

TECHNOLOGIES AMONG MYRIAD OF FACTORS FOR SUCCESSFUL INTERNATIONAL PROGRAM DELIVERY

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Abstract

While there are numerous benefits in providing international program offerings from education institutions, there are also many factors behind a successful delivery. In Canada, British Columbia Institute of Technology (BCIT) has been providing international programs to many other countries for more than 17 years. These programs range from short 4-week programs to full international diploma program that spans 3 years. Each program is unique in its program content, student experiences, and expectations, institutional and governmental requirements from both sides, etc. In this paper, we like to report on a relatively new program between BCIT and Dongguan Polytechnic (DP). The program has been in operation for almost two years now, and unlike other international programs that BCIT has offered in the past, this program relies heavily on technologies as one of the main supporting components. We emphasize that it is only one of the main supporting components of the program because we believe that, at least for the time being and in the immediate near future, the students we experience at DP as well as other students in similar colleges in China, even at BCIT in Canada, do need the face to face, in-class experience to learn well. Technologies do play an important role in our international program delivery, but we foresee that the combination of personal interactions with the appropriate use of technologies will provide the best learning experience for the time being.

In this paper, we will describe how this hybrid learning mode is achieved in this international program. We will also provide details on the program development, the use of technologies, faculty involvement from both institutions, the English language requirements in the program, the operational and academic challenges we have faced, the constant need to modify and adapt to the students and learning environment as each institute learned more about each other, the benefits to both the BCIT and DP faculty, and some of the future extensions to this program.

Keywords: Technology, international program, online delivery, digital content, collaboration, virtual classroom.

1 INTRODUCTION

British Columbia Institute of Technology [1] (BCIT) is one of Canada's premium polytechnic institution located in British Columbia. Dongguan Polytechnic [2] (DP) is one of the leading vocation institutions located in the city of Dongguan, Guangdong province of the People's Republic of China. DP is a public institution and certified by the Guangdong Ministry of Education. The two institutions proposed a joint program to address the increasing need to train computing graduates with hands on practical skills. This program, BCIT – DP program, allows students at DP to obtain one of the diplomas at BCIT through distance learning. The subject of the diploma is on computing. BCIT is a polytechnic institute and has been offering this diploma program to their domestic students for over 15 years and has been very successful in placing their graduates in the workplace. The BCIT domestic diploma is a 2-year program and due to its highly practical, hands-on, and intensive training, students work through the 130-credit program to learn the latest software development technologies. The BCIT – DP program includes all the courses in the BCIT domestic diploma program and other courses required by DP and the Chinese government. Hence, the BCIT – DP program is designed to allow the students to complete in three years rather than two. BCIT delivers 50% of the equivalent domestic diploma program content to DP by BCIT instructors while the rest of the program is delivered by DP instructors. All courses in the BCIT – DP have been vetted through a rigorous examination process to ensure the equivalency of the courses between the two institutions.

Graduates of the BCIT – DP program receive two diplomas. One is the BCIT domestic diploma which is equivalent to the diploma that domestic graduates at BCIT who completed the program would receive. There is no distinction between these diplomas since BCIT allows 50% of the credits from other recognized education institutions to be transferred to their diploma. In the case of the BCIT –

DP program, since 50% of the credits are taught by BCIT instructors, the other 50% of the credits taught by DP instructors can be transferred in for students to obtain the BCIT domestic diploma. In addition to the BCIT diploma, graduates of the BCIT – DP program also receive a DP diploma from their college. This is not the same as the BCIT diploma and only satisfies the requirements of DP diploma for their computing program. Students who do not pass all the BCIT courses can still obtain the DP diploma. This dