Also one of the requirements for the completion of the bachelor’s degree majoring in education. In most cases, the PSTs undertake their teaching practicum in their local settings, which is basically in their home country. In a study by Yunus et al. (2010), they have listed the importance of teaching practicum and the challenges that the PSTs faced in the local setting; however, the experience can be less challenging. Thus, the PSTs are looking for more alternatives to make their practical experiences meaningful and comforting in some ways. Therefore, some PSTs are more interested in joining the networking and collaborations with institutions in other countries even though using their own pocket money as these will also benefit their future career as teachers.

In Malaysia, to become teachers, the PSTs not only have to achieve higher pointers in their CGPA; but also must have distinctive and outstanding resume compared to others as the teaching profession is now an open market. Most of them also have to wait for a long queue for the interview and posting. This is why having experience in the international practicum will definitely put them on the top of the list to be shortlisted in the interview; hence getting the job. A similar study also reports that international placement will enhance pre-service teachers’ employability (Hay et al., 2018).

The ITP aims to provide a platform and opportunities for the PSTs to experience learning and engage in teaching in international educational settings and schools. According to Urban & Palmer (2014), encouraging a meaningful engagement of international students with the university community, integrating intercultural perspectives into classrooms, and encouraging domestic students to work in multicultural groups and teams could enhance the student experience in teaching and learning. The drive for globalization is also very crucial so that PSTs are better prepared as teachers to face the challenges of the 21st century (Dantas, 2017; Larsen; 2016; Kabilan, 2013; Kabilan et al., 2017b).

Kabilan (2013) reported that the six pre-service TESOL teachers who did their ITP in the Maldives found out that the benefits to pre-service teachers’ professional development include confidence in speaking and communicating, confidence in teaching, development of interpersonal skills and new world views of education and culture. Besides, the study found that the PSTs had learned to adjust the new working cultures and teaching conditions. Similar results found in Kabilan et al. (2017a) when two TESOL PSTs did their ITP in Bangladesh for two months. The PSTs were more confident with their teaching skills. They also developed a new perspective on education and culture, as well as improved their interpersonal skills. Kabilan (2017a) also concluded that ITP allows PSTs to experience deeper and more meaningful teaching practices. In another study, Ateskan (2016) in his collective case study of cohorts of 251 students over eight years of study by using the reflective journal, found that the PSTs had similar outcomes with Kabilan (2013).

Furthermore, some studies also suggested that the opportunity to participate in the ITP could enhance more profound understandings of other cultures and traditions (Kabilan et al., 2017b; Kinsock & Richardson, 2010), develop intercultural competence (Tambyah, 2019) and culturally responsive teaching practices (Kabilan, 2013). Also, this kind of international experience must be supported by the academic program that includes opportunities for students to participate in intercultural competence and diversity-related issues, as well as to reflect on attitudes and expectations dealing with these issues (Gilliland, 2015; Major & Santoro, 2016). Furthermore, Allen & Wright (2014) have described the significant reasons for the practice of student teachers examined its purpose and duration, and analyzed the tasks assigned that are useful for information to those who want to experience the ITP. According to Anderson & Stiller (2013), hardly any studies have focused on what and how student teachers learn during the practicum, especially when doing the practicum abroad.

Also, not many works of literature report on the experiences of pre-service science teachers’ experiences in comparison to TESL or TESOL for the English language. While most PSTs typically include at least one diverse learners or multicultural education course and require field experiences, the reflection and discussion regarding pre-service teachers’ cultural awareness and enhancement of their cultural competence tend to take place in an isolated course or depend on the placement of their field experiences. As schools become increasingly culturally and linguistically diverse, there is a need to develop the skills and understandings to work across cultures, a capacity called interculturality among teachers (Smolicic & Katanich, 2014).

In this study, ITP is a collaboration program among three universities; one in Malaysia, one in Brunei Darussalam and one in Indonesia. This study reports the experiences of PSTs had developed in the practicum framework, specifically in science education as described in their reflective journals. The study used the reflective approach and learning. These borderless classroom structures have further encouraged the PSTs to think beyond their self-interests towards more important ethical and educational questions which are related to the acquiring skills for preparation in the teaching profession (Parr et al., 2017).

The teaching practicum is a crucial phase in the teaching profession (Parr et al., 2017). In most cases, the PSTs undertake their teaching practicum in their local settings, which is basically in their home country. In a study by Yunus et al. (2010), they have listed the importance of teaching practicum and the challenges that the PSTs faced in the local setting; however, the experience can be less challenging. Thus, the PSTs are looking for more alternatives to make their practical experiences meaningful and comforting in some ways. Therefore, some PSTs are more interested in joining the networking and collaborations with institutions in other countries even though using their own pocket money as these will also benefit their future career as teachers.

