Teaching reflection in service-learning: Disciplinary differences in conception and practice

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Faculty from diverse disciplines are involved in teaching service-learning where reflection is an essential component. This qualitative study explores disciplinary differences in understanding reflection and use of reflective pedagogy. We interviewed faculty (N=24) from 18 departments to examine differences in how they conceive and practice reflective pedagogy in service-learning courses. We found that *disciplinary differences* are a factor in how faculty conceive and practice reflection. Faculty from health & social care disciplines demonstrated an advantage compared to colleagues from other fields. Further, we found that *how faculty conceive reflection* is a factor in reflective practice. Conceptualizations of reflection which are more student-referent or learner-focused correlate with more intense and effective practice of reflective pedagogy.

Keywords: reflection, disciplinary differences, experiential pedagogy, service-learning, health & social care, business & humanities, applied sciences & engineering

Introduction

In theory and practice, reflection is a common pedagogical tool in some disciplines more than others (Kreber & Castleden, 2009; Van Beveren et al., 2018). Nonetheless, reflection is not the exclusive turf of only certain disciplines but has recognized benefits for any field in higher education (Moon, 2004; Harvey, 2016). Reflective practices are known to contribute to personal and cognitive development, enhance academic learning, and nurture graduate attributes or soft skills of young adults regardless of discipline (Chan & Lee, 2021; Lin, 2022; Rogers, 2001).

Among literature about reflection in higher education it is easy to find contributions from health and social sciences (e.g., Hébert, 2015; Thorpe, 2004). There are also multi-disciplinary studies which explore challenges, approaches, and benefits of

teaching reflection based on theoretical or quantitative research (e.g., Chan & Lee, 2021; Lin, 2022; Harvey, Coulson, & McMaugh, 2016; Kreber & Castleden, 2009; Rogers, 2011; Ryan, 2013). Qualitative studies which engage both hard and soft sciences are more scant yet necessary for more in-depth understanding of 'disciplinary differences (and) before quantitative analysis would be fruitful' (Mälkki & Lindblom-Ylänne, 2012, p.39). Closely examining how reflection is being taught in different disciplines can 'help promote (reflective) processes more widely through deliberately orchestrated interdisciplinary exchanges' (Kreber & Castleden, 2009, p.511). Chan & Lee (2021) note, besides, that reflection is seldom explored in disciplines such as engineering or business, and misconceptions about it persist in higher education. More empirical studies attending to details and differences in teaching reflection in heterogeneous disciplines are needed.

This paper is situated in this gap in literature. We use qualitative methods to explore disciplinary differences in teachers' conception and pedagogical practice of reflection in service-learning. The study is based on interviews with faculty (N=24) from 18 departments who teach service-learning courses in a public university in Hong Kong. Service-learning is an experiential pedagogy which typically integrates thick reflective practices with academic learning and community involvement (Sifers, 2012). Recognized as a high-impact practice (Finley & McConnell, 2022), it is now adopted in universities worldwide and engages many disciplines. University faculty who teach service-learning courses apart from discipline subjects can be said to have additional knowledge and experience of reflection as pedagogy through their service-learning involvement (Camus et al., 2022). This coupled with their awareness of reflective pedagogy in their respective disciplines make them a valuable resource for investigating reflection in higher education.

This study builds on a previous one about how service-learning faculty conceptualize reflection (Camus et al., 2021). Here we take a step further in investigating conceptions of reflection in light of *disciplinary differences* and *concrete practices*. How students learn to reflect in academic contexts importantly depends on how faculty conceive, design, and facilitate reflective activities in their courses (Chan & Lee, 2021; Lin, 2022; Rogers, 2001). By investigating conceptions and practices of reflection in varied disciplines, we hope to better understand different approaches to reflection with the rich descriptive details afforded by qualitative research, likewise to draw implications for incorporating more substantial reflective practices in more diverse disciplines through experiential pedagogies such as service-learning.

Literature review

Three research questions (RQ) guide the study. In the context of teaching service-learning courses,

> RQ1: How do faculty from different disciplines conceive reflection? Are there notable differences between them?

> RQ2: What reflective activities do faculty from different disciplines promote? Are there notable differences between them?

> RQ3: Is there a relationship between how faculty conceive reflection and their reflective pedagogical practices?

RQ1 attends to faculty's conscious understanding of reflection. RQ2 and RQ3 attend to how concepts of reflection are concretized in and relate to practice, both being indicators of the extent to which faculty beliefs about reflection materialize in reality. A review of literature about reflection in multi-disciplinary education research is called for, as well as a synopsis of reflection in service-learning.

Reflection in different disciplines

Biglan (1973) analysed academic disciplines according to subject matter and proposed a seminal classification of disciplines. Biglan's classification has repercussions in studies about reflection in higher education where soft sciences are often reported to employ more reflective pedagogy than hard sciences. For instance, Kolb (1981) found 'reflective observation' (i.e., observing and reflecting on experiences from multiple perspectives in a more internal mode of knowing) to be a dominant learning style in disciplines such as humanities and life sciences, as opposed to 'active experimentation' which dominates physical sciences and engineering. As Kolb explained, discerning dominant learning styles is useful 'for describing variations… to better understand and manage the educational process' (p.245). Also using Biglan's framework, Kreber & Castleden (2009) investigated reflective practices of academics from pure/soft and pure/hard disciplines and observed that although both groups reported using different types and levels of reflection, academics from soft sciences gave more indicators of concrete and higher levels of reflection.

