# CDIO PEER-TO-PEER SUPPORT ON EDUCATION FOR SUSTAINABLE DEVELOPMENT: EXPERIENCE FROM PILOT RUN

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## ABSTRACT

This paper documents the CDIO peer-to-peer support (P2PS) experience between 2 peers, that is Singapore Polytechnic (SP) and Batangas State University (BatStateU). First, the CDIO P2PS initiative is introduced along with an overview of the previous work that laid the ground work for this P2PS experience. This foundational work enabled both institutions to enhance education for sustainable development through sharing of expertise. Then, the paper provides a brief comparison between CDIO P2PS and existing learning communities. CDIO P2PS stands out due to its unique structure, specifically, it involves two educational institutions that are committed to learning from each other's educational practices and aligned with the CDIO Framework which further promotes ongoing and future collaboration. The paper also elaborates on the learning points gathered from the participants at both SP and BatStateU. These insights highlight the positive outcomes and benefits experienced by both institutions as a result of this P2PS. The open-mindedness and responsiveness of both peers played a significant role in the overall success. In conclusion, this CDIO P2PS experience is deemed a resounding success for this collaboration not only enhances the educational practices at both institutions but also sets a precedent for future peer-to-peer support initiatives.

## KEYWORDS

Peer-to-Peer, Chemical Engineering, Sustainable Development, CDIO Standards 9, 10, 12

## INTRODUCTION: WHAT IS THE CDIO PEER-TO-PEER SUPPORT (PSP2)

The basic idea of the Peer-to-Peer Support (P2PS) process is to benefit participating programs from CDIO members by allowing them to share practices and enhance their programs continuously by having critical friends working for their program, so as to gain deeper learning from the experiences of their peers. For the CDIO community, the activity builds up a history of evidence about the positive impact of CDIO on the quality of engineering education and its graduates. It makes it possible to identify regional or global trends that give guidance to the advancement of the CDIO Initiative. Engaging in the P2PS will make the CDIO network more active and collaborative, delivering a whole new and interesting experience to experienced CDIO members, and becoming more attractive to new and potential members. In short, the P2PS activity provides one's program the opportunity to share good practices with one's peer and at the same time learn from the peer.

This paper shares the experience of two institutions – Singapore Polytechnic (SP) from Singapore and Batangas State University (BatStateU) from the Philippines – on their experiences in the pilot run of the P2PS, focusing on the coverage of sustainable development in the curriculum, for the chemical engineering discipline.

## LITERATURE REVIEW

The section is divided into 3 parts. The first part traces the history of the P2PS, initially known as Peer-to-Peer Review Process. The second part provides a brief discussion on how the CDIO P2PS resembles and/or differs from other peer support mechanisms, namely Teacher Support Group (TSG), Community of Practice (COP) and Faculty Learning Community (FLC). The third and last part explains the existing efforts by the two institutions in enhancing education for sustainable development (ESD) that sets the context for the P2PS.

### *A Short History of the Peer-to-Peer Support*

The value of membership to the CDIO community of practice lies in the meaningful interrelations and exchanges between members. This usually takes place at international CDIO conferences and regional meetings. However, there are limitations on how much can be achieved within the short duration of such conferences and meetings. As a global community there is a broad desire to introduce other opportunities for members to interact with one another beyond the conferences and regional meetings, to stimulate members to share practices in teaching and learning using the CDIO Framework, so as to continually improve their education programs.

The idea for a peer-to-peer review, was borne out from earlier efforts of key members of the European CDIO Members to enhance the quality of their educational offerings (see for example, Clark, et al, 2016; Kontio, et al, 2006). Then CDIO Co-Director (2017-2022), Aldert Kamp stressed the point that CDIO needs to demonstrate its usefulness in terms of evidence for its positive impact, in order to continue to attract new members (Kamp, 2021). One of the recommendations he made was:

> "Recommendation 3: Develop and implement a cyclic peer-to-peer evaluation process by and for the members to build up a history of evidence on local and global level, and stimulate the members to share practices and improve continuously."

The outcome, at the highest aggregate level of the CDIO Initiative, is that the gathered information from these peer support should be used to build a history of evidence on the impact

of CDIO on the quality of engineering education and its graduates. It would also enable the identification of regional and global trends that give guidance to the advancement of the CDIO Initiative (Kontio, Leong & Cheah, 2022).

