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ABSTRACT

The purpose of this action research was to find out if participants of a pilot PASS program found it to be helpful. The program was implemented for the first time in an institute of higher learning in Malaysia. An action research design guided the study, with surveys, documents, and reflections as primary data sources. The findings were largely positive, with participants citing PASS sessions to have helped them in the study of difficult first year subjects and in the development of some study skills. PASS also improved social integration. The collaborative and facilitated structure of PASS sessions were reported to be key aspects that improved student learning. Some issues were also highlighted and discussed, such as misconceptions of the role of PASS leaders.

INTRODUCTION

Supplemental Instruction (SI) was introduced as an intervention program to improve first year students' performance at the University of Missouri in the 1970s. This program was called Peer Assisted Learning (PAL) in the US, but when it was introduced in Australia and New Zealand it came to be known as Peer Assisted Study Sessions (PASS). Since its introduction, SI has been widely used by higher education institutions in these countries. In fact, the Department of Education in America has acknowledged the effectiveness of this program (van der Meer & Scott, 2009).

SI has been shown to improve participants' understanding and performance in the subject area, build confidence, develop study skills, and help foster friendships (Beasley, 1997). The benefits offered by SI, or PASS as it is widely known in Australia (and the term used in this paper), are not limited to the participants and the PASS leader: it also contributes positively to the institutions and the teaching staff. Institutions gain by reducing student attrition rates while teaching staff may improve their teaching and learning practices, as indicated by PASS leaders after facilitating the participants (Gardiner, 1996; Loh, 1993).

Ample research literature is available to show that peers can play a significant role in enhancing a student's learning and personal development (Astin, 1993, 1996; Hake, 1998; Kuh, et. al., 2005; Pascarella & Terenzini, 1991, 2005). In fact, Astin (1996) points out that "the strongest single source of influence on cognitive and affective development is the student's peer group … [which has] enormous potential for influencing virtually all aspects of the student's educational and personal development" (p.126). Such peer

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group interactions can be utilised and facilitated through PASS and a number of scholars have demonstrated the efficacy of such programs (Gosser & Roth, 1998; Lyle & Robinson, 2003; Skalicky & Annaliese, 2010; Tien, Roth, & Kampmeier, 2002; van der Meer & Scott, 2009). However, few studies have been published in the Southeast Asian context where the social-cultural dynamics may influence PASS to be played out differently.

It was against this backdrop that a pilot study was conducted using action research design to determine if PASS helped students deal with difficult first year subjects or with subjects perceived to be challenging and/or with subjects that recorded high failure rates. This study was conducted at a Malaysian private institution involving five first-year courses from diploma and degree programs. Each group was led by a PASS leader who was supervised by a trained supervisor over a period of 16 weeks during the January 2012 session. Following the general structure of PASS (Capstick, 2004), the leader's role in each session was to facilitate a structured discussion for one hour. Participation from students was voluntary and each session was capped at 15 students. Leaders were supervised closely in the areas of facilitation rather than on the content of the subject.

Description of PASS Program

In this study, five first-year subjects were selected based on historically high failure rates and student perceptions of subject difficulty. Consent from respective deans was sought to increase understanding and to facilitate support and cooperation from respective instructors for this program.

PASS leaders were selected based not only on their excellent academic performance in the PASS subject but more importantly, on their personality and interpersonal communication skills. This selection was done through an interview process. They then underwent a two-day training on the essential characteristics of a PASS program, including how to facilitate a session.

A trained supervisor was attached to observe and coach each leader in conducting PASS throughout the entire semester. Leaders were required to sit-in for 50 percent of the course they led and liaise regularly with the subject instructor on topic coverage and assessment.

Objectives of the Study

Two objectives were formulated for this study.

The first objective was to understand participants' perception of a pilot PASS program. The specific research questions that emerged from this objective were:

RQ1: What were the participants' general perceptions of the PASS program?
RQ2: What were the participants' perceptions with regard to course-related effectiveness, study-skills effectiveness, and social integration?
RQ3: How did the participants perform in PASS subjects?

The second objective was to identify the most helpful aspects of the PASS program. Two specific research questions emerged from this objective:

RQ4: What aspects of the PASS program were considered helpful?
RQ5: What aspects of the PASS leader were considered helpful?

LITERATURE REVIEW

Students are likely to learn when they have the opportunity to think and discuss ideas together and analyse and solve problems without the constant mediation of a teacher (Vygotsky, 1978). In a college setting, students are heavily dependent on teachers in their process of learning, especially at the entry level. Limited opportunities are created for them to learn with and from their peers. Observing and modelling behaviour comes naturally to students and would surface if and when the need arises. Providing a structured environment for students to collaborate on a given task with sufficient facilitation would allow learning to happen. This is the essence of the PASS strategy, undergirded by social constructivist principles (Vygotsky, 1978).

The main focus of PASS is peer collaborative learning to facilitate "the cognitive development of students" where "learning is constructed in an interactive social context" (Jacobs & Hurley, 2008). PASS can provide quality learning environments leading to positive learning outcomes and greater student satisfaction (McInnes, James, & Hartley, 1995).

As for PASS, the four elements that contribute to successful peer collaborative learning are PASS leaders' attributes, group dynamics, the structure of PASS, and final grade improvement.

The PASS leaders' attributes play a vital role in the success of the PASS program, thus leaders are normally high achieving students who have obtained good academic results, have exemplary interpersonal skills, and at the same time, demonstrate an understanding of the value of collaborative learning among peers (Stout & McDaniel, 2006). PASS leaders are approachable and with their additional expertise in the subject matter they can help students work on problems collaboratively (Skalicky, 2008; Skalicky & Annaliese, 2010; Wilcox & Koehler, 1996). These attributes are vital because PASS targets difficult or challenging subjects where a diverse group of students may attend, ranging from students with top-end grades to those who are weak but hardworking and those with concerns about passing the subject (Arendale, 2001).

Positive group dynamics is important for effective group learning, especially for programs such as PASS. Research has demonstrated that there is a relationship between positive group dynamics and team productivity (Wheelen, Murphy, Tsumura, & Kline, 1998). Positive group dynamics allows the peers to question and teach each other and also raises their sense of responsibility towards their own learning (Botelho, 2001). A supportive, warm and encouraging environment provides a safe haven for students to take risks without fear of criticisms, and this can also lead to greater student motivation (Brophy, 1987; Imel, 1999).

The PASS program tries to create a safe learning environment for the students to express their thoughts and ideas. Despite the fact that PASS attendance is flexible and fluid, most of the PASS sessions have a group of regular attendees. The way a group organises itself may differ from one

session to another depending on the participants' needs and motivation and on interactions within each group (Power, 2010). Setting ground rules and enforcing them at the beginning of the group formation can act as a way to encourage the students to take ownership of their performance and establish norms for behavior (Kahn & O'Rourke, 2005).

The PASS structure is unique when compared to other peer learning programs. It is usually offered twice a week and open to students who are enrolled in a subject to which PASS is attached. The PASS leaders are required to plan and run their sessions alone with the support of PASS supervisors. Leaders will develop activities and processes that enable collaborative and active learning among the students and not re-teach the topic (Marra & Litzinger, 1997; Skalicky, 2008). They provide guidance through facilitation throughout each session (Houlden, Collier, Frid, John, & Pross, 2001; Johnston & Tinning, 2001; Maudsley, 1999; Neville, 1999). This collaborative learning environment where students learn from each other creates a non-threatening learning environment for the participants (Capstick, 2004). Research also shows that students who wrestle with problems and expand on their answers learn more effectively than students who simply seek the correct answer (Pazos, Micari, & Light, 2010).

The literature suggests that collaborative learning produces higher achievement than competitive or individual effort (Johnson & Johnson, 1989). This is in line with research that suggests students who work collaboratively with their peers and take charge of their learning not only improve their grades but also have a stronger grasp of the course content (Arendale, 2005). Many higher education institutions have begun to implement collaborative learning in science, technology, engineering, and mathematics introductory courses (Dreyfus, 2002). These programs have largely contributed to the consistent increment in academic performance and student retention (Barrett, Sutcliffe, & Smith, 1994; Gosser et al., 1996; Gosser & Roth, 1998; Hockings, DeAngelis, & Frey, 2008; Lyle & Robinson, 2003; Tien, Roth, & Kampmeier, 2002).

However, considering the cultural context in which the PASS model was developed, we were not certain whether it would receive a positive response in a Southeast Asian context. According to Hofstede's (1986) model of cultural difference, Malaysia would rank as a high collectivist and high power distance culture (Hofstede & Hofstede, 2005). In other words, and by way of example, in Australia the individual is more important than the group, but in Malaysia the group is more important than the individual. And in terms of power distance, Malaysians tend to accept and expect that power is distributed unequally along strong hierarchical structures such as in teacher-student relationships. It is not clear whether PASS participants will see each other as peers or if the power distance would increase to break down the potential of PASS. It is also worth noting that Malaysians in general tend to avoid uncertainty, or in other words, they tend to feel uncomfortable in less structured situations.

Specific to educational contexts, it has been reported that Malaysian students prefer to be spoon-fed (Raja Musa & Nik Yusoff, 2000), and are more interested in memorizing content for exams than in asking questions or engaging in discussions (Kaputin, 1988; Nalliah & Thiyagarajah, 1999). On the

other hand, a number of other studies have found Malaysian students to be deep learners and open to learning from their peers (Watkins & Maznah, 1994; Pillay, Purdie, & Boulton-Lewis, 2000). These differing reports may very well represent the heterogeneous culture of learning in Malaysia. How will a PASS program fare in such a setting?

METHODOLOGY

Using an action research design (McNiff & Whitehead, 2002), a survey was used as the main method to collect data from 46 (63%) respondents out of the 73 PASS participants. The survey was personally administered towards the end of the semester by the supervisors. Subject grades data was also collected to compare the performance of PASS participants and non-PASS participants. Programme-related records or brief interviews/reflections were utilised where necessary to help explain some of the initial results. The different data sources also allowed for triangulation. The survey was adapted from van der Meer (2009) and covered participant responses to five main criteria: overall satisfaction with PASS, perception of PASS in relation to their performance in the subject, acquisition of study skills, social integration, and expectations of PASS leaders. The questionnaire was divided into two sections. Section A comprised of 22 closed-ended questions measured with 4-point Likert scales (*Strongly Disagree* = 1, *Strongly Agree* = 4). Section B comprised of four open-ended questions concerning the PASS program and the PASS leader. The data was then analysed using SPSS.

An exploratory factor analysis of the 22 closed-ended questions using SPSS was conducted to identify the five main factors mentioned above. Internal consistency for the items within each factor was assessed using Cronbach's alpha coefficients. The alpha values for the five factors showed reliability coefficients of .62 for participants' overall satisfaction of PASS, .78 for perception of PASS in relation to their performance in the subject, .77 for study skills acquired by participants, .59 for social integration, and .68 for expectations of PASS leaders.

RESULTS AND DISCUSSION

The students' general perception of the PASS program

The first research question is: What were the participants' general perceptions of the PASS program?

Generally, the data shows a high satisfaction level (97.8%) by the participants towards the PASS program (Table 1). All the participants also stated that they would recommend the program to their peers.

Table 1
Overall PASS satisfaction

Statement	*N*	SD (%)	D (%)	A (%)	SA (%)
I would definitely recommend PASS to other students.	46	0.0	0.0	45.7	54.3
Overall, I am satisfied with PASS.	46	0.0	2.2	50.0	47.8

Note. SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree

In addition, 88.8% of the participants rejected the notion that the program was ineffective (Table 2). It can be concluded here that the majority of these participants were not only satisfied with this program but perceived that it is an effective program.

Table 2
Negative PASS effectiveness

Statement	*N*	SD (%)	D (%)	A (%)	SA (%)
PASS was not effective as I hoped it would be.	45	26.7	62.2	4.4	6.7
I don't think I will enrol for PASS program in the future.	46	45.7	47.8	4.3	2.2

Note. SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree

Course-Related Effectiveness

The second research question was: What were the participants' perceptions with regards to course-related effectiveness, study-skills effectiveness, and social integration? The data was derived from the three criteria laid out by van der Meer (2009) in weighing the PASS program's effectiveness.

In the survey, course-related effectiveness included such items as: "PASS has been very helpful with my study for this paper," "PASS has been very effective in achieving my goals for this paper," and "PASS helped me to get a clear understanding of the expectations of the course." All the participants agreed with all three statements (Table 3).

This is consistent with previous studies where the PASS approach has been successful in helping students keep up with their studies, understand difficult concepts and attain better grades (Morrison, 2007).

Table 3
Course-Related effectiveness

Statement	*N*	Min	Max	Mean	Std. dev.
PASS has been very helpful with my study for this paper.	46	3	4	3.43	0.501
PASS has been very effective in achieving my goals for this paper.	46	3	4	3.28	0.455
PASS has helped me to get clear understanding of the expectations of the course.	46	2	4	3.33	0.519
PASS was effective in helping me to develop a better understanding of the subject matter of the course.	46	3	4	3.52	0.505
PASS was effective in preparing me for assignments and other tests.	46	2	4	3.39	0.614
PASS was effective in helping me to prepare for exams.	45	2	4	3.42	0.543

Study skills related effectiveness

Study skills related effectiveness items included questions such as: "PASS helped me to develop study and learning strategies," "PASS helped me to become better at making notes," and "PASS helped me to become better with managing my time and workload." In this regard, the participants were of the opinion that PASS had primarily helped them to develop general study and learning strategies to apply in the course, with a mean score of 3.09 out of 4.00 (Table 4). The mean scores for the two remaining items came in slightly lower, at 2.76 and 2.73. This suggests that the PASS program was not as effective in specifically helping students become better at making notes and managing their time but had helped in more general study skills.

Table 4
Study-skills related effectiveness

Statement	*N*	Min	Max	Mean	Std. dev.
PASS has helped me to develop general study and learning strategies that I could apply in other courses as well.	46	2	4	3.09	0.626
PASS helped me to become better at making notes.	46	1	4	2.63	0.679
PASS helped me become better with managing my time and workload.	46	1	4	2.76	0.673

Social Integration

Social integration effectiveness items included such statements as: "PASS helped me to integrate into university life" and "PASS helped me to make connections with other students." The results are reflected in Tables 5a and 5b. The majority of the students (95.6%, Table 5a) were of the opinion that PASS did help them to make connections with other students but fewer agreed that it was as helpful in making them integrate more quickly into college life (84.8%, Table 5b).

Table 5a
Frequency Description of Social Integration

Statement	*N*	SD (%)	D (%)	A (%)	SA (%)
PASS has helped me to integrate more quickly into college life.	46	0.0	15.2	69.6	15.2
PASS helped me to make connections with other students.	46	0.0	4.4	56.5	39.1

Note. SD = Strongly Disagree, D = Disagree, A = Agree, SA = Strongly Agree

Table 5b
Social Integration

Statement	*N*	Min	Max	Mean	Std. dev.
PASS has helped me to integrate more quickly into college life.	46	2	4	3.00	0.558
PASS helped me to make connections with other students.	46	2	4	3.35	0.566

Subject performance

The third and final question related to the first research objective is: How did the participants perform in PASS subjects?

PASS participants who were in Mathematics, Accounting and Chemistry courses recorded a higher score than the average score obtained by non-PASS participants while PASS participants in the Calculus and Computer Programming courses recorded a lower average score than non-participants (Table 6). Surprisingly, only Chemistry was found to be statistically significant in a positive direction at the .05 level of significance.

Table 6
Average Score of Performance by Subjects

Course	PASS participants		Non-PASS participants		Significance level, *p* (one-tail)
	Average score	Number of students	Average score	Number of students	
Mathematics	65.90	7	65.48	20	.4727
Accounting	71.20	12	61.95	10	.0953
Calculus	66.32	6	67.33	29	.4093
Chemistry	76.79	16	65.39	24	.0060
Computer Programming	51.60	4	61.61	17	.0140

Both Calculus and Computer Programming had teething problems that may have contributed to the lower scores. In the Computer Programming course for example, students joined PASS only after much encouragement and lost interest well before the semester was over. The supervisor of this group reflected:

> In Computer Programming, we had a problem in attracting students to attend during the first 5 weeks of sessions. After getting a pep talk from their dean and the first assignment was given by their instructor, students started trailing in to the sessions. This continued until week 10 and then they disappeared despite several attempts made to encourage their attendance. Finally, we had to get their consent to close the session.

In the case of the Calculus course, there were only 6 regular participants from a class size of 35 students. Two of the students were significantly underperforming and probably needed additional help. The Calculus supervisor reflected:

> Two of these students were repeating students and they were able to score 78.25% and 68.55% respectively. This was above the average score of the course. However, from the other four participants, only two of them obtained lower than the average score.

While this may explain the slightly lower average scores, there's clearly room for improvement.

Most helpful aspects of PASS

The second research objective revolves around two questions:

RQ4: What aspects of the PASS program were considered helpful?
RQ5: What aspects of the PASS leader were considered helpful?

The participants agreed that the PASS program was most helpful primarily in two main areas: assisting them to integrate socially and to reinforce the concepts learned in the subject. This concurs with the literature that students who collaborate with their peers and take an active role towards their learning have a stronger understanding of the course subject (Arendale, 2005). Interestingly, the participants did not perceive the PASS leader's assistance or the study skills acquired to be as valuable as course-related effectiveness and social integration (Table 7).

Table 7
Scale Characteristics

Description	Number of items	Mean	Min	Max
PASS leaders	2	2.87	2.19	3.54
Course-related effectiveness	6	3.37	3.19	3.50
Study-skills related effectiveness	3	2.83	2.63	3.09
Social integration	2	3.17	3.00	3.35
Overall PASS satisfaction	2	3.50	3.46	3.54

This is illustrated in Table 7 with the mean score of 2.87 for PASS leaders and 2.83 for acquisition of study skills. In their research on peer tutoring, Luca and Clarkson (2002) found that some groups had a lack of awareness of the role of the peer leaders. This could be the reason why these participants gave more importance to the learning outcomes rather than PASS leaders' contributions. Other reasons could be cultural in nature—perhaps the position of the PASS leader does not seem to have the same credibility as that of a "teacher," or that general study skills are not as valued as exam-oriented skills. Nonetheless, all the participants perceived that PASS leaders, course related effectiveness, study skills, and social integration were helpful, though at varying degrees.

In addition, participants were also requested to respond to an open-ended question: "What were two things in PASS program that helped you learn better?" A total of 46 participants responded to this question but three participants' responses were disregarded due to invalid feedback. Five common themes emerged from this data (Figure 1).

In order of importance, 27.9% of participants identified the "structure of PASS" and the "reinforcement of concepts" as aspects that helped them during the program, followed by 25.6% of participants who identified "collaborative learning." These three aspects formed the majority of the responses, which was no surprise since leaders develop activities and processes that enable collaborative and active learning among students,

thereby reinforcing the concepts learnt in class rather than re-teaching the topic (Marra & Litzinger, 1997; Skalicky, 2008). Activities designed by PASS leaders, such as discussions and games, produce an environment that is conducive to student engagement, which in turn develops a sense of belonging to a particular group who share the same learning needs (Markwell, 2007). The other two aspects, "study skills" (9.3%) and "environment" (9.3%), seemed to be less prominent as perceived by these participants.

Interestingly, as participants progressed into the program, the frequency of their participation resulted in different learning experiences. For example, 25.6% of the participants identified collaborative learning experiences regardless of the number of times they attended PASS sessions (Figure 2). The following participant comment can be seen as representative of this result: "Active discussion among participants help[s] improve understanding" (Student 1).

Concept reinforcement and structured learning experiences, on the other hand, were more prominent with those who attended an average of 10 sessions or more. One student noted: "Solving questions [in] pairs on the board and discussing and checking answers of other pairs help[ed] improve my understanding" (Student 2).

These results are consistent with James, Krause, and Jennings' (2009) assertion that "the more frequently students interact with peers in the learning community in educationally purposeful ways, the more likely they are to engage with their learning." These findings are also consistent with previous studies that have found Malaysian students to be deep learners who are open to learning from their peers (Watkins & Maznah, 1994; Pillay et al., 2000).

