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A Student Perspective on the Effectiveness of PASS in Seminar Courses: A Mixed-Method Study

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A Student Perspective on the Effectiveness of PASS in Seminar Courses: A Mixed-Method Study

Wai Man Szeto, Kenneth Ming Li, Vivian Jun Wu, Isaac Ka Tai Wong, Anthony Hoi Wa Cheng, and Mei Yee Leung

Abstract

The General Education Foundation (GEF) Programme, consisting of two seminar courses, namely “In Dialogue with Humanity” and “In Dialogue with Nature,” has been a common core requirement of The Chinese University of Hong Kong since 2012. Aided by selected classics, students from all faculties engage in dialogues with their teachers and each other to reflect on what it means to have a good life, what an ideal society is, and the nature of intellectual pursuit in the sciences. Reading classics and discussing serious questions in class, however, can be challenging for some students. To help students meet these challenges, Peer Assisted Study Sessions (PASS) were introduced in the pilot stage of GEF in 2010 and, with subsequent refinements, continue to this day. The seminar-style and interdisciplinary nature of GEF makes it an atypical case for PASS. This paper will examine and evaluate how PASS can improve student learning in seminar-style courses like GEF with a mixed-method study from a student perspective. According to evidence from online surveys and focus group interviews, PASS successfully 1) improves students’ understanding of the course content at a cognitive level, 2) assists and motivates them to prepare better for seminar discussions, effecting a behavioural change, and 3) facilitates affective learning outcomes in terms of confidence and motivation. Major challenges—including students’ misperceptions about PASS, differences in leaders’ approaches and organisational difficulties—are identified. Proposed solutions to these challenges will also be discussed.

Introduction

The Chinese University of Hong Kong has introduced Peer Assisted Study Sessions (PASS) to its General Education Foundation (GEF) Programme, a university-wide common core, since its piloting in 2010. A well-established peer learning model, PASS has been adopted internationally across subjects and course formats (Dawson et al., 2014). Nevertheless, it is most commonly used in disciplinary-based courses, especially STEM (Science, Technology, Engineering, and Mathematics), and often courses delivered in large class sizes. In this light, the GEF programme may represent an atypical case in the application of PASS. GEF is largely delivered in seminar style—two-thirds of the contact hours are delivered in an interactive, small-class setting with a maximum of 25 students. It is highly multidisciplinary—students are required to read classic texts spanning philosophy, literature, religion, politics, and physical and life sciences—as well as multicultural, as the texts come from various cultural traditions. It also aims to cultivate the application of multiple learning capabilities, including reading and writing, discussion, and critical thinking. While not a mainstream PASS subject, GEF has adopted PASS for its

peer learning potential in developing independent learning capacities and bridging learning gaps, especially in a difficult course.

PASS is a proactive learning support model derived from Supplemental Instruction (SI) (Martin & Arendale, 1993). It is comprised of interactive off-class sessions where PASS participants can discuss course issues under the guidance of PASS leaders, students who have excelled in the same course and have been trained in accredited PASS leader training workshops. The low power distance between peer leaders and participants provides an informal learning environment (Chan et al., 2016), which helps to engage students both academically and socially (Lim et al., 2016). The informality establishes social connections, which help students persist in study (Spann & Tinto, 1990), encourages peer-monitoring of learning strategies (Spörer & Brunstein, 2009), and facilitates knowledge consolidation within the learning community (Sole et al., 2012). In short, PASS creates a non-threatening environment, where students are able to build an understanding of the course content and practise learning strategies without worries about assessment.

Studies on the efficacy of PASS, however, have mostly been carried out on typical PASS subjects, such as STEM or skill-building courses. Little research has been published on the effectiveness of PASS in a seminar course. This paper looks into the effectiveness of PASS in GEF, an interdisciplinary, reading- and writing-intensive seminar programme. It will 1) illustrate some unique challenges GEF faces, 2) discuss how PASS has been implemented to address these issues, and 3) show to what extent and how PASS in GEF is achieving the intended outcomes. These outcomes are on a cognitive level, the mastery of course content; on a behavioural level, preparedness for seminar discussion; and on an affective level, academic confidence and motivation. While positive outcomes have been observed, the study also recognizes certain challenges that PASS in GEF faced. We will discuss these challenges towards the end of the paper, as well as some limitations of the study itself.

Background and Context

The GEF programme and its seminar approach

Since 2012, the GEF Programme has been a common core requirement for all entry-level undergraduates in The Chinese University of Hong Kong. Its underlying belief is that university education is obliged to nurture students with a comprehensive worldview and open-mindedness in addition to disciplinary training (Leung, 2016). Currently serving over 6,000 students a year, the GEF programme consists of two seminar courses, namely In Dialogue with Humanity (UGFH1000) and In Dialogue with Nature (UGFN1000). Based on selected classic texts, students from all disciplines engage in dialogues with their teachers and peers to reflect on perennial questions centering around the ideas of the good life and ideal society (in UGFH1000), as well as the nature of scientific pursuit and its limitations (in UGFN1000). In the seminars, students are required to participate in discussion prompted by the pre-assigned readings, which challenge them to explore and examine multicultural worldviews and interdisciplinary perspectives. The Appendix presents the current reading lists.