Going beyond dichotomous distinctions, Rogers' (2001) comprehensive study of theoretical approaches to reflection in higher education found underlying commonalities, albeit lack of conceptual clarity. Rogers offers practical insights for designing and effectively engaging students in reflective activities. Echoing Rogers, a systematic review by Van Beveren et al. (2018) found that even in social and behavioural sciences where reflection is a pedagogical norm, reflection remains a 'conceptually and empirically complex' notion: 'different practices and forms of thinking are considered reflective and the teaching of reflection is attributed a broad diversity of educational values and purposes' (p.7).

A number of multi-disciplinary studies emphasize the importance of reflection in higher education as a whole. Reflection, whether as reflective practice or critical thinking, often finds its way into programme objectives and assessment requirements as well as graduate attributes and professional standards nourished across disciplines (Ryan & Ryan, 2013; Harvey, 2016). Calling for more inclusive and creative approaches to reflection to cater to diverse students and disciplines, Harvey et al. (2016) note that reflection is an indispensable element not only of service-learning but also of other types of experience-based learning. Practicums, internships, work integrated learning programs, etc., are common practices in different disciplines and all these require students to think about and learn from experience. Coulson & Harvey (2013) present a framework for scaffolding reflective activities in experience-based learning.

Recommending teachers to pay attention to different levels of reflection and to provide scaffolding for each level, Ryan (2013) lamented that 'learners are often not taught how to communicate disciplinary knowledge through reflection' (p.146). Bharuthram (2018) similarly observed that even students who understood reflection had difficulty translating their knowledge into practice when reflecting on discipline-related issues. Expressing concern over the 'rhetoric around the importance of reflection (but) scant literature on teaching reflective learning' (p.244), Ryan & Ryan (2013) offer a framework for teaching and assessing reflection.

Finally, two recent, multi-disciplinary systematic reviews merit special attention for their relation to the study. Chan & Lee (2021) summarize challenges of teaching reflection. Noting that university faculty are seldom 'trained as teachers but are researchers and scientists who… spend part of their time teaching', they conclude with the need for 'reflective literacy', i.e., mastering the purposes, processes, and approaches for implementing and assessing reflection in higher education (p.3, 13). Lin's (2022)

meta-analysis confirms that reflective interventions –i.e., means teachers employ to guide and structure student reflection– have positive effect on learning outcomes. Lin identified three moderating variables and their implications for designing reflective activities, i.e., (1) *intervention duration* (long-term reflection is more effective than short, one-off activities); (2) *peer interaction* (social exchange –e.g., through feedback, dialogue or debriefing with peers, instructors, or mentors– magnifies the effect of reflection compared to when reflection is limited to solitary introspection); and, 3) *reflective activities* (using diverse formats –e.g., writing, case studies, role plays, simulation, videos, blogs, etc.– is more productive than 'rigidly adhering to one format', p.135).

Reflection, an essential component of service-learning

As a civic pedagogy engaging diverse disciplines, service-learning helps undergraduates link academic learning with community needs through organized service (Jacoby, 2015). Reflection is essential in service-learning since it is by reflecting about social issues and service experience in the community that students consolidate and deepen their learning (Sifers, 2012). Reflection thus 'bridges the gap between service and learning' (Hatcher & Bringle, 1997) and ushers students towards transformative levels of thinking as they consider areas for self-improvement and how they can contribute to change-making (Eyler & Giles, 1999). Mere reflection, however, does not guarantee deep and consequential learning. Eyler et al. (1996) recommend designing reflection in service-learning courses to be *continuous* (i.e., done at critical junctures of the service experience), *connected* to academic learning, *challenging* in raising critical questions, and *contextualized,* that is, appropriate to the learning setting.

Reflection also serves practical purposes. Formal reflective activities intentionally designed by teachers such as essays are useful for documenting and

assessing student learning (Ash & Clayton, 2004). Other formal reflective activities such as group debriefings and personal diaries can help students process dissonances and strong emotions that arise from immersing in underserved communities (Bamber, 2016; Kiely, 2005). Noting the predominance of reflective writing, several authors call for variety in reflective activities to give students alternative modes of expression, e.g., oral presentations, portfolios, logbooks, videos, and other artistic media (Eyler et al., 1996; Chan, 2012).

Service-learning pedagogy thus calls for 'thick' reflective practice aiming as it does for reflection to be varied, frequent and, above all, deep or transformative. In Camus et al. (2021), we analysed how service-learning faculty from different disciplines conceptualize reflection and argued that 'student reflection (is) contingent on how faculty conceive reflection (since) how faculty conceive reflection affects how they structure and implement reflective activities' (p.286).

In light of the literature on reflection in service-learning and higher education, we wanted to possible examine differences in how service-learning faculty from different disciplines *conceive* and *practice* reflection as pedagogical tool. Likewise, we wanted to investigate whether more sophisticated, learner-centred conceptions of reflection would correlate to more effective reflective practices.