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METHODS

This research had employed a qualitative research design among 13 PSTs (majoring in Science Education) in investigating their learning and facilitating the process of ITP. According to Creswell (2012), using a qualitative research approach intends to understand and interpret social interactions among sample; therefore, a small number of respondents are selected to fulfill a given quota. The teaching practicum was conducted at both the local and international levels. Participation in the program was voluntary. Before this program, the PSTs had conducted their teaching practicum at the local secondary schools in Malaysia for one month. During the practicum, the PSTs were assigned to a mentor teacher who guided, advised, and facilitated their teaching. The mentor teachers also supervised and monitored their lessons for at least two times in the allocated time given. Besides the mentor teachers, the lecturers from the host university also observed their teaching and required to grade the PSTs teaching practices.

Moreover, the PSTs needed to prepare the weekly reflective journals to report on the activities that were conducted each week, including the school activities. Kahkilin (2013) identified that critical reflections in the practicum, such as analyzing, reconsidering, and questioning challenges in a real classroom setting, are essential components of the teachers’ learning and professional development. As mentioned by Childs (2011), teachers learn best when they are pushed to articulate and reflect on their practices. The written reflection is believed to enable the PSTs to gain perspectives on their teaching that directly led to adaptations and improvements in their work (Climer et al., 2013; Dymant & O’Connell, 2011).

Table 1 shows the distribution of the 13 PSTs into different locations of ITP which in collaboration with a local university in Malaysia. The selection was made based on that they are the ones who have achieved the prerequisite CGPA of at least 3.0 at the time of the ITP project.

The secondary data were collected through a structured interview session with the participants that focused on the same aspects as the reflective journals during their ITP. The structured interview based on the content in the pre-service teachers’ reflective journals was conducted to triangulate the data from the findings. As this study is purely qualitative with some other limitations, only these two methods were utilized. The data from both sources were analyzed using “Interpretative Phenomenological Analysis” (IPPA) that includes the processes of multiple reading, making notes, transferring the notes into themes, determining the relationship and clustering the themes (Alase, 2017). The IPA procedures ensured the accuracy, reliability, and trustworthiness of the information obtained from the reflective journals and interviews. These were attained as a result of multiple reading of the data and the process of comparing the data from all 13 PSTs in search of similarities (using both the reflective journals and interviews). Notes were made based on the readings, whereby the recurring ideas found during the process were sorted into several significant themes according to their conceptual similarities. Four major themes emerged from the analysis process, and these themes were identified as the pre-service teachers’ experiences of professional development as a result of the ITP in Brunei and Indonesia. The interpretation from the reflective journals and interviews were analyzed based on the methodology discussed above.

RESULTS AND DISCUSSION

The document analysis from the pre-service teachers’ reflective journals and the data from the structured interviews were analyzed in the four aspects: (1) teaching strategies in science education; (2) communication skills and confidence in teaching science; (3) perspective in science education and culture; and (4) interpersonal skills in teaching science.

The Malaysian students were trained to implement the 21st-century learning skills because they can implement 21st-century learning strategies in the classroom. The teachers can use the wifi to get connected to software like Kahoot, Flickers, and random name picker in the classroom. ICT based learning. PST110 revealed:

“In my opinion, the source that can be used for teaching Science in Brunei is like the school wifi. Teachers can use the wifi to get connected to software like Kahoot, Flickers, and random name picker in the class...

From the interviews’ findings, most of the PSTs in Brunei mentioned that they did not face many problems in teaching as the schools have an excellent facility such as fast Wi-Fi, having projectors in the laboratory for presentation and each student is supplied with an iPad to support the ICT based learning. PST10 revealed:

“In my opinion, the source that can be used for teaching Science in Brunei is like the school wifi. Teachers can use the wifi to get connected to software like Kahoot, Flickers, and random name picker in the class...
As for teaching technique, the PSTs in Bru- nei preferred to use the problem-solving techni- que in teaching science to the students. Following the problem-solving process, the students were asked to present their works to enhance the con- fidence and communication skills among them and to get feedback from other groups. This is mentioned by PST2:

“I prefer to use the problem-solving technique in the classroom. The students are required to do reasoning of the process that involves when young papaya can help to soften the meat before being cooked...” (IV11/B/PST1)

Other teaching techniques that the stu- dents had applied were related the science teach- ing concept with the environment. The PSTs also encouraged the students to use the ‘PowerPoint’, adapted parking lot, gallery walk, 1 stay 3 strays, research, crossword puzzle, word search, concept map, adapted traffic light, worksheet, Padlet, cog- nitive tools, and reward chart.

Communications Skills and Confidence in Teaching

One of the most significant challenges in overseas placement was language (Pawar, 2017). The medium of communication in Brunei is Eng- lish while in Indonesia is Bahasa Indonesia. It is found that the PSTs felt it was challenging to use the Indonesian language at the beginning of the teaching practicum due to different term in scien- ce. The PSTs also concerned about the synonym of the language as they were worried that it pro- vided the different or offensive meaning of word choice. Some of the examples are shown below:

“In fact, the use of the language that leads to the same word but different meaning. I am concerned about the words that might be offensive” (RJ3/B/PST5)

“If so scared because I am fragile in Bahasa Indonesia some more the place I stay is far away from my other friends. Another news is more frightening which it will going to the school that differs from my friends, alone in the school is not the problem for me, but the problem is that I cannot survive alone with the new culture and language here.” (RJH1/B/PST4)

Furthermore, in Indonesia, the term in Bahasa Indonesia is different from Malay. For instance, ‘Sains’ (Science) in Bahasa is known as ‘Ilmu Pengetahuan Alam’ (Environmental Know- ledge). Thus, the PSTs had difficulties to use the term. As a result, the class teacher was availab- le during their practicum teaching and served as their translators. However, the PSTs did not seem to have difficulties teaching the sum- marily different and the medium used in teaching science is English.

From the interview data, in term of con- fidence level, the PSTs from both Brunei and In- donesia stated that through ITP, they developed their confidence in the process of teaching and learning. They mentioned that the confidence le- vel developed since they were away from home, and they had to survive in their teaching practi- cum. However, the support and guidance from the mentor teachers as well as the supervisors helped them to overcome the problems that they faced during ITP. This was explained by PST2:

“As early as I expected, almost all teachers and staff helped me and my fellow teacher in the process of administration and teaching and learning in post- ten. They are all delightful and accommodating especially in terms of the use of the Bahasa Indonesian language and the local community” (IV2/B/PST2)

Perspective in Science Education and Culture

The difference in science education and culture views can be categorized in several aspects such as time management, punctuality, dress codes, ways of eating, conversing through non- verbal expressions, demonstrating respect for ot- her, and perceptions of attitudes towards others during teaching or rapport (Pawar, 2017). Thus, understanding such differences has significant implications for learning. It was found that there was not much different in the views of science education in Brunei and Indonesia in comparison to Malaysia. The students are still passive lear- ners and depend on teachers for science know- ledge as teaching and learning are still centered on the teachers. Similar to Malaysia, the students in both Brunei and Indonesia are more obedient to the teachers. This is mentioned by PST2:

“Being a future teacher, I should be open-min- ded and easy to adapt to various situations. With this nature, I can adapt to different learning cultures. In addition, the curiosity of the new thing also makes it easier for me to accept different cultures when teaching in Indonesia.” (IV2/B/PST2)

The PSTs also reported that their perspec- tive of the culture also changed after the ITP. They claimed that the experience has helped in increasing their level of intercultural sensitivity.

Interpersonal Skills in Teaching Science

Most PSTs reported that their interperso- nal skills in teaching science have improved dur- ing both at the local and ITP.

“Actually, the process of teaching and learning in Malaysia and Indonesia is not much different; the only difference is the use of language that is quite diffi- cult at first because my friends and I are required to teach Biology in Indonesian. This is why we need to refer to our friends to help us to understand. We also need to ask our fellow teachers to understand the terms we do not know about. Moreover, this increases our interpersonal skills.” (IV3/B/PST3)

The PSTs were active in participating in discussions with the staffs, and their engagement with other schools have increased their networ- king and linkages and using science as the main topic of discussion. Furthermore, in the reflective journal of the PSTs, they stated that the teaching practicums had provided them with the setting and the opportu- nities to interact with people. Most of the con- tent in the reflective journal of the PSTs men- tioned by PST2, they stated that they learned a lot from the local schools; in fact, they were very open to provided them with the setting and the opportu- nities to research, crossword puzzle, word search, concept map, adapted traffic light, worksheet, Padlet, cog- nitive tools, and reward chart.

Teaching Strategy in Science Education

The findings of this aspect support previ- ous research (Cincinnati, 2017; Kabbalah, 2013; Parr, 2012) that showed general positive outcomes of ITP experiences for PST partici- pants. As reported in a study by Tambyah (2019), the reflective journals and international professional experience disrupts stereotypes and fosters global education and inter- cultural understanding. Based on the findings above, the PSTs in Indonesia indicated that their perception towards the most profoundly challen- ging skills in the teaching field that require urgent attention is selecting appropriate science teaching method. They have learned to improvi- se the media of teaching, and this has increased their confidence to be more creative and innova- tive, not just preparing the media of teaching but changing their teaching style such as opting for the outdoor learning for teaching science. An inter- pretation of this finding may rely on the PSTs’ confidence in the necessity to be well-knowled- able teachers. They may find that selecting ap- propriate teaching methods requires practices.

In the case of Brunei, the PSTs found that it was more challenging to keep out with stu- dents who are exposed to lots of science learning resources. Thus, a different pattern of science teaching methods was utilized in both the host countries. Moreover, the data analysis revealed that the PSTs in Brunei made use of the ICT more than the PSTs in Indonesia when teaching science, as the facilities in Brunei support the
ICT-based teaching and learning. However, the PSTs in Indonesia are more versatile in using the teaching strategy as they do not rely on access to the internet and tend to choose the different methods of teaching and learning science.

Communications Skills and Confidence in Teaching Science
In this aspect, the PSTs also reported growth in communication skills, particularly in their ability to adapt to a different language and culture; especially when teaching science. They have gained confidence and were more comfortable in the mid-stage of their stay at the host countries. The data analysis showed that PSTs in Indonesia faced more problem in communicating with the students and staff or teachers at the beginning of the program. This is because the language used in the districts involved in the ITP is Bahasa Sunda rather than Bahasa Indonesia. However, the problem was overcome again with the help of the staff and the teachers. Different from the PSTs in Brunei, where there was not much language barrier as most of the teaching and learning session was conducted in English. In a study by Jin et al. (2019), the Australian students who did the ITP in China revealed challenges and tensions for them to adapt in Chinese educational systems behind their very different social and cultural contexts. Similar to a study by Siclai (2015) even though in a different context, the one part that is also important is how the PSTs could digest and accept the different curriculum and conducted the ITP without giving the host school a bad attitude such as criticizing the content of the curriculum (similar in Black & Bernardes, 2014).

Perspective in Science Education and Culture
It is agreed by most of the PSTs that the experience has taught them that culture can be influential in education, particularly in the natural setting of the classroom. In this view, the PSTs were positive and found the experience in the United States had changed their perspective in a way that gender is also perceived to be significant in education. In the case of Brunei, the culture is not much different than Malaysian. Thus, the students felt more at home and did not feel much different.

Also, the PSTs found that ITP experiences have increased their awareness of intercultural sensitivity. For instance, the ITP that was conducted in the Southeast Asian countries has a similar impact on those who did in the western country, such as in the United States of America. It is reported that the Korean students who did ITP in the United States had encountered difficulties in speaking a foreign language and adjusting to a different culture; however, they also gained confidence and self-efficacy by exchanging ideas and actively participating in the teaching and learning process (Kim & Choi, 2019). This showed that if adequate and sufficient support is given, the PSTs could promote their own understanding of multiculturalism and their different perspectives such as their roles in the classrooms, teaching pedagogies, and host countries education systems.

Interpersonal Skills in Teaching Science
The PSTs not only improved their interpersonal skills with the students when teaching science but also with their mentor teachers when discussing their practices. Some of them thought that mastering the local language is very crucial to attract students’ participation in teaching and learning; hence, draw students to learn science. In a study by Kim & hoi (2019), the KS Korean teachers found difficulties to interact with the local students and teachers as they had to adapt in the English-speaking environment in the US schools. However, they found local interactions during casual and personal encounters with positive attitudes helped them to overcome the problem. Thus, having a close relationship with the locals and blend in the environment will make the PSTs feel more at home than feeling just as tourists. Furthermore, as the PSTs were far away from home for at least one or two months, their interpersonal relationship with the mentors from their universities is very crucial during the social visit. This is very essential in order to provide emotional support during the ITP. In the study by Gilliland (2015) where the American students did the ITP in Thailand, the mentors must find ways to assist the PSTs to overcome the language issue, culture, and expectations from the host school. Also, as mentioned by Major & Santoro (2016), they stated that the genuine partnership with shared responsibility of practicum supervision in any developing country is steps to build a good relationship for peace and harmony as knowledge is shared and valued, and this promotes others to accept and respect the differences of the local contexts in teaching.

CONCLUSION
This study has provided some perspectives and insights about the ITP as supporting others in advocating for cross-cultural professional practicum experiences when teaching science. The students were exposed to the level of learning about the culture, planning, teaching for diversity, and the fostering of teacher identity on the international platform. Moreover, the experience that they gained is meaningful, which is hoped to transcend pre-service teachers’ science teaching skills since they become professional science teachers. It is recommended that there is a transparent, structured process that enables PSTs to develop reflective skills concerning the international experience. It was in the post-experience interviews that a large number of participants were able to think deeply and critically about their experiences, and thus gain more significant benefits from them. Only then it is likely that international teaching program in developing countries will maximize their potential to contribute to prepare teachers who are reflective, inter-culturally competent, responsive to, and respectful of difference and diversity.

The findings have also shown that the PSTs were able to adapt to the multicultural environment because of the support that they received from their host mentors. They learned the different techniques and approaches, and these have enhanced their skills in teaching science. Finally, the ITP is hoped to be able to maximize the pre-service teachers’ potential to contribute to the preparation of science teachers who are reflective, inter-culturally competent, open-minded, resourceful and collaborative for the benefit of their professional development.

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