A seminar approach shifts pedagogy from being heavily teacher-centred, as in a typical lecture, to being student-centred. Seminar discussion fosters active

participation (Auster & MacRone, 1994) and improves critical thinking skills (Polite & Adams, 1997; Casteel & Bridges, 2007). In GEF, two-thirds of the teaching hours are allocated to student-centred textual discussion. Students are expected to construct knowledge through dialogues with peers and their teacher. Subsequent to the seminar discussions, students are required to prepare individual writing assignments, for which they need to further organize and deepen their own thoughts while referring to the assigned readings. Such a shift to student-centred learning strongly calls for students' engagement (Phillips & Powers, 1979; Kurczek & Johnson, 2014).

The challenge to a student-centred pedagogy

Student engagement, however, can become a problem if students are over-challenged. This is, in fact, an issue that GEF faces. GEF itself has been remarkably well-received by students in general, with the programme team winning a prestigious territory-wide teaching award.¹ Nevertheless, the diversity of the students—GEF being compulsory for all students from across all disciplines—means that some students are bound to find aspects of the two GEF courses too foreign. This is especially the case when more than 60% of the students are freshmen and new to the seminar style of learning.² Students often found the courses positively challenging while consistently reporting difficulties in understanding the texts and anxiety about speaking in the seminar. In other words, both major components of a seminar, namely, prior reading of assigned texts and engagement in class discussion, can be intimidating to some students. Research has found that students' engagement in discussion is influenced by their mastery of content knowledge (Abrar & Mukminin, 2016). Therefore, in a seminar course like that in GEF, reading comprehension and engagement in class discussion can be expected to be closely linked. Reading with understanding is the primary step for engagement in discussion.

However, undergraduates commonly struggle with assigned readings due to their lack of reading strategies (e.g., Roberts & Roberts, 2008), lack of prior knowledge (e.g., Carrell & Eisterhold, 1983), and lack of motivation (e.g., Starcher & Proffitt, 2011). This under-preparedness can be complicated further by learners' own self-censorship. Students may perceive an inability to anticipate the teacher's pre-set agenda for the assigned readings, contributing to their sense of under-preparedness (Hyde & Ruth, 2002). This censorship in turn lowers their confidence in group discussion. Students may become conscious of "peer's eyes," afraid of making uninformed or "stupid" responses (Hyde & Ruth, 2002; Howard & Henney, 1998). Even accomplished learners may feel anxious speaking up in class (Lee, 2009), since thoughtful students often need more time to carefully structure their answers before presenting them (Berge, 1997; Fleming, 2008).

¹ The team leaders of the GEF programme received the 2016 University Grants Committee (UGC) Teaching Award in recognition of the design and implementation of their programme: <https://www.cpr.cuhk.edu.hk/en/press/cuhk-general-education-team-awarded-2016-ugc-teaching-award/>

² Under the recommended study scheme of GEF, the two courses are to be taken in Term 2 of the first year and Term 1 of the second year of study. The sequence is not specified. Nevertheless, some students opt to take their first GEF course in Term 1, Year 1, resulting in a higher percentage of first-year students in the GEF student population.

Over-challenged students may underperform with their learning motivation undermined, which would be counter-productive to GEF's mission of enhancing students' academic confidence and motivation. To engage students and ensure the quality of seminar discussion, adequate learning support is needed to assist students in reading the texts, prepare them for discussion, boost their confidence in expressing opinions, and enhance their motivation. It was in anticipation of these issues that GEF adopted PASS to support student learning when GEF was first piloted in 2010.

Efficacy of PASS

Abundant research has demonstrated the effectiveness of peer learning in both absorption of course content (i.e., cognitive learning) as well as achievement of affective objectives (e.g., Topping, 1996; Price & Rust, 1995; Malm et al., 2011, Sultan et al., 2013). Specifically, peer learning boosts learning motivation and confidence (e.g., Topping, 2005; Price & Rust, 1995; Malm et al., 2011). PASS also enhances course performance (e.g., Wolfe, 1987; Price et al., 2012; Miller et al., 2012; Paabo et al., 2021) and helps students settle in a new learning environment (e.g., Dreyfuss et al., 2015; Ginty & Harding, 2014; Sultan et al., 2013; Capstick et al., 2004). These are outcomes that GEF aims to achieve through PASS with respect to enhancing cognitive learning, effecting behavioural change (adopting a new style of learning), and boosting the affective outcomes of academic confidence and motivation.