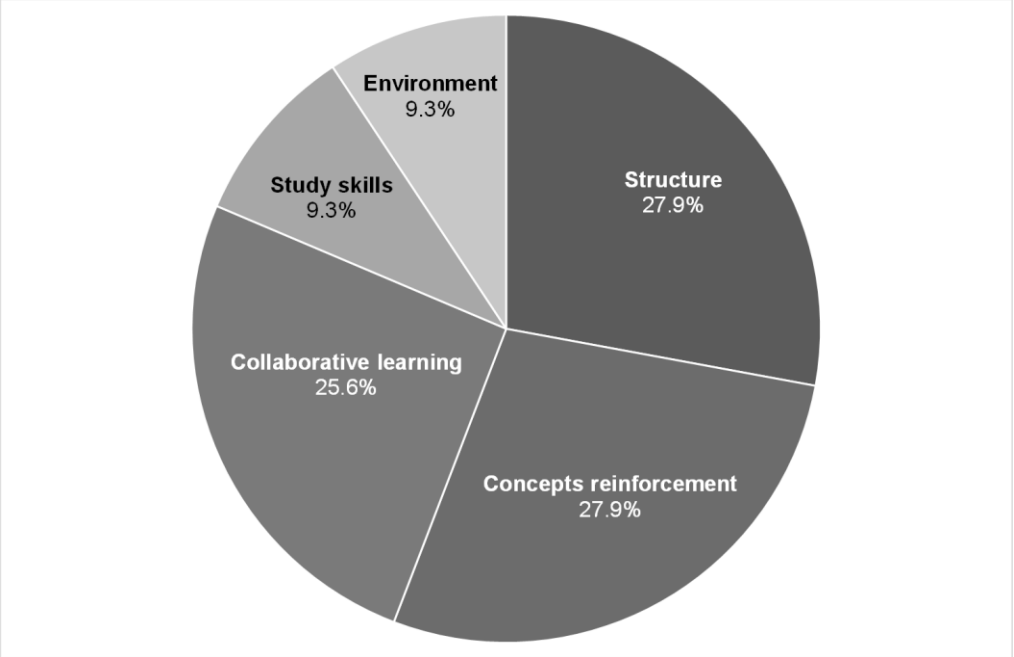

Figure 1. Aspects of the PASS Program that helped participants (n = 43) learn better.

