a case study from future projects, positioned against first hand perspectives and neutral viewpoints. The pedagogy supporting conflict in interdisciplinary education can be enriched by evaluating data against social learning theories such as those presented by Clarke [5], Horwitz [7], and Rousseau et al [12].

6 Conclusion

Interdisciplinary collaborations are complex environments which yield complex relationships and encourage conflict by nature. The synthesis of opposite perspectives from both a participant and a facilitator triangulates some key insights for avoiding negative conflicts, building on knowledge around experiential learning for interdisciplinary pedagogy. No formulaic solution can prevent conflict but proactive attention can ensure the conflict is a positive engagement that enriches the educational experience.

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