However, traditionally, PASS and other peer-learning schemes tend to be discipline- or skill-oriented. For disciplines such as those in STEM, PASS is effective learning support in promoting peer collaboration and reducing withdrawal rates (Dawson et al., 2014; Dreyfuss, et al., 2015; Coe et al., 1999; Skoglund et al., 2018). Other research establishes its significant benefit to student learning in natural science courses or introductory courses for other disciplines (Wilcox, 2008; Paabo et al., 2021). Peer learning has also been successfully applied in skill-oriented courses, which are usually intended for skills acquisition such as writing (e.g., Hafer, 2001), reading and learning strategies (e.g., Commander & Smith, 1995), or other discipline-related skillsets (e.g., Bushway & Flower, 2002; Williams & Reddy, 2016).

PASS in GEF: Unique challenges

Using PASS in GEF comes with some unique inherent challenges. Unlike the typical discipline-oriented courses PASS is used in, the GEF courses are highly cross-cultural and interdisciplinary in terms of their content. The cognitive knowledge involved is arguably more dynamic than a discipline-oriented course. At the same time, GEF calls for and aims to assist the development of multiple skills such as reading, writing, verbal communication, and critical thinking. As a compulsory common core, PASS in GEF has to serve students from the whole range of academic disciplines, abilities, and interests. All this means that both the standards for the PASS leaders—a key agent and vehicle of PASS—as well as the support and training for them should be much higher if PASS in GEF is to have any success.

How effective is PASS in supporting student learning in an interdisciplinary, common core seminar course like that in GEF? How are the outcomes effected, if any? The answers to these questions may shed light on the full potential of PASS. While answering the first question requires an objective measurement of

learning improvements, which is the subject of an ongoing investigation, the present study focuses on the effectiveness from a student perspective. This perspective helps us understand *how* the effects, if any, take place, and is particularly pertinent in assessing the affective outcomes and self-reported behavioural changes.

Research Questions

The primary goal of our research is to study the self-reported effectiveness of PASS in improving student learning in interdisciplinary, common core seminar courses. GEF is primarily interested in using PASS for three dimensions of outcomes, namely, cognitive mastery of course content, behavioural changes in preparedness for seminar discussion, and the affective outcomes of confidence and motivation. Correspondingly, three main research questions are derived:

1. Does PASS improve students' understanding of the course content?
2. Does PASS assist students in preparing better for seminar discussion?
3. Does PASS facilitate the attainment of the affective learning outcomes?

For each dimension, a study was carried out using a mixed method combining both quantitative and qualitative analyses. Given that the three dimensions may relate to each other and synergise the effectiveness of PASS, we also explore the inter-relations among these dimensions.

Methodology

In line with the standard PASS model, PASS participation in GEF is on a voluntary basis. PASS offerings are announced to all GEF students through teachers and mass e-mails. In the academic year 2015–16, 3,601 students were enrolled in the two GEF courses in Term 1 and 3,419 in Term 2, of which 197 students (5.47% of the enrolled students) and 212 students (6.20%) joined at least one PASS session in Term 1 and Term 2, respectively. The relatively low rate of participation was not unexpected as only a limited number of sessions were run and the topic sequence of the sessions might not fully match the course schedule. (More on this will be discussed in the section “Challenges beyond positive feedback.”) Sessions were offered in Cantonese, English, and Putonghua, parallel to the language offering of GEF itself.³ Seven sessions (including five in Cantonese, one in English, and one in Putonghua) were held in Term 1, and nine sessions (including seven in Cantonese, one in English, and one in Putonghua) were offered in Term 2 on a weekly basis. Students could choose to participate in any session. On average, each participant attended 3.12 and 2.73 PASS sessions in Term 1 and Term 2, respectively, corresponding to an average of about six students in each session. Before conducting their first session, all PASS leaders were trained by accredited PASS supervisors. PASS/SI Leader training manuals (Stephen et al., 2014; Curators of the University of Missouri, 2005) were used to equip the leaders with facilitation skills that would enable collaborative learning among peers.

To investigate the effectiveness of PASS, a mixed-method study from a student perspective was conducted, which contains both quantitative and qualitative

³ Students were free to choose which language to take PASS or the course in; the language choice for PASS did not necessarily have to be the same as their course enrolment.

research components (Guest et al., 2012). An online survey was designed to collect quantitative data, and focus group interviews were conducted for qualitative analysis. Quantitative and qualitative data were collected concurrently, and results from both components were analysed together to provide a comprehensive understanding of PASS in this particular pedagogical setting (Figure 1). The quantitative component investigates to what extent PASS is effective, while the qualitative component focuses on how PASS works to be effective.

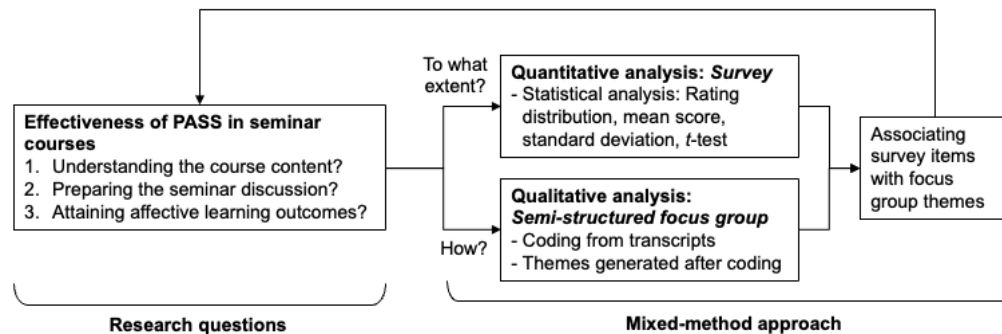


Figure 1. A schematic description of the mixed-method study.

Online survey

An online survey was sent to all PASS participants at the end of each term via mass e-mails. A set of the six-point Likert-scale statements⁴ were grouped into four categories: 1) understanding of course content, 2) engagement in seminar discussion, 3) affective learning outcomes on reading and discussion, and 4) overall evaluation. In Term 1, 79 students responded to the survey (response rate: 40.10%), and in Term 2, 71 students responded (33.49%). Only respondents who had attended PASS sessions at least three times in one term—a total of 90 participants—were chosen as our study subjects, and their responses were collected for further analysis. The distribution of the six-point Likert scales in each survey item was calculated. The mean scores and standard deviations were calculated separately. The mean score of each survey item was subject to a one-sample *t*-test, with a test value equal to 3.5 as the mid-point in the scale to determine whether the survey respondents had a particular inclination. The survey items with *p*-value smaller than 0.05 are considered significantly different to the mid-point, inclining either towards the positive or the negative end.

Focus group interviews

Focus group interviews were conducted after each term. Students who had attended PASS sessions at least three times were invited to join the semi-structured focus group interviews on a voluntary basis. A total of six focus group interviews were conducted in 2015–16 (three for each term). Each group was formed by three to eight students from different disciplines and was moderated by two researchers. One of the researchers was the research assistant in this project, and another researcher was a GEF teacher who had not taught the focus group participants. During the interviews, the participants

⁴ 6 = strongly agreed, 5 = agreed, 4 = slightly agreed, 3 = slightly disagreed, 2 = disagreed, and 1 = strongly disagreed.

were invited to give narratives of their experience in PASS. Moderators guided the discussions with reference to a set of guiding questions, focusing on whether and how PASS

1. improved their understanding of the course content;
2. assisted them in preparing better for seminar discussion; and
3. helped them develop confidence and motivation in studying the courses.

The interviews were recorded and transcribed. Each transcript was coded by two researchers independently. Only commonly selected quotes were used for analysis. Findings from the focus groups were associated with the corresponding survey items in order to shed light on how different features of PASS may affect its effectiveness in the various dimensions and the quality of the student learning experience.

Results and Discussions

From the online survey, 80.00% of the respondents either agreed or strongly agreed that they were satisfied with PASS with a mean score of 4.98 (S.D. = 0.71; $p < 0.01$).⁵ A total of 85.56% respondents agreed or strongly agreed that they were satisfied with the PASS leaders (mean score = 4.92; S.D. = 0.90; $p < 0.01$).⁶ These results indicate that PASS was well-received by the participants in general.

Improvement of understanding of course content

One primary mission of PASS in GEF is to help students understand the course content, including the assigned readings, related issues, and concepts. From the survey results, PASS had a significant effect in elucidating the assigned readings. Around 80% of the survey respondents agreed or strongly agreed that PASS helped them improve their understanding of the course content (mean = 5.03; S.D. = 0.77), capture the main points of the texts (mean = 5.02; S.D. = 0.87), and clarify concepts (mean = 5.13; S.D. 0.74) (Table 1). The focus group interviews supplement these findings, suggesting that PASS helped students make connections between the main ideas of the texts (Quote A1, Table 1). Engagement with the texts was made possible by PASS leaders' systematic guidance in discussions, which allowed them to grab the main ideas of the texts and develop a deeper understanding through multiple perspectives (Quote A2, Table 1). Interviewees found that PASS leaders helped them draw a clear picture of the texts, which was essential for solid understanding. They found that PASS leaders could put themselves into the students' shoes, and thus were able to identify and clarify their misconceptions and confusion (Quote A3, Table 1).

⁵ 21.11% strongly agreed, 58.89% agreed, 16.67% slightly agreed, 3.33% slightly disagreed, 0.00% disagreed, and 0.00% strongly disagreed.

⁶ 18.89% strongly agreed, 66.67% agreed, 6.67% slightly agreed, 4.44% slightly disagreed, 2.22% disagreed, and 1.11% strongly disagreed.