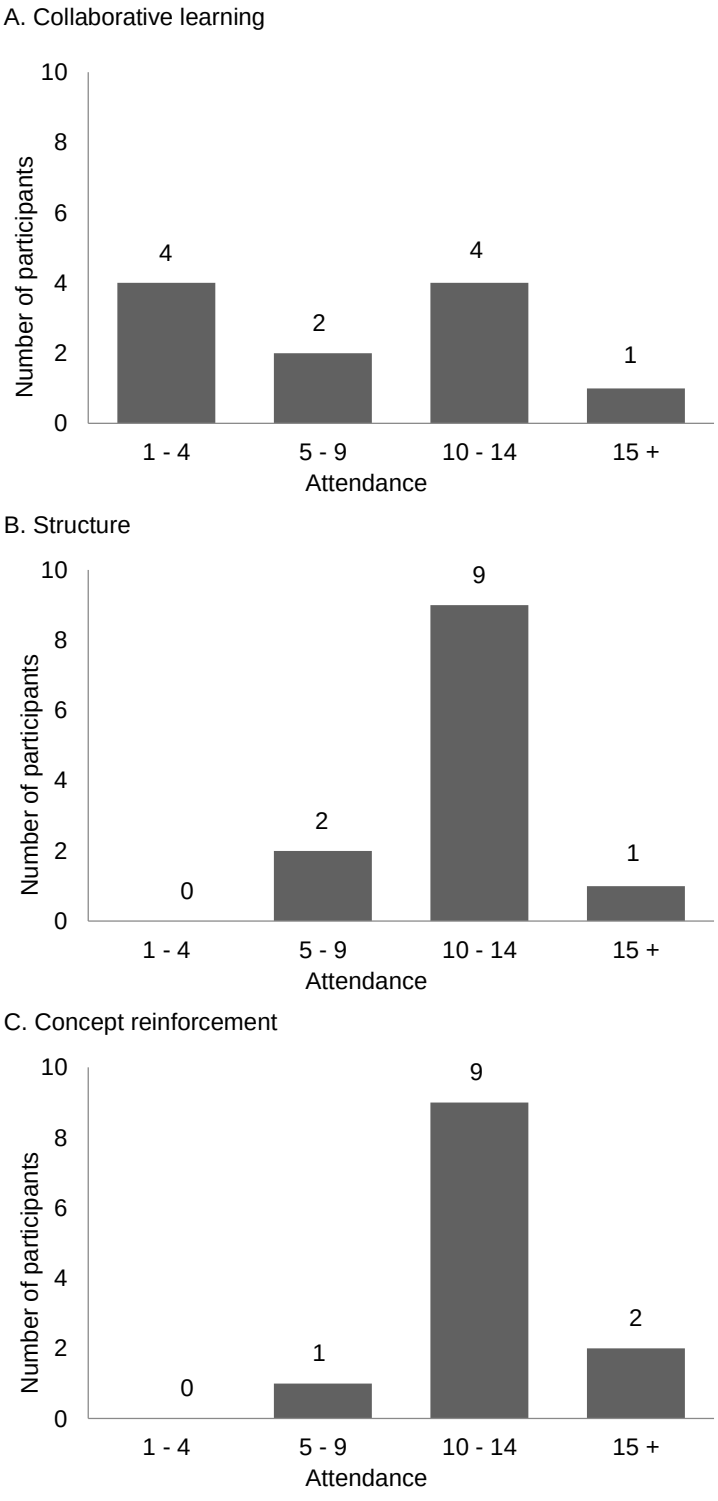

Figure 2. Helpful aspects of PASS as a function of attendance.

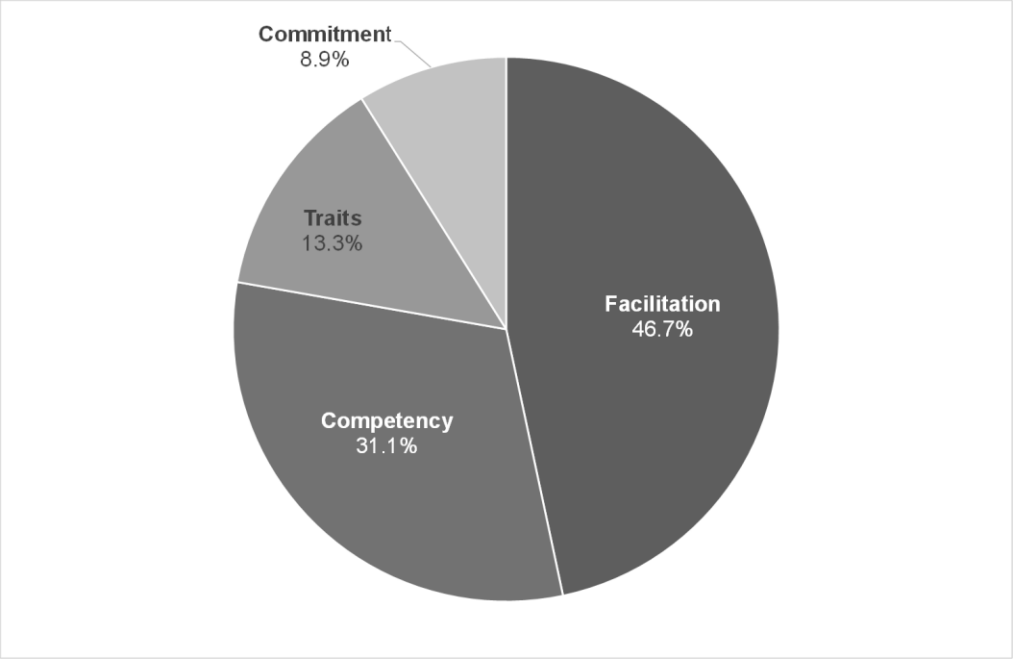

Figure 3. Factors in PASS leaders that helped participants (n = 46) learn better.