The Research

Context

This research takes place in a large applied research university in Hong Kong where service-learning was institutionalized in 2012, at the same time becoming a mandatory, academic credit-bearing requirement of the undergraduate curriculum across disciplines. To fulfil the requirement, students complete a service-learning subject of their choice,

whether a discipline-specific service-learning subject offered by their department or a general education service-learning subject offered by other departments to non-majors. Faculty involved in teaching service-learning subjects from the different departments were interviewed in 2017, that is, 5 years after service-learning was institutionalized. When institutionalized in 2012, service-learning was relatively new in Hong Kong and none of the teachers had previous experience of academic service-learning. How reflection became embedded in the university's service-learning requirement is an important background of the study. The process is briefly explained here to give an idea of the shared starting point of interviewed faculty as far as teaching reflection in service-learning.

Institutionalizing service-learning meant, among other things, establishing an office and systems to develop, support the implementation of, and assess service-learning subjects, likewise to train service-learning faculty from different departments through teacher development courses and seminars. Measures to ensure the quality of service-learning subjects included issuing guidelines and procedures for service-learning subjects, forming a community of practice, and providing teacher resources such as toolkits, handbooks, and e-learning modules about service-learning pedagogy. In all these, reflection was emphasized as an essential element together with service work. Besides encouraging diverse and frequent forms of reflective activities, reflection is also a stipulated formal assessment component of service-learning subjects. The chief, prescribed form of reflective assessment is written reflection (i.e., essays), but teachers may combine this with other forms of reflection (e.g., presentations, reports) to assess service-learning courses.

Participants and data collection

The study was approved by the university's Human Subjects Ethics Sub-committee

(Ref. no. HSEARS20201110007). The target participants of the study are faculty from the host university who had taught service-learning courses at least twice. We aimed to interview 20 to 30 faculty members, which is the recommended range of number of participants for a qualitative study like ours (Creswell, 2013; Marshall et al., 2013). We used a purposive sampling design as follows. First, we classified departments in the university under three broad discipline areas: applied sciences & engineering (ASE), business & humanities (BH), and health & social care professions (HSC). We identified potential participants from these departments then invited for interview a more or less equal number of participants from each of the three broad disciplines, likewise an even number of participants between those with 3 or more years of experience teaching service-learning and those with less than 3 years' experience. Invitations to attend face-to-face, semi-structured individual interviews were sent by e-mail and followed up twice by email or phone. Table 1 shows the distribution of participants according to discipline and service-learning experience.

Table 1. Distribution of Faculty (N=24*)

		Disciplines		
		Applied sciences & engineering	Health & social care professions	Business & humanities
Departments		Applied Biology & Chemical Technology; Applied Physics; Biomedical Engr.; Building Services Engr.; Civil & Environmental Engr.; Land Surveying & Geo-Informatics; Industrial & Systems Engr.; Mechanical Engr.	Applied Social Sciences; Nursing; Optometry; Rehabilitation Sciences	Chinese & Bi-lingual Studies; Chinese Culture; English Learning Centre; Textiles & Clothing; Management & Marketing; Hospitality & Tourism Management
Service-learning experience	3 years or less	4	4	4
	Over 3 years	4	4	4

*13 women; 11 men.

Participants gave consent to record the interviews for research. Each interview lasted for approximately 1 hour and was conducted in the local tongue (Cantonese) to facilitate free expression. Audio recordings were transcribed into Chinese then translated into English. All the researchers involved in the study are Chinese-English bilinguals. Hence, whenever doubts arose about the English translations of key statements, we had no difficulty checking the Chinese audio records and transcripts to verify the original meaning. During interviews, participants were asked about their service-learning subjects and experiences in teaching these. Open-ended questions were used and follow up questions made for participants to elaborate or clarify their statements. Interview questions relevant to the study are listed in Table 2.

Table 2. Interview Questions about Reflection

1. (In the context of education) What do you understand by reflection?
2. What is the significance of reflection in your service-learning subject/s?
3. What reflective activities do you have in your service-learning subject/s, and how do you facilitate student reflection through these?
4. Service-learning aside, do you also use reflection in teaching discipline subjects?

Note that the last question in Table 2 inquires into participants' experience of reflective pedagogy in their own disciplines outside of teaching service-learning. Including this question in the interview provided us with background information to understand and interpret the results of the study. Participants' replies to this question together with explanations or examples they supplied are summarized in the Appendix.

Procedure

Reflexivity, an important element of qualitative research, refers to researchers' consciousness of the 'biases, values, and experiences' they bring into data interpretation and writing (Creswell, 2013, p.214-216). The five researchers behind the study are affiliated with the host university's service-learning office: three are academic staff who were heavily involved in the institutionalization of service-learning and the other two are research staff. All five are practitioners of traditional service-learning and believe as a consequence of their experience that well-designed academic service-learning courses with opportunities for authentic reflection can magnify the learning and personal development of students from any discipline. Our service-learning experience also make us aware of the benefits and challenges of teaching reflection. The five of us were trained in very different disciplines, doing this research together made us aware of differences and biases in our fields concerning reflective pedagogy. Having multiple, academically diverse researchers involved in the study enabled us to analyse data from the perspective of different disciplines and to handle discipline biases through open discussion and consensus.

As mentioned, this research builds on an earlier study where we analysed data from the first two interview questions using grounded theory approach, resulting in a four-fold framework of how participants conceptualize reflection.[1] Qualitative data analysis in this study follows procedures described in Merriam 2009. Initially, the primary researchers immersed in the data by going through all interview records to get a sense of the whole and jot down seemingly important information and initial thoughts

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[1] We refer readers to Camus et al. (2021) for details about the research process and findings of our earlier study.