Table 1
Students' views on the effectiveness of PASS in improving their understanding of the course content based on the online survey (distribution and scores) and the focus group interviews (sample quotes)

A1	Participating in PASS sessions has improved my understanding of the course content.							
Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable	
	26.67%	53.33%	17.78%	1.11%	1.11%	0.00%	0.00%	
Score	5.03* ± 0.77 (mean ± S.D.)							
Quote A1	"Instead of preparing nothing for PASS, I would have read all the required readings prior to PASS sessions. Though I understand the content and the main arguments of the texts, I think I don't have the ability to link them together. Through attending PASS, I could point out the main points and make connections of the points. It is therefore easier for me to follow the texts."							
A2	Participating in PASS sessions has helped me capture the main points of the text(s).							
Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable	
	30.00%	47.78%	18.89%	2.22%	0.00%	1.11%	0.00%	
Score	5.02* ± 0.87 (mean ± S.D.)							
Quote A2	"PASS leaders are very encouraging; they would highlight the main points of the texts and provide guidance to me so that I could understand the flow of the texts easily. In general, the texts of GEF are long with complex sentences. Many of the vocabularies are new to me. PASS leaders would select some of the complicated sentences and discuss with us how to interpret them in a better way. During the discussion, the leader would hint us to think in multiple perspectives."							
A3	Participating in PASS sessions has helped to clarify concepts that I did not understand.							
Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable	
	32.22%	50.00%	14.44%	2.22%	0.00%	0.00%	1.11%	
Score	5.13* ± 0.74 (mean ± S.D.)							
Quote A3	"[The leader] was very good when he identified the easily mixed-up concepts by students. For example, in Newton's text, there are keywords that students would frequently encounter. Yet when it comes to the term paper, these are often confused with another concept."							

* $p < 0.01$ in two-tailed one sample t -test (test value = 3.5).

Preparing students for seminar discussion

Besides the development of textual knowledge, PASS also helped students engage in seminar discussion. Over 70% of the survey respondents agreed or strongly agreed that PASS enhanced their ability to discuss the concepts in the texts (mean = 4.92; S.D. = 0.88) and helped them prepare for the seminar discussion during the teacher-led tutorials (mean = 4.97; S.D. = 0.84) (Table 2). Focus group participants reported that PASS enabled them to see different perspectives. They could then integrate and synthesize different views into more sophisticated ideas, which could be raised afterwards in seminar discussion (Quote B1, Table 2). Participants also found it helpful to be able to collectively read parts of the text with their peers in PASS. They reported that this preliminary reading helped them go through the whole assigned reading on their own afterwards (Quote B2, Table 2). In other words, PASS eased their reading burden as they did not need to get into completely uncharted waters solely by themselves. In addition, the collective reading conceptually equipped them to gain further insights when they revisited the texts on their own. These reflections on the learning process illustrate that PASS does not merely increase participants' contact time with the text but also offers them active and constructive conversations. This finding echoes the discussion in Spedding

et al. (2017), showing that students consolidate their understanding of different concepts when they are talking with or being challenged by others.

Table 2

Effectiveness of PASS at assisting students in preparing better for the seminar discussion based on the online survey (distribution and scores) and the focus group interviews (sample quotes)

B1	Participating in PASS sessions has enhanced my ability to discuss the concepts in the text(s).							
	Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable
		26.67%	44.44%	22.22%	4.44%	1.11%	0.00%	1.11%
	Score	4.92* ± 0.88 (mean ± S.D.)						
	Quote B1	"I would tell [the PASS leader] the main points that I wanted to cover [in my reflective journal]. He/she would then suggest that I could consider another perspective, which would be more unconventional. His/her comments inspired me in thinking in an alternative way. When you spoke in class then, you had something different to say from the rest of the classmates and thus could even get a higher grade."						
B2	Participating in PASS sessions has helped me prepare better for tutorials.							
	Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable
		26.67%	47.78%	20.00%	3.33%	1.11%	0.00%	1.11%
	Score	4.97* ± 0.84 (mean ± S.D.)						
	Quote B2	"PASS makes me think more. After going to PASS, I would go home and read the parts that I didn't understand. There were people who didn't attend PASS; in the class discussion, I seemed to know more than they did. Because they didn't attend PASS, they might not have thought about a certain point. So, after PASS I would think more at home and thus talk more in class."						
B3	Participating in PASS sessions has extended my thoughts on the course content.							
	Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable
		25.56%	36.67%	34.44%	0.00%	1.11%	1.11%	1.11%
	Score	4.83* ± 0.93 (mean ± S.D.)						
	Quote B3	"Sometimes when we discussed as a group, there would be some stimulating questions that invite thinking. For example, we were discussing free will in [In Dialogue with Nature]. The discussion lasted very long, which I thought was quite inspiring... [In PASS,] people were debating over two different viewpoints. The long debates could stimulate more thinking."						

* $p < 0.01$ in two-tailed one sample t -test (test value = 3.5).