A virtual roundtable event was held at the 2021 International CDIO Conference hosted in Bangkok, Thailand to identify the challenges facing CDIO that need to be addressed, which fall under the following two areas (Junaid, et al, 2021a):

(1) To establish a cyclic peer-to-peer review for CDIO members that is fit-for-purpose.

(2) To set up a research framework that can be used to build a history of evidence and impact of CDIO in practice.

The output from the 2021 virtual roundtable are three-folds:

(1) Propose a structured guideline for a peer-to-peer support cycle for approval at CDIO Council

(2) Develop set of tools using current self-evaluation, standards and simplified version of Quality Assurance and Enhancement Marketplace (QAEMP)

(3) Propose a buddy system for pairing members (consider diverse team pairing and visits as a highly recommended action)

These ideas were further deliberated at another virtual roundtable, conducted using a “Chase-the-Sun” format in three successive sessions across three time zones at the November 2021 International Working Meeting, hosted in Trondheim, Norway where lessons learnt from earlier efforts where also shared (Junaid, et al, 2021b)

After the works from two working groups in 2022 – one at the 2022 International CDIO Conference hosted on-site in Reykjavik, Iceland (Kontio, Leong & Cheah, 2022); and another at the 2022 International Working Meeting hosted in Turku, Finland (Kontio, 2022) – the final form of the P2PS emerged. These include the structured approach to P2PS, design of various templates for use, ranging from initial registration of interest, to planning a visitation, capturing key discussion points, and conclude with a report to CDIO Council.

As this time, SP had embarked on integrating sustainable development at the institutional level (Cheah, Lim & Chao, 2022). SP in its capacity as the Co-Leader for the CDIO Asia Region, embraced the P2PS initiative and operationalized it as illustrated in Figure 1. The P2PS was shared with the Asian members to look for suitable partner(s). SP added P2PS into its CDIO portal at https://sp-cdio-centreforteaching.sp.edu.sg/. SP also participated actively in promoting the P2PS, in the workshop that was held the 2023 International CDIO Conference hosted on-site in Trondheim, Norway (Kontio, et al, 2023) and conducted a roundtable at the 2024 International CDIO Conference hosted on-site in Tunis, Tunisia.

In 2022, SP and BatStateU came together to pilot the P2PS with the intention of exchanging learnings about ESD implemented in each institution. The process and experience from this pilot run of PSP2 is elaborated in later section.