(Merriam 2009, p.170). Sections of interview transcripts which contained potential answers to the research questions were subject to conceptual content analysis to identify themes and determine the presence and frequency of certain terms. To manage participant data and facilitate comparison, significant statements from interview transcripts were extracted or summarized in a spreadsheet. This master file was then coded in an open and iterative manner: all examples of reflective activities mentioned in the interviews were gathered and sorted, interpreted and merged to establish categories of reflective activities, i.e., formal and informal types, assessed and non-assessed types. We set these as provisional categories when saturation was reached and they seemed to capture the data (Merriam 2009, pp.178-185). To check inter-rater reliability, a member of the research team initially not involved in the project re-coded the original interview records using but without strictly adhering to the provisional categories of reflective activities. Concurrences in the two rounds of coding confirmed the provisional categories which we subsequently adopted as permanent categories. On the other hand, there were minor differences in the level of concrete examples or frequency of reflective activities. As we found out, these discrepancies were due to ambiguous or alternative expressions used by interviewees, for instance, expressions such as discussing "feedback" with students or having "conversations" with them. We reverted to the records for more context or data to clarify differences.

To answer the research questions, we analysed the data by categorizing participants according to their conceptions of reflection following the four-fold framework proposed in our previous study. We then did three rounds of tabulation. First, we tabulated participants' conception of reflection against their disciplinary background to reveal the relationship, if any, between the two (RQ1). We followed the same process to examine participants' reflective pedagogies against their disciplinary

background (RQ2), then to examine participants' reflective pedagogies against their conception of reflection (RQ3).

Regular meetings were held to discuss findings, resolve discrepancies, and reach agreements. These research meetings gave occasion to reflect on how reflective pedagogy is perceived and practiced by faculty from different disciplines.

Results

Concepts of reflection and disciplinary backgrounds

The earlier study led us to map faculty views of reflection using a framework with four conceptual domains, namely, reflection as *transformative learning*, as *mindful practice*, as *evaluation exercise*, and as *articulated thinking* (Camus et al., 2021). The first two domains –transformative learning and mindful practice– are student-referent conceptualizations which emphasize its importance in the learning process. The two conceptualizations differ from each other in the content or themes of reflective activities as described by participants in these domains: participants in the 'transformative learning' domain tended to tackle human themes (e.g., personal realizations, awareness of social issues), while those in 'mindful practice' domain focused on tasks (e.g., individual/group performance, project implementation). The other two domains emphasize reflection's utility for teachers to assess the course or program ('evaluation exercise') or student learning ('articulated thinking'). Figure 1 is the result of the earlier study, which we present here in a Venn diagram revealing participants' disciplinary backgrounds.

Figure 1. How Faculty from Different Disciplines Conceive Reflection (*N*=24)
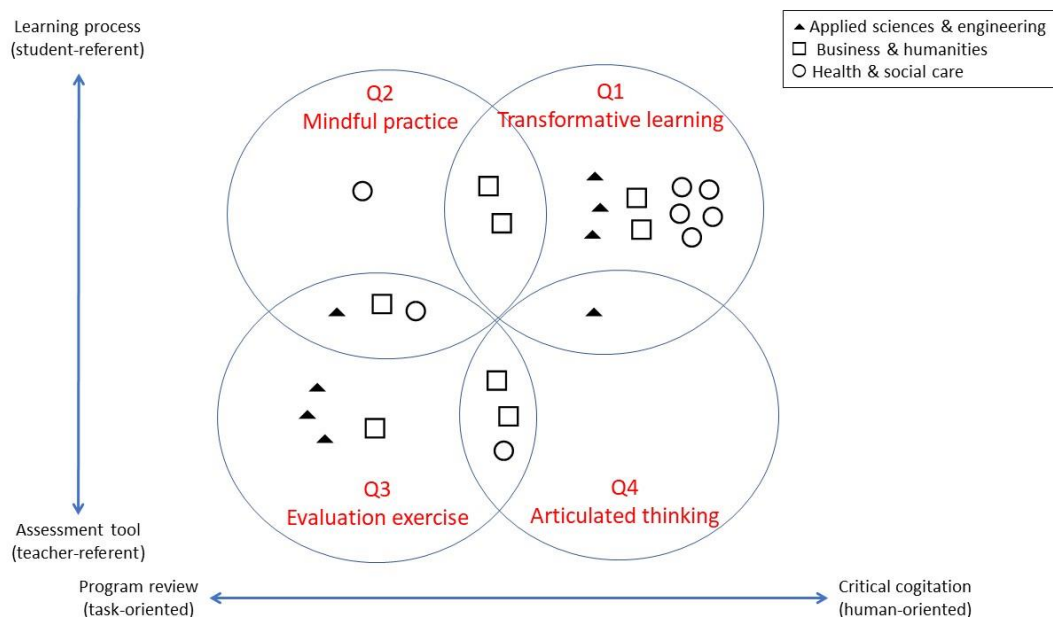
Note. ASE, 8 participants; BH, 8 participants; HSC, 8 participants.

The most populated quadrants are Q1 and Q3 which represent contrasting conceptions of reflection. Among ASE faculty, 6 out of 8 are evenly split between these two quadrants. BH faculty are also split between these two quadrants but tend to place in overlapping domains, implying that 5 out of 8 BH faculty have mixed or emerging conceptions of reflection. For HSC faculty, 5 neatly place in Q1, and 1 each in Q2, Q2/3, and Q3/4.