Providing threads to follow and encouraging students to read through the texts after PASS are essential to further enhancing student learning in a seminar course. As discussed above, students perform better in seminar discussion when they understand the assigned reading better. PASS provides an extra open platform where students can discuss text-related questions before the tutorials. Accordingly, 62% of the survey respondents agreed or strongly agreed that PASS had extended their thoughts about the course content (mean = 4.83; S.D. = 0.93) (Table 2). The focus groups found that the extension was generated from the vigorous debates, which were made possible by the relatively stress-free environment where no assessment was made (Quote B3, Table 2). This finding echoes Phillips and Powers' (1979) point that students are more responsive to a peer-led discussion than a teacher-led discussion. PASS is not simply a replica of seminar discussion but a learning group that allows students to go through the texts together and discuss the related course issues without the supervision of a teacher. This helps students think more

thoroughly and thus have better preparation for seminar discussion, as well as develop the agency to shape their own learning as co-creators of knowledge (Zepke, 2018).

Attainment of the affective learning outcomes

Having examined the impact of PASS on the two core elements of a seminar course—understanding of the readings and engagement in seminar discussion—this paper will now discuss the potential of PASS as a booster of academic confidence and motivation in a seminar course. One of the intended learning outcomes of GEF is to increase students' confidence in reading and discussion. The outcome reflects the core belief of the programme that confidence based on improved skills can motivate learning in general, and it is essential for lifelong learning. Overall, though to a lesser extent than in the previous items, survey respondents evaluated positively the influence of PASS on their affective learning outcomes. Over 92% of them rated at least "slightly agreed" with the items related to confidence and 84% to motivation. About 60% of the survey respondents agreed or strongly agreed that PASS could improve their confidence in studying the course (mean = 4.73; S.D. = 0.84) and confidence in expressing their opinions in a group (mean = 4.71; S.D. = 0.97) (Table 3). One focus group interviewee stated that before joining PASS, she was unable to follow the seminar discussions, leaving her stressed and anxious (Quote C1, Table 3). With the support from the PASS leader, she was then able to digest the readings, ultimately reducing her learning anxiety. Another interviewee reported that having developed his viewpoints in PASS, he had gained the courage to express his opinions in class (Quote C2, Table 3). These two examples caution us that learning obstacles can transform into emotional burdens. By helping students tackle the assigned readings, PASS can be a cure to students' learning anxiety. This is consistent with the findings of Lim et al. (2016) and Dobbie and Joyce (2008) that students feel safe to ask questions in PASS as they perceive that they would not be negatively judged. It can also improve students' confidence and motivate them to participate in the seminar discussion.

Table 3
Effectiveness of PASS in facilitating the attainment of the affective learning outcomes based on the online survey (distribution and scores) and the focus group interviews (sample quotes)

C1	Participating in PASS sessions has improved my confidence in studying the course.							
Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable	
	18.89%	40.00%	35.56%	3.33%	1.11%	0.00%	1.11%	
Score	4.73* ± 0.84 (mean ± S.D.)							
Quote C1	"I think [PASS] has helped. Actually, I had been very afraid of class discussion. There were a few in my class who were very enthusiastic in answering questions, and I simply could not follow their trains of thought. They were so keen on answering questions and offering reflections that I was so totally confused by them. But after attending PASS, I could sometimes catch up a bit. At least I would have a bit of interest in the texts instead of just opening the book and seeing only pages of words but failed to understand the meaning of the texts. I think [PASS] really helped. I became less afraid because after a PASS session, I would know how to answer some of the tutorial questions."							
C2	Participating in PASS sessions has improved my confidence in expressing my opinions in a group.							
Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable	
	21.11%	38.89%	32.22%	2.22%	4.44%	0.00%	1.11%	
Score	4.71* ± 0.97 (mean ± S.D.)							
Quote C2	"I think if it had not been for PASS, I would never be able to participate in the discussion [in the tutorial]. This is because it was very difficult for me to understand the texts on my own. I tried but would have totally no clue. The PASS leader would pose questions which, so it happened, the class would also discuss. Therefore, I was able to have the courage to discuss using viewpoints that I understood and the courage to tell other classmates [these viewpoints]."							
C3	Participating in PASS sessions has enhanced my motivation for learning in the course.							
Rating	Strongly agree	Agree	Slightly agree	Slightly disagree	Disagree	Strongly disagree	Not applicable	
	16.67%	32.22%	35.56%	10.00%	3.33%	0.00%	2.22%	
Score	4.50* ± 1.00 (mean ± S.D.)							
Quote C3a	"[After joining PASS, I feel that I have changed] a little bit. It helped boost my interest [in the course]. Most importantly, it helped me solve problems by enhancing my understanding. I would re-read after [the leader] explained the main points. This way, I was motivated to review and to consolidate what I had learnt, so that my confidence was also enhanced."							
Quote C3b	"I feel that my interest in the course was not enhanced by what the PASS leader said. Rather, I think the lecturer [i.e., the course teacher] was very important because the lecturer truly could tell me about the inspirations and extensions of the texts. The PASS leader was only helping me by my side in text-reading, to help me deliberate on the hurdles I ran into during the reading process"							

* $p < 0.01$ in two-tailed one sample t -test (test value = 3.5).

As for enhancement of motivation for learning, 49% in the survey agreed or strongly agreed that PASS enhanced their motivation for learning in the course (mean = 4.50; S.D. = 1.00), while another 36% of them slightly agreed. Although the rating is still positive, it is the lowest in all areas assessed. The focus groups also reflect this relatively lukewarm reception. Some interviewees did find that PASS leaders motivated them to study (Quote C3a, Table 3), while some did not see PASS as having a role in this (Quote C3b, Table 3). The difference seems to lie in the approaches of individual PASS leaders as well as the students' expectations for PASS. In both quotes, the students agreed that their PASS leaders helped them through the assigned texts. But while one respondent

(Quote C3a) found this process of gaining understanding a motivating experience, another (Quote C3b) did not think that this process had increased her interest in the course. Rather, her interest was more linked to the “inspirations and extensions” of the reading materials, which some but not all PASS leaders focused on. There were others who tended to seek “technical help” in PASS. This raises the interesting question of how PASS should balance “technical help,” such as developing textual understanding and reading skills, with “inspiring” extended discussion in a seminar course such as GEF. We will discuss below how this finding has helped the PASS team refocus PASS in GEF.

The big picture: The effectiveness of PASS in seminar courses

In our research, the effectiveness of PASS in helping students cope with learning difficulties in a seminar course was studied in terms of the following three dimensions: 1) improvement of understanding of the course content, 2) enhancement of preparation for seminar discussion, and 3) attainment of the affective learning outcomes of confidence and motivation. According to the quantitative survey, the impacts on the cognitive mastery of course content (1) are most significant, closely followed by those on the behavioural changes in preparedness for seminar discussion (2), and finally those on the affective outcomes of confidence and motivation (3). The qualitative data reveal that these three dimensions are not independent; one dimension may enhance another to create a synergy. Based on the findings of our quantitative and qualitative research, we have derived a model of the interaction among the three dimensions contributing to the effectiveness of PASS as shown in Figure 2.

Supported by the questionnaire responses and the focus group interviews, we confirm that participating in PASS (Block I in Figure 2) directly improves students’ understanding of the course content (Block II) by helping students (1) connect major ideas of the assigned readings (Quote A1), (2) capture the main points of the readings (Quote A2), and (3) clarify the concepts in the readings (Quote A3). Since reading with understanding is the primary step in the learning process, its benefit is two-fold. On one hand, improved understanding of the texts boosts the engagement of students in seminar discussions (Block III) by (1) providing multiple perspectives on the readings (Quote B1), (2) helping them prepare better for the discussions (Quote B2) and (3) extending their thoughts on the course content (Quote B3). On the other hand, the understanding of the course content facilitates the attainment of the affective learning outcomes by enhancing students’ confidence and motivation in learning the course (Block IV and Quote C1). Enhanced confidence and motivation in turn helps students engage in seminar discussions (Block III) and deepens their enjoyment of the course (Quotes C2 and C3a).

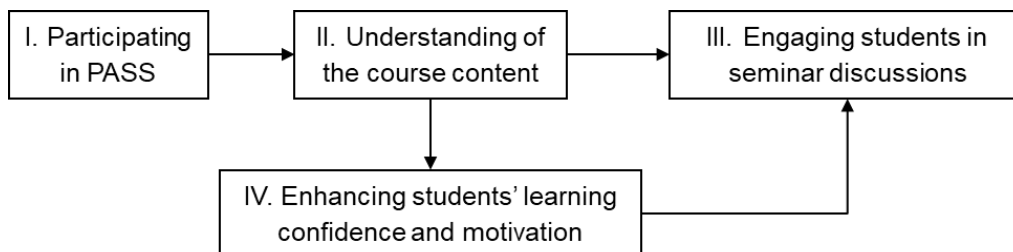


Figure 2. The big picture: A schematic diagram illustrating how PASS is effective in the GEF seminar courses.

Challenges beyond positive feedback

Though evaluation has demonstrated positive learning outcomes as reported by students, we still see room for improvement. We identified two major challenges in terms of implementation. The first challenge was a misperception towards PASS as revealed by the focus group interviews. Some students mistakenly expected PASS to be a kind of “cram school” that would summarise for them the assigned text so that they would not have to do the reading themselves. These students were not prepared to engage in peer learning and expected the PASS leader to provide them with neat information on the course content. This could be a serious problem to the development of independent learning, which is PASS’s ultimate ideal. Some of these students expected to be able to skip reading the text by simply listening to the explanation from the PASS leaders and other students. They thought that they could gain enough information this way to handle the seminar discussion. Students in this case may still manage to pass the assessments but would miss out on the precious learning process of discovering the meanings of the assigned readings by themselves.