For the final research question, participants were asked to name two factors about the PASS leader that helped them. A total of 46 participants responded to this question.

Four key themes emerged (Figure 3). In order of importance, participants identified leader facilitation skills (46.7%) as the first factor followed by leader competency in the subject area (31.1%). These findings are consistent with previous studies (Arendale, 2001; Skalicky, 2008; Skalicky & Annaliese, 2010; Wilcox & Koehler, 1996).

Leader commitment (8.9%) and traits such as friendliness, approachability, and patience (13.3%) were also seen as helpful aspects even though fewer participants mentioned them.

A smaller number of participants (15.2%) expected the PASS leader to teach while facilitating the session. For example, one student wrote that "the leader should be allowed to teach, not just answer (answering) questions" (Student 3). Another wrote that PASS "should have more like a teaching session …." (Student 4). Yet another student requested answers for each exercise.

Two things might be happening here. First, the participants might have misunderstood the role of the leader. In this regard, future implementations will have to attempt to address these misconceptions. One suggestion is to better explain the role of leaders during promotional and informational events, not just with students but also with faculty members and administrators. Second, the participants might have expected learning to always happen in a didactic way. Both of these potential reasons may be tied to existing cultural understandings of how learning should take place (a more

knowledgeable “teacher” needs to be present to “teach” or “direct”) and the tendency to want to avoid uncertainty (needing to know what the right answer is). This may very well relate to the description of Malaysian culture as high power distance and high avoidance of uncertainty (Hofstede & Hofstede, 2005) and a culture of wanting to be spoon-fed (Kaputin, 1988; Raja Musa & Nik Yusoff, 2000). On the other hand, as discussed earlier, a significant number of the students also appreciated the collaborative and active learning activities during PASS sessions. Future studies will have to investigate these tensions further.

CONCLUSION

The purpose of this study was to find out participants’ perception of a pilot PASS program at a Malaysian institute of higher learning. Generally, the feedback was positive. More specifically, all participants felt that PASS helped them to be more effective in their study of the subject. As for study skills effectiveness, the majority of students attending PASS agreed that this program helped them to develop general study and learning strategies that they could apply to other courses. However, they did not view PASS as helping them in developing note-taking or time management skills. As for social integration, the participants generally agreed that PASS helped them to integrate more quickly into college life and to make connections with other students. In a nutshell, they had a high satisfaction level towards the program and viewed it as effective. In turn, this has assured participants’ willingness to recommend PASS to their peers.

The responses from the participants also suggested that the structure of the PASS program had given them the opportunity to learn collaboratively and this was perceived as the prime feature of what made them learn better in PASS. They highlighted that the learning activities also helped to reinforce concepts learned in class.

Though competency of the subject matter is by default one of the crucial criteria in selecting a PASS leader, participants recognised that leaders’ facilitation skills were an integral part of what made them learn better in the program. This shows that participants preferred the approach taken by PASS leaders of not merely transmitting knowledge during the sessions but rather helping them to learn from and with their peers. Nevertheless, the misconception of PASS as a typical tutorial session needs to be addressed by educating students, relevant faculty members, and administrators during orientation and PASS promotion sessions. This issue also highlights potential tensions associated with culture and specifically the culture of learning. For example, students who expect to be “taught” or “spoon-fed” in all learning situations may struggle in PASS settings. Other cultural dimensions worth exploring in future research should include taking into account students’ competitiveness and their ability or openness to take responsibility for their own learning and participate in shared learning environments and discussions.

In conclusion, a pilot PASS program at a Malaysian institute of higher learning was seen as effective by participants largely due to the collaborative activities designed and facilitated by skilful PASS leaders. This program design reflects the essence of PASS, highlighting the strengths of peer-assisted and facilitated learning. Regardless of the social-cultural dynamics of Southeast

Asia, the effectiveness of the PASS program was successfully replicated in Malaysia. This might be due to the characteristics of PASS which promotes learning with and from peers in a non-threatening environment. However, to further strengthen the program in the near future, facilitation skills of leaders have to be continuously enhanced to enable well-designed collaborative activities that provide meaningful learning experiences for PASS participants.

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