In answer to RQ1, service-learning faculty from different disciplines expressed different views about reflection which matched or approximated the four conceptual domains of reflection proposed in our previous study, i.e., transformative learning, mindful practice, evaluation exercise, and articulated thinking (Camus et al., 2021). These varying conceptions together with mixed views that emerged echo the lack of clarity about the concept of reflection and its purposes in higher education (Rogers, 2001; Van Beveren et al., 2018). Most HSC faculty place in Q1, indicating a tendency to view reflection in a way that emphasizes students and their learning.

Reflective pedagogical practices in service-learning

Participants reported adopting different types of reflective activities in their service-learning courses. Categories of reflective pedagogies derived inductively from content analysis of interview records consisted in formal (planned/scheduled) and informal (spontaneous) types of reflective activities. Some formal reflective activities were graded, such as essays or journals and multi-modal presentations using oral reports, photographs, or videos. Formal, non-graded reflective activities make up a significant portion of the results, and these included: field or experience debriefings (i.e., group gatherings about recent experience usually held on-site); classroom-embedded reflection (i.e., integrated in class lectures, tutorials, or workshops); group or project consultations (i.e., individual or team appointments with instructors outside class to discuss projects or experiences); and, finally, written entries or exercises in the form of diaries, logbooks, or worksheets. Several participants considered informal exchanges with students (e.g., messages, conversations, feedback) as reflective activities. Figure 2 summarizes the types and frequency of reflective pedagogies reported by participants. As mentioned, we tabulated these against their disciplinary backgrounds to examine any relationship between the two.

Figure 2. Types & Frequency of Reflective Activities in Service-Learning Courses

	Formal (planned/scheduled)						Informal (casual/spontaneous)
	Assessed		Not assessed				
	Essay e.g., reflective journals, reports, or assignments	Multimodal Presentation e.g., oral, video, photography	Field/ experience debriefing group gatherings about recent experience, usually on site	Classroom-embedded reflection occur during regular class instruction (lectures, tutorials, workshops)	Consultation sessions or appointments with instructors to discuss & seek advice about project details	Written entries & exercises e.g., diaries, logbooks, worksheets	Instructor-student communications e.g., messages, conversations, feedback
ASE1	2		regularly				regularly
ASE2	2		1			regularly	
ASE3	1		regularly			regularly	
ASE4	1	1	4				
ASE5	2		regularly				
ASE6	2	1	regularly				
ASE7	1	1					
ASE8	3		1		✓		
BH1	1		regularly			regularly	
BH2	1	1				regularly	regularly
BH3	2		regularly				
BH4	2	2	regularly	1			
BH5	1						
BH6	2						
BH7	1						regularly
BH8	1	1	2 - 3			regularly	
HSC1	1	2		1			regularly
HSC2	1	1	regularly	1			
HSC3	3	1	regularly	2		regularly	
HSC4	1	1	regularly	2	✓	regularly	
HSC5	1	1	regularly	regularly		regularly	
HSC6	3	1	regularly	2	✓	regularly	regularly
HSC7	2		regularly			regularly	regularly
HSC8	2		regularly	regularly			regularly

Note. Numbers represent the occurrence of reflective activities in one course offering. 'Regularly' signifies occurrences of 5 or more times, while '✓' indicates that the activity took place with unspecified frequency.

The first two columns are reflective activities which serve assessment purposes. Use of reflective essays by all participants is likely due to institutional guidelines about assessing service-learning courses in the host university explained earlier. On the other side of the spectrum are casual or spontaneous communications. These are valuable teacher-student interaction but tend to be short, sporadic and not involve deep reflection. Bearing in mind that 'reflection is most likely to be facilitated with the use of

deliberate and planned activities' (Rogers, 2001, p. 47), the middle columns of Figure 2 merit special attention. As planned/scheduled reflective activities which were not necessary for assessment, their occurrence and design are more directly intended and determined by faculty. Field/experience debriefing followed by written exercises are the most common reflective activities of this type, and both were practiced regularly by many participants.

In answer to RQ2, interviewed faculty promoted a variety of reflective activities in their service-learning courses. These included assessed and non-assessed, formal and informal types. Reflective essay was used by all to assess students. Field/experience debriefing was the most popular, unassessed type of reflective activity and was practiced regularly by more than half of participants, that is, 14 out of 24. Zeroing in on whether there are notable differences in reflective practices, ASE and BH faculty were roughly similar in use of reflective pedagogies: within each group, most regularly employed at least one type of unassessed reflective activity, and only two seldom or did not employ any unassessed reflection. Compared to both groups, HSC faculty reported more frequency and variety in reflective activities: most (6 out of 8) combined reflective essays with multimodal presentations to grade students, thus skirting 'over reliance on written reflection' (Coulson & Harvey, 2013, p.407); likewise, most (6 out of 8) employed at least two types of unassessed reflection regularly. Class-embedded reflection was also common among HSC faculty (7 out of 8).

Relating faculty conception with pedagogical practice

The data was further analysed by juxtaposing the results from concept and practice. Given the limited number of participants and to better examine any relationship between concept and practice, we divided participants into two large groups: those in

upper quadrants Q1 and Q2 who emphasized learning and student-referent views of reflection, versus those in lower quadrants Q3 and Q4 who expressed more teacher-referent, instrumental views of reflection (cf. Figure 1). It was necessary to exclude four participants who placed in overlapping upper and lower regions. Figure 3 tabulates faculty conception of reflection alongside concrete reflective practices.

Figure 3. Faculty Conception of Reflection and Reflective Activities (*N*=20)

| | | Formal (planned/scheduled) | | | | | | Informal (casual/spontaneous) |
| | | Assessed | | Not assessed | | | | |
		Essay e.g., reflective journals, reports, or assignments	Multimodal Presentation e.g., oral, video, photography	Field/ experience debriefing group gather-ings about recent experience, usually on site	Classroom-embedded reflection occur during regular class instruction (lectures, tutorials, workshops)	Consultation sessions or appointments with instructors to discuss & seek advice about project details	Written entries & exercises e.g., diaries, logbooks, worksheets	Instructor-student communications e.g., messages, conversations, feedback
Q1 – Q2	ASE1	2		regularly				regularly
	ASE5	2		regularly				
	ASE6	2	1	regularly				
	BH1	1		regularly			regularly	
	BH3	2		regularly				
	BH4	2	2	regularly	1			
	BH8	1	1	2 - 3			regularly	
	HSC2	1	1	regularly	1			
	HSC4	1	1	regularly	2	✓	regularly	
	HSC5	1	1	regularly	regularly		regularly	
	HSC6	3	1	regularly	2	✓	regularly	regularly
	HSC7	2		regularly			regularly	regularly
	HSC8	2		regularly	regularly			regularly
Q3 – Q4	ASE2	2		1			regularly	
	ASE7	1	1					
	ASE8	3		1		✓		
	BH5	1						
	BH6	2						
	BH7	1						regularly
	HSC1	1	2		1			regularly

Note. Excluded participants: ASE3, ASE4, BH2, HSC3.

A clear pattern emerging from Figure 3 is that participants in the upper quadrants had more regular recourse to non-graded reflective activities: all 13 used at

least one type of informal reflection regularly, and many (7 out of 13) held two or more types of non-graded reflection regularly. In contrast, most participants (5 out of 8) in the lower quadrants Q3-Q4 did not promote any reflective activity regularly. Interestingly, the three from this group who did report having some form of regular reflection referred to activities which either did not involve person-to-person interaction (i.e., written entries/exercises) or consisted in casual exchanges.

In reply to RQ3, Figure 3 suggests a relationship between how faculty conceive reflection and their reflective practices. Q1 and Q2 represent more learner-centred, sophisticated views of reflection and participants in these upper quadrants promoted more varied and regular reflective activities. This indicates that more student-referent conception of reflection that emphasises reflection as learning is associated with more intense reflective pedagogical practice. In contrast, faculty who primarily conceived reflection as assessment tool (Q3-Q4) had very limited non-graded reflective activities in their service-learning courses, suggesting that teacher-referent conception of reflection correlates with a tendency to not promote more reflection than needed to fulfil assessment tasks.

Discussion

To recap, the key findings of the study are:

(1) HSC faculty tend to demonstrate a more transformative conception of reflection, whereas ASE and BH faculty tend to have more diverse views;

(2) HSC faculty tend to adopt more intense and varied reflective activities in their service-learning courses;

(3) There seems to be a link between conception and practice: more learning and student-referent conception tends to be associated with more intense and varied use of reflective activities.

These patterns suggest that there are *disciplinary differences* in how faculty conceive and practice reflection (cf. Harvey et al., 2016; Kolb, 1981), but it was specifically among health and social fields where a notable difference could be observed. The matter corroborates the view that reflection is perceived more highly in professional programs than academic programs (Lin, 2022, p. 121).

Kreber and Castleden (2009) concluded that epistemological structures in different disciplines partly account for differences in reflective practice whilst cautiously noting that 'there are likely many other reflective processes…and generalizations in the form of "academics in the humanities and soft sciences appear to be more reflective teachers than their colleagues in the sciences" are not justified' (p.528). We agree that there are likely to be more ways of conceptualizing and practicing reflective pedagogy than identified in this study, and that generalizations about disciplines are unhelpful. We cannot ascertain from this study whether epistemological structures underlying disciplines account for differences in reflective practice. Instead, we attribute HSC faculty's apparent advantage in teaching reflection to the robust use of reflective pedagogy in their discipline. As HSC faculty explained, reflective practice is a prominent notion and integral part of training in their professions (see Appendix), and they naturally brought their familiarity with thick reflective practices to service-learning courses they taught.

Apart from disciplinary differences, *how faculty conceive reflection* also appears to be a factor to reflective practices adopted in teaching. As seen, participants with instrumental or teacher-referent views of reflection had limited non-graded reflective activities compared to those with more student-referent views of reflection. The latter had more frequent recourse to one or more types of reflective pedagogy, especially non-graded ones such as group debriefings, written exercises, and classroom-embedded

reflection. This indicates a correlation between concept and practice: faculty with more learner-focused views tend to build more reflective opportunities for students, going beyond what is strictly necessary for assessment purposes. Given that reflection has a positive effect on learning outcomes across disciplines particularly when reflective interventions are interactive, sustained, and diverse (Lin 2022), the reflective practices of participants who conceive reflection as transformative learning (Q1) and/or mindful practice (Q2) can be said to be effective.