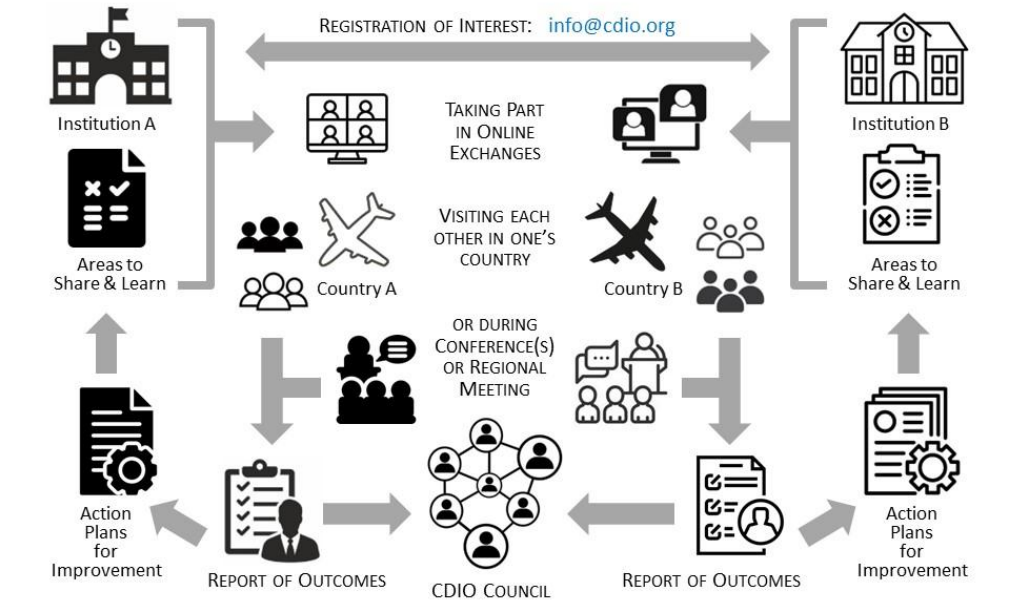


Figure 1. CDIO Peer-to-Peer Support - How It Works

***Peer-to-Peer Support vs. Teacher Support Group vs. Faculty Learning Community***

According to Riessman (1989), peer support as broadly defined, refers to a process through which people share common experiences or face similar challenges come together as equals to give and receive help based on the knowledge that comes through shared experience (Penney, 2018). Sometimes referred to as self-help or mutual aid, peer support has been used by people dealing with different types of social circumstances, emotional challenges, and health issues, including those with alcohol or drug problems, bereaved individuals, and people living with physical illnesses or impairments (Penney, Mead & Prescott, 2008).

Peer support group in the context of education, is often referred to as Teacher Support Group (TSG), which Lieberman & Grolnick (1998) note as playing a major role in "providing opportunities for teachers to validate both teacher knowledge and teacher inquiry". Richards & Farrell (2005) define a teacher support group as "two or more teachers collaborating to achieve either their individual or shared goals or both on the assumption that working with a group is usually more effective than working on one's own". Typically, a support group will involve a group of teachers meeting to discuss goals, concerns, problems, and experiences. The group provides a safe place where teachers can take part in such activities as collaborating on curriculum and materials development, and review, plan, and carry out activities such as peer coaching, team teaching, action research, and classroom observation.

In higher education, the term learning community has many meanings. Any kind of learning community seeks to bring together a small group of peers who share common interests in order to learn together, support and encourage each other (Cox, 2004). Faculty Learning Community (FLC) is defined as a cross-disciplinary faculty and staff group of six to fifteen members (eight to twelve members is the recommended size) who engage in an active, collaborative, year-long program with a curriculum about enhancing teaching and learning and with frequent seminars and activities that provide learning, development, the scholarship of teaching, and community building. FLCs are also closely related to the concept of "community of practice (COP)", which is most closely associated with the work of Etienne Wenger (1998).

In a COP, people come together to talk about common interests, concerns, problems, and ideas. Learning is a social phenomenon, not merely an individualistic one. Participation in a community of practice results in shared meaning and a collective identity.

Table 1 below provides a comparison between the 4 types of approaches whereby faculty can work with one another to improve their teaching and learning. (Full disclosure – entries in columns for TSG, FLC and COP were generated using Microsoft Copilot generative AI tool).

Table 1. Comparisons Between Teacher Support Group, Faculty Learning Community, Community of Practice and CDIO Peer-to-Peer Support

| Criteria | TSG | FLC | COP | CDIO-P2PS |
|---|---|---|---|---|
| Definition | A group of teachers or school leaders who engage in reflective circles to explore and reflect on challenging classroom and school experiences. | A peer-led group of faculty members who engage in an active, collaborative, year-long program, structured to provide encouragement, support, and reflection. | A group of people who share a common concern, a set of problems, or an interest in a topic and who come together to fulfil both individual and group goals. | A group of educators with common interest in sharing practices in using the CDIO Framework to address teaching and learning issues. |
| Size | Typically, 4-6 members. | Typically, 6-12 members. | No size limitation. | No size limitation |
| Focus | Focuses on reflective practice and mutual support. | Focuses on multi-disciplinary collaboration, scholarly teaching, and the scholarship of teaching and learning. | Focuses on sharing best practices and creating new knowledge to advance a domain of professional practice. | Focuses on sharing practices and creating new knowledge in alignment to the CDIO Framework |
| Practice | Must put into immediate practice what has been learned. | Encourages the application of learned concepts in teaching. | No obligation to put new knowledge into practice. | New knowledge enhances current practices and promote member collaboration |
| Membership | Comprises teachers or school leaders. | Comprises faculty members from various disciplines. | Can include anyone with a shared interest in a particular domain. | Can include anyone with a shared interest in CDIO and those already in the CDIO community |

As can be seen, the 4 approaches have similarities, all sharing the common goal of knowledge exchange and collaborative learning. However, the CDIO P2PS is distinct that it involves two educational institutions, eager to learn from each other's educational practices. This typically occurs when one institution has more advancement in certain aspects of CDIO implementation and the other institution seeks to understand how the CDIO implementation was carried out and the factors that contributed to its success. New knowledge is created to advance understanding with alignment to the CDIO Framework and promote further collaboration. Participation as of now lies within the CDIO community.