The focus group interviews also uncover a second, organisational challenge, which resulted in PASS not fully meeting the needs of some students. As university-wide compulsory courses for all undergraduates, the two Dialogue courses are offered every term, taught by over 30 teachers with an enrolment of more than 3,400 students per term. Though the content of each course is the same across all classes, each teacher may have different teaching schedules or different interpretations towards the same text—a fact commonly reported by students in the focus group interviews. Given the limited resources, only limited PASS sessions were provided. It was nearly impossible for PASS to settle on a weekly topic that would fit the progress of every single class. This led to confusion or frustration for the participants and impeded the quality of their PASS experience.

A third challenge identified was the different approaches of PASS leaders and that their chosen approach sometimes did not match the expectations of the students, as discussed above.

To cope with the first and the third challenges, an adjustment has been made to structure each PASS session as a reading workshop followed by a discussion of extended questions. During the workshop, students learn and practise close reading together using key passages pre-selected by the PASS leader. Discussion on the ideas of the text then follows, based on the textual understanding developed. In this process, the leaders demonstrate reading strategies to equip students with independent reading skills, so that the participants can read the rest of the text on their own after a PASS session. Standardising the structure of each PASS session avoids significant discrepancies among PASS leaders and helps align and set students’ expectations.

To address the second challenge, the PASS team is offering tailored PASS sessions for students whose teacher has joined the new class-specific scheme. Classes from a participating teacher are assigned a specific PASS leader, so that these class-specific sessions will be tailor-made for the teacher’s class schedule

and approaches to the texts. Data are being collected to trace any changes in students' perception of effectiveness and will be shared in due course.

While student satisfaction and self-reported outcomes have their merits as discussed above, since this study relied on students' voluntary participation in the online surveys and focus group interviews, the possibility of self-selection bias cannot be excluded. Besides, students' subjective evaluation of the effectiveness of PASS may not reflect their actual improvement of the attainment of outcomes, especially in the area of cognitive understanding of the texts. However, it is a meaningful indication, especially in the areas of confidence, motivation, and engagement. The PASS team is currently developing objective means to evaluate the effectiveness of PASS in GEF, such as the analysis of the correlation and causation relationship between participation in PASS and students' course grades. The results should provide further insights into how PASS can contribute to student learning in a seminar course such as the Dialogue courses.

Conclusions

Our study has examined an atypical implementation of PASS in two interdisciplinary, common-core seminar courses. The effectiveness of PASS was, in general, promising: through online surveys and focus group interviews in this mixed-method study, we confirm that from the student perspective, PASS is effective in helping students overcome the difficulties commonly faced in reading-intensive seminars. Participants widely agreed that PASS helped them understand the assigned classic texts better, prepare and perform better in the seminar discussion, and enhance their confidence. Aside from increased textual understanding, the non-threatening learning environment of PASS allows students to make their first attempt to express their own opinions and refine their arguments before class.

From the findings, this paper has further outlined a model of how these outcomes are effected and interact with each other: the improved understanding of the texts from PASS enhances students' confidence; and together with the improved understanding, the enhanced confidence fosters students' engagement in the seminar discussion.

Improvements to PASS in GEF have been piloted and implemented based on the challenges identified in this study. We believe our experience and research present a valuable case study for implementing PASS in seminar courses as well as for exploiting the full potential of PASS in helping students overcome learning difficulties in a novel context.

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Appendix

List of the texts in the course “In Dialogue with Humanity.” All texts are excerpts except for Plato’s *Symposium*.

1. *Symposium* (Plato)
2. *The Analects*
3. *Zhuangzi* (Zhuangzi)

4. *The Heart of Understanding* (Thich Nhat Hanh)
5. The Bible
6. The Qur'an
7. *Waiting for the Dawn* (Huang Zongxi)
8. *The Social Contract* (Jean-Jacques Rousseau)
9. *On Liberty* (John Stuart Mill)
10. *The Wealth of Nations* (Adam Smith)
11. *Economic and Philosophic Manuscripts of 1844* (Karl Marx)

List of the texts in the course "In Dialogue with Nature." All texts are excerpts except for Nathan Sivin's "Why the Scientific Revolution Did Not Take Place in China—or Didn't It?"

1. *Republic* (Plato)
2. *The Beginnings of Western Science* (David C. Lindberg)
3. *The Birth of a New Physics* (I. Bernard Cohen)
4. *The Principia: Mathematical Principles of Natural Philosophy* (Isaac Newton)
5. *On the Origin of Species* (Charles Darwin)
6. *DNA: The Secret of Life* (James D. Watson)
7. *Silent Spring* (Rachel Carson)
8. *Science and Method* (Henri Poincaré)
9. *In Search of Memory: The Emergence of a New Science of Mind* (Eric R. Kandel)
10. *The Shorter Science and Civilisation in China* Vol. 1 (Joseph Needham)
11. "Why the Scientific Revolution Did Not Take Place in China—or Didn't It?" (Nathan Sivin)
12. *Brush Talks from Dream Brook* (Shen Kua)
13. *The Mathematical Universe* (William Dunham)
14. *Elements* (Euclid)