Implications

The study has several practical implications for service-learning which may well apply to other, widely practiced experiential pedagogies in higher education to the extent that these too involve experiences which are material for student reflection. Literature time and again reminds us that reflective pedagogy is more common in some disciplines than others so that faculty from different disciplines are likely to have different degrees of familiarity with teaching reflection (Chan & Lee, 2021; Kolb, 1981; Kreber & Castleden, 2009; Lin, 2022; Van Beveren et al., 2018). One implication of the study is that faculty charged with experiential pedagogies –especially those from disciplines where reflective pedagogy is less common– may need to put more into acquiring reflective literacy. As Chan & Lee (2021) point out, 'reflections are more valuable to students when their instructors are able to guide them… (and) teachers may not possess the knowledge and skills necessary for facilitating effective reflective practice' (p.10). Related to this, Lin (2022) found that the positive effects of reflective interventions on learning outcomes across disciplines are magnified when teachers know how to make their reflective interventions interactive, sustained, and diverse. Being able to design effective reflective activities that optimise outcome for students requires reflective literacy.

Another implication of the study is to tap colleagues from health and social professional disciplines to share experiences and good practices in teaching reflection, not only for experiential or practical learning but also for embedding reflection in class instruction and course design. As Kreber & Castleden (2009) explain, discovering how different disciplines engage in reflective processes can lead to interdisciplinary exchanges that can enable educational developers 'to target and promote these processes where they do not tend to arise naturally…to capitalize on them where they do appear to arise naturally…and to promote (them) more widely' in different fields (p.511).

Reflective literacy –i.e., refining one's understanding of reflection and designing effective reflective activities– needs training. A third implication of the study seconds the faculty development approach to service-learning articulated by Zlotkowski (1998): service-learning 'challenges faculty with its complexity relative to traditional classroom practice' (p.81), among other things by introducing faculty to reflection as strategy for pedagogy and values development. Teaching service-learning offers faculty opportunities to develop and practice reflective pedagogy. Kolb (1981) warned about an 'accentuation effect' in higher education where processes of socialization and specialization within disciplines lead over time to buttressing learning styles that are dominant whilst diminishing non-dominant ones. Service-learning could contribute to the integrative development of teachers by reinforcing reflective learning styles in disciplines where these tend to be neglected.

Rogers (2001) wrote that 'perhaps no other concept offers higher education as much potential for engendering lasting and effective change in students as reflection…the teaching community (thus) needs to clarify the concept of reflection' (p.55). We saw that how reflection is conceived has bearing on how reflection is practiced. A final implication of the study is the need for faculty to reflect on their

knowledge and practice, purposes and skills for reflective pedagogy. This, we believe, is the first step towards improving reflective literacy. It can lead to more transformative conceptualization of reflection and more effective reflective practice.

Conclusion

Service-learning faculty from different disciplines conceptualize reflection in different, sometimes ambiguous ways. Disciplinary background is a factor in how reflection is conceived and practiced, specifically for faculty from fields which ordinarily employ reflective pedagogy in their curriculum. Disciplinary differences aside, how faculty conceptualize reflection is itself a factor behind actual reflective pedagogical practice, and student-referent conceptualizations correlate positively with reflective practice.

The sample size of the study is small and from a single institution. Such limitations makes our investigation exploratory and the findings tentative. A similar study with larger sample size involving more types of disciplines (e.g., pure sciences, traditional humanities, and arts not represented in this study), institutions, and countries would help confirm or revise our claims.

In any case, the study contributes to multidisciplinary research on teaching reflection in higher education by corroborating and supplying qualitative data for the thesis that disciplinary differences and concept of reflection influence practice. Moreover, it identifies ways of conceptualizing reflection which are more conducive to regular and effective reflective practice.

In this study, we focused on teaching reflection in a widely practiced experiential pedagogy in higher education, service-learning. In fact, there is need to reinforce reflective pedagogy not only in experiential pedagogies (which tend to be cocurricular, including service-learning in many institutions) but also in the very curriculum of higher education. Capacity for reflection is closely associated with highly

valued undergraduate 'mindset outcomes' such as critical thinking, ethical reasoning and reflective practice, but 'their development is largely relegated to the cocurriculum' (Finley & McConnell, 2022). Bharuthram (2018) expressed the conviction that 'teaching reflection should extend beyond professions…where practice and theory are inextricably connected, and be embedded as an integral component in all university courses' (p.807), and Lin (2022) similarly encourages teachers 'to promote a reflective culture in classrooms and incorporate reflection into curricula, such that reflective practice could sustain and flourish' (p.138). Making service-learning part of the undergraduate curriculum would introduce more faculty and students to thick reflective practice.

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References

Ash, S.L., & Clayton, P.H.(2004). The articulated learning: An approach to guided reflection and assessment. *Innovative Higher Education, 29*,137–154. https://doi.org/10.1023/B:IHIE.0000048795.84634.4a

Bamber, P.(2016). *Transformative education through international service-learning*. London: Routledge.