### *Existing Effort in Enhancing Education for Sustainable Development at SP and BatStateU*

At SP, the ESD is implemented through the Common Core Curriculum (CCC) which aims to develop baseline emerging digital and human skills in students. These skills are integrated to the diploma programs so that they can be deepened or applied in the domain modules (Cheah, Lim & Chao, 2022). Since AY2022/2023, the CCC is integrated into the Diploma in Chemical Engineering (SP-DCHE) program using a spiral curriculum model (Oh, et al, 2024) by pairing CCC modules with domain modules while sustainable processes are used in the engineering workspaces that supports the teaching and learning of the curriculum.

At BatStateU, the Bachelor of Science in Chemical Engineering program (BatStateU-BSChE) offers a rigorous academic program to produce chemical engineers who achieve professional growth through the practice of chemical engineering and adhere to professional, moral and ethical standards within the profession. The program also offers a variety of research works with direct impact to the community where students and faculty members are actively involved. These research works require students to solve real community issues using existing technology and resources that lead to sustainable solutions. Additionally, the expertise and dedication of the faculty members teaching the BS Chemical Engineering program are evident. A number of faculty members who are affiliated with the chemical industry enhance the program's practical relevance and industry connections.

While both institutions offer chemical engineering programs at different levels, one at degree level (BatStateU-BSChE) and the other at diploma level (SP-DCHE), the context of learning are vastly different due to the location, availability of resources, culture and beliefs of the community. Though the sharing depends on each institution’s experience and expertise, in this pilot run, these differences enabled the rich sharing between both institutions.

## EXPERIENCE FROM PILOT RUN OF P2PS BETWEEN SP AND BATSTATEU

The peer support between SP-DCHE and BatStateU-BSChE began in 2022 through a series of virtual meetings designed to familiarise each institution with the other’s curriculum, the implementation of CDIO in the curriculum and sharing work related to CDIO. As P2PS is new to both SP-DCHE and BatStateU-BSChE, a short workshop was conducted for SP faculty members to explain the concept of P2PS and use CDIO to integrate sustainable development as the context. Likewise, a short online briefing for BatStateU faculty members was held.

Two documents are required to be submitted to the CDIO Council as records – namely the “Registration of Interest” and “Peer-to-Peer Support Report” (as shown in Appendix 1). Several other forms were also recommended to assist with the planning and implementation of the P2PS. In addition, SP introduced additional forms to help monitor subsequent exchanges between the parties.

A shared folder hosted by SP was created for both institutions to share documents of best practices which can be used as reference. The CDIO P2PS forms a continual conversation for both SP-DCHE and BatStateU-BSChE and this was strengthened when SP made a physical visit to BatStateU in October 2023.

In preparation for the physical meet-up in October 2023, both SP-DCHE and BatStateU-BSChE carried out a self-evaluation on good practices that each institution would like to share with others and things that each institution would like to learn from peers within the CDIO

standards. This self-evaluation was documented in a "Registration of Interest" form and both institutions referred to this information and made the necessary preparation for the meet-up.

Faculty members from SP comprised of four engineering disciplines, namely Built Environment, Chemical, Electrical and Mechanical Engineering, was hosted by faculty members from BatStateU on October 5 to 7, 2023. In addition to the participation of faculty members from BatStateU as illustrated in Figure 2, faculty members from the BatStateU Centre for Sustainable Development and Centre for Innovation in Engineering Education also took part in this 3-day meeting.

The first two days of the meet-up were dedicated to discussions and facility visits, whereby each discipline held its own meetings for deeper engagement. On the third day, BatStateU faculty members brought SP counterparts for a learning journey to another campus that mimics a living laboratory, including a learning site for local and overseas students to collaborate on social innovation projects.

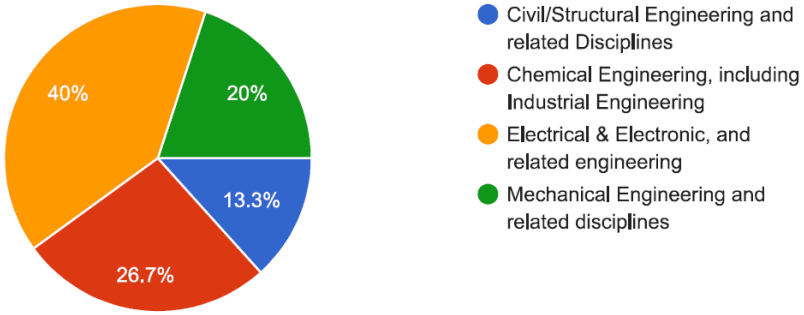


Figure 2. Participation of Faculty Members from BatStateU

***Methodology***

All attendees from SP and BatStateU were requested to share their experiences through short reflections or survey questionnaire in order to evaluate the usefulness of this P2PS pilot run. Five participants from SP who attended in the meeting at BatStateU shared their experiences through short reflections after they returning from the Philippines. Fifteen (15) BatStateU participants from various disciplines who attended the meeting completed an online survey questionnaire.

In the online survey questionnaire, participants were asked to share their opinions on the duration of the visit, specifically whether it was too brief, just right or too long. Participants were also asked to rate their satisfaction level with the P2PS exchanges between BatStateU and SP using a 5-point Likert scale. There were 3 open-ended questions for participants to share which aspects of the P2PS discussion went well, did not go well and what could be improved.

***Learning Points from SP Participants***

It was observed that BatStateU offers many sustainable development themed projects for students to work on through the virtual meetings between SP-DCHE and BatStateU-BSChE. The students of BatStateU won prestigious World Engineering Day Hackathon champion award in 2022 for their research work. Their research spans a variety of specializations with direct impacts on the community, showcasing the collaborative efforts of both students and faculty members. The complexity of the plant design outputs produced by the students further

highlights their capabilities. These projects provide inspirations to how SP-DCHE conceive projects with sustainability elements. SP-DCHE being in a first-world country faces different challenges where there are research and development institutes with more advanced technologies to provide support to the industries. With BatStateU's wealth of experiences in sustainable CDIO projects, SP-DCHE requested BatStateU-BSChE to share their experiences in preparing for the Hackathon and ideas of their sustainable CDIO projects. This enabled SP-DCHE and BatStateU-BSChE to work on a research topic that would benefit as applicable to both Singapore and Philippines. A prototype to condense water from air to generate potable water would be developed for two different intentions as one of the outcomes of this P2PS. SP-DCHE focused on the use of air conditioning technology which were installed in most offices and buildings while BatStateU-BSChE focused on the extraction of water from air for island installation as source of potable water.

The P2PS pilot run was indeed an enriching learning experience for the faculty members of SP with the following salient points:

- *Expectations from both parties* – SP introduced this P2PS initiative to BatStateU who just joined the CDIO community a year ago. Even though SP had earlier conducted various CDIO workshops for BatStateU faculty members, the trainers were not the same as the P2PS group from SP that visited BatStateU. So, both parties did not really know each other prior to the P2PS. The successful completion of the P2PS pilot run was credited to the open-mindedness of BatStateU faculty members, despite not having a full picture of how both parties would work with one another.
- *Trust and Comfort Level* - Given the limited time to get acquainted, it is challenging to establish the trust and comfort necessary for open exchanges. Differences in cultural backgrounds, values, and norms can lead to rushing through pleasantries to "get down to business" particularly for the visiting party, who may feel more pressure to meet deliverables. Suffice to say that the learning grew organically from the ensuring discussion rather than ascertained a priori.
- *Respect privacy and confidentiality* – SP hosted a common online repository where both institutions in this P2PS can access and use to exchange information. It serves to overcome the attachments of documents typical in email exchanges, which can lead to confusion over the several versions of documents used. It also stemmed with intention to respect the privacy and confidentiality of both institutions by restricting access to only faculty members approved by the respective institution to partake in the P2PS activities. BatStateU has been very generous with their sharing while SP exercised undue reservations because security classifications are mandated in the documents; though there is no requirement that any sharing had to be on "equal" basis.
- *Sustaining P2PS* – This is perhaps the most challenging aspect of peer-to-peer interactions. While face-to-face meetings can be more productive but it may not always be feasible. P2PS is unlikely to be a one-time event and follow-ups are typically necessary. As one participant noted, it needs to become "more routine work rather than an occasional deviation." Although initial contact may occur online, nothing compares to in-person meetings where both parties can truly get to know each other. Therefore, the challenge lies in leveraging technology for follow-ups after the initial meeting to maintain momentum until the next opportunity for an in-person meeting, such as at CDIO Asian Regional Meetings and/or CDIO International Conferences.