Bharuthram, S.(2018). Reflecting on the process of teaching reflection in higher education. *Reflective Practice, 19*(6),806-817. https://doi.org/10.1080/14623943.2018.1539655

Biglan, A. (1973). Relationships between subject matter characteristics and the structure and output of university departments. *Journal of Applied Psychology, 57*(3),204–213. https://doi.org/10.1037/h0034699

Camus, R.M., Ngai, G., Kwan, K.P., & Chan, S. (2022). Transforming Teaching: Service-Learning's Impact on Faculty. *Journal of Higher Education Outreach and Engagement 26*(2), 47-63. https://openjournals.libs.uga.edu/jheoe/article/view/2770/2751

Camus, R.M., Ngai, G., Kwan, K.P., Yau, H.Y., & Chan, S. (2021). Knowing where we Stand: Mapping Teachers' Conception of Reflection in Service-Learning. *Innovative Higher Education, 46*, 285–302. https://doi.org/10.1007/s10755-020-09534-6

Chan, C.K.(2012). Assessment for community service types of experiential learning in the engineering discipline. *European Journal of Engineering Education, 37*(1),29-28. https://doi.org/10.1080/03043797.2011.644763

Chan, K.Y., & Lee, K.W.(2021). Reflection literacy: A multilevel perspective on the challenges of using reflections in higher education through a comprehensive literature review. *Educational Research Review, 32*. https://doi.org/10.1016/j.edurev.2020.100376

Coulson, D., & Harvey. M.(2013). Scaffolding student reflection for experience-based learning: a framework. *Teaching in Higher Education, 18*(4),401-413, https://doi.org/10.1080/13562517.2012.752726

Creswell, J.W.(2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Sage.

Eyler, J., & Giles, D.E.(1999). *Where's the learning in service-learning?* San Francisco: Jossey-Bass.

Eyler, J., Giles, D.E., & Schmiede, A.(1996). *A practitioner's guide to reflection in service-learning*. Tennessee: Vanderbilt University.

Finley, A. & McConnell, K.D.(2022). *On the same page? Administrator and faculty views on what shapes college learning and student success*. AAC&U. Retrieved on April 24, 2022, https://www.aacu.org/research/on-the-same-page

Jacoby, B.(2015). *Service-Learning Essentials.* San Francisco: Jossey-Bass.

Kolb, D.A.(1981). Learning styles and disciplinary differences, in: A.W. Chickering (Ed.) *The Modern American College* (pp. 232–255). San Francisco: Jossey-Bass.

Kiely, R.(2005). A transformative learning model for service-learning: A longitudinal case study. *Michigan Journal of Community Service Learning 12*,5-22.

Lin, G.(2022). How should reflection be supported in higher education? A meta-analysis of reflection interventions. *Reflective Practice, 23*(1),118-146. https://doi.org/10.1080/14623943.2021.1995856

Marshall, B., Cardon, P., Poddar, A., & Fontenot, R.(2013) Does Sample Size Matter in Qualitative Research? A Review of Qualitative Interviews in IS Research. *Journal of Computer Information Systems*, *54*(1), 11-22. https://doi.org/ 10.1080/08874417.2013.11645667

Moon, J.A. (2004). *A handbook of reflective and experiential learning : theory and practice*. Routledge Falmer.

Merriam, S.B.(2009). *Qualitative research: A guide to design and implementation*. San Francisco: Jossey-Bass.

Harvey, M.(2016). Reflection for learning in higher education. *Journal of University Teaching & Learning Practice, 13*(2). https://doi.org/10.53761/1.13.2.1

Harvey, M., Coulson, D., & McMaugh, A.(2016). Towards a theory of the Ecology of Reflection: Reflective practice for experiential learning in higher education. *Journal of University Teaching & Learning Practice, 13*(2). https://doi.org/10.53761/1.13.2.2

Hatcher, J.A. & Bringle, R.G.(1997). Reflection: Bridging the gap between service and learning. *College Teaching, 45*(4), 153-158. https://doi.org/10.1080/87567559709596221

Hébert, C.(2015). Knowing and/or experiencing: a critical examination of the reflective models of John Dewey and Donald Schön. *Reflective Practice, 16*(3), 361-371. https://doi.org/10.1080/14623943.2015.1023281

Kreber, C. & Castleden, H.(2009). Reflection on teaching and epistemological structure: Reflective and critically reflective processes in "pure/soft" and "pure/hard" fields. *Higher Education*, *57*(4), 509–531. http://www.jstor.org/stable/40269139

Mälkki, K. & Lindblom-Ylänne, S.(2012). From reflection to action? Barriers and bridges between higher education teachers' thoughts and actions. *Studies in Higher Education, 37*(1),33-50. https://doi.org/10.1080/03075079.2010.492500

Moon, J.A.(2004). *A handbook of reflective and experiential learning: Theory and practice*. London: Routledge Falmer.

Rogers, R.R.(2001). Reflection in higher education: A concept analysis. *Innovative Higher Education, 26*,37–57. https://doi.org/10.1023/A:1010986404527

Ryan. M.(2013). The pedagogical balancing act: teaching reflection in higher education, *Teaching in Higher Education, 18*(2), 144-155. https://doi.org/10.1080/13562517.2012.694104

Ryan. M., & Ryan, M.(2013). Theorising a model for teaching and assessing reflective learning in higher education. *Higher Education Research & Development, 32*(2), 244-257. https://doi.org/10.1080/07294360.2012.661704

Sifers, S.K.(2012). Reflecting on teaching through reflective service-learning: a pedagogical journey. *Reflective Practice, 13*(5), 651-661. https://doi.org/10.1080/14623943.2012.697887

Thorpe, K.(2004). Reflective learning journals: From concept to practice. *Reflective Practice*, *5*,328-343. http://dx.doi.org/10.1080/1462394042000270655

Van Beveren, L., Roets, G., Buysse, A., & Ruttena, K.(2018). We all reflect, but why? A systematic review of the purposes of reflection in higher education in social and behavioral sciences. *Educational Research Review, 24*,1-9.