***Learning Points from BatStateU Participants***

BatStateU identified several areas for improvement based on SP's best practices. These include incorporating sustainability courses into the Chemical Engineering curriculum, continuously integrating sustainability into program delivery, leveraging highly specialized faculty members to teach these courses, and utilizing advanced workspaces and laboratories for both academic and industry purposes.

BatStateU recognized the need to benchmark their laboratories and explore collaborations to establish a laboratory for chemical industry processing, equipped with process control and automation. The Department of Chemical Engineering at BatStateU plans to develop a proposal for a chemical engineering laboratory, with the expected outcome to be achieved after benchmarking at SP during the CDIO Asia Regional Meeting on September 23-27, 2024. This laboratory will be installed in the proposed 7th or 15th story Engineering Building at BatStateU Alangilan Campus.

In addition to laboratory benchmarking, BatStateU-BSChE faculty members discussed with SP-DCHE faculty members to understand how SP-DCHE integrates sustainability into their curriculum, the processes they followed, and the impact on their students. To meet BatStateU's accreditation requirements, particularly the need for short courses for chemical engineering professionals, new agreements for a micro credentialing program will be established with SP. This program will involve collaborative teaching by specialized faculty from both institutions on mutually agreed topics.

***Outcome from P2PS Visit at BatStateU***

A survey was administered to 15 BatStateU faculty staff members at the end of the P2PS 3-day visit in October 2023 hosted by BatStateU and the survey outcome is further elaborated in this section. As shown in Figure 3, 80% of the faculty staff members from BatStateU found the duration of the visit to be sufficient while 20% of the faculty staff members felt that the duration of the visit was too short. Some comments received from the survey pertaining to the latter include “longer time for discussion” and “we were required to do many other things resulting less time for discussing some ‘meaty’ matters”.

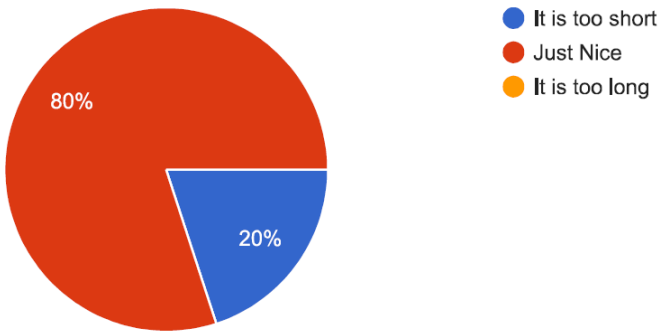


Figure 3. Survey Results on the 3-day P2PS Visit at BatStateU

All 15 faculty staff members from BatStateU are satisfied or very satisfied with the P2PS exchanges between BatStateU and SP. BatStateU faculty staff members commented the following:

- “the discussion serves as eye opener on what will be the direction of the BS Chemical Engineering as it is benchmark on the best practices of SP”
- “based on the discussion about curriculum and exchange of information, get a lot of insights on what could possibly be done in the curriculum for the next revision and how to include CDIO in the courses offered”
- “polytechnic education in Singapore is different compared to a polytechnic in the Philippines and it is enlightening that CDIO implementation can be done in varying degrees or levels”
- “sharing curricula and practices of both SP and BatSU went well and able to learn the same and different practices in both institutions”

In the survey, BatStateU faculty members were also asked to comment on the aspects of P2PS discussion that did not go well. 60% of the participants opined that all went well. The others commented that longer time would be beneficial to exchange notes between both institutions and the showcase of SP laboratories and facilities were limited to what were shown on videos and pictures.

BatStateU faculty members suggested that more faculty members should be involved to motivate and give insights on possible improvements in their respective teaching and workload to in the area of CDIO Framework and sustainability. Lastly, it was commented that P2PS should be an on-going collaboration because participants found that the sharing of best practices on module delivery and assessment rubrics as well as integrating sustainability aspects in capstone design projects can benefit students, stakeholders and targeted communities.

## CONCLUSIONS

The experience and sharing of both SP and BatStateU paves way for the success of the P2PS program as initiated by SP. One key factor is the receptiveness of BatStateU to this process and the readiness they came forward to share what they had done. The extent of which BatStateU faculty members embraced the need to include sustainable development in their curriculum is admirable and served as a learning point for others wishing to do likewise. One important factor is that BatStateU top management took a proactive approach to design an online system that facilitates the tracking of not only the integration effort, but also help to demonstrate traceability of each course to specific United Nation Sustainable Development Goals (UN SDGs). Another factor that contributed to the smooth first face-to-face contact is that some faculty members from SP and BatStateU were acquainted from earlier engagements and a good understanding on the use CDIO for curriculum design. Building on this success, BatStateU may collaborate with other state universities and colleges in the Philippines and extend the collaboration with SP.

In conclusion, the willingness of both institutions to engage openly and respond constructively to each other's feedback has fostered a productive and enriching partnership. This collaboration not only improves the educational practices at both institutions but also paves the way for future peer-to-peer support initiatives.

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**Peer-to-Peer Support (P2PS) REPORT Template between 2 Peers**

Last Updated: 30/12/2022

Submitted to CDIO Council by Initiating Institution, i.e. the one that starts the P2P Support Process, documenting in this document what the Initiating Institution offered for sharing (SHOWN) and what it learnt from its P2PS Partner (LEARNT)

**SHOWN** (add rows as needed) Name of Initiating Institution: Singapore Polytechnic (SP) Program Shared: Chemical Engineering

| Relevant CDIO Standard (One Row for One Standard) | Description / Activity (be concise, yet informative) | Key Features Shared (be concise, yet informative) | Dissemination (Y/N) | Dissemination Plan | Timeline / Action By |
|---|---|---|---|---|---|
| 3. Integrated Curriculum | Use of Spiral Curriculum to incorporate data analytic skills and common core curriculum into DCHE curriculum | Assignment pairing with chemical engineering core modules and skill-based modules | Y | Other... | Oh Ai Ye shared slides presentation during actual visit to P2PS partner institution |
| 5. Design-Implement Experiences | Use of Water Filter Challenge in a skill-based module | Incorporating the design and construction of a water filter with consideration of material availability and cost | Y | Other... | Oh Ai Ye shared slides presentation during actual visit to P2PS partner institution |
| 6. Engineering Learning Workspaces | Energy and Chemicals Training Centre for training of skill-based modules | Use of Integrated Pilot Plant to illustrate a zero waste process with the use of DCS and IoT | Y | Other... | Oh Ai Ye shared virtual walk-through of facility during actual visit to P2PS partner institution |

**LEARNT** (add rows as needed) Name of P2PS Institution: Batangas State University, Philippines Program Shared: B. Sc. in Chemical Engineering

| Relevant CDIO Standard (One Row for One Standard) | Description / Activity (be concise, yet informative) | Key Features Learnt (be concise, yet informative) | Dissemination (Y/N) | Dissemination Plan | Timeline / Action By |
|---|---|---|---|---|---|
| 3. Integrated Curriculum | Use of modules across different year of study to incorporate disciplinary core modules and soft-skill based modules | Both modules, Research Methods and Chemical Engineering Design 2, incorporates UN SDG goals as objectives to meet at the conceiving stage of each project-based modules. | Y | Poster | Eng. Mary Rose shared list of student projects with sample video and posters of students' work before actual visit and explained in detail during the actual visit |
| 12. Program Evaluation | Illustrated the evaluation of students' end of semester assessment performance and course analysis using the institution's outcome based education framework. | Students Outcomes Assessment and Reporting System (SOARS) samples were shared to illustrate how institution graduate attributes and student learning outcomes are mapped to fulfil ABET, CDIO and SDG aims. | Y | Paper | Eng. Mary Rose shared samples before actual visit and explained in detail during the actual visit |

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|---|---|---|---|---|
| Report sent by email to CDIO Office (info@cdio.org) for record | Please indicate Y or N ----------> | Y | ----------> | Submission Date: |
| SENT BY: Name of Staff (and Name of Institution in brackets) | Oh Ai Ye (Singapore Polytechnic) | | | 6 November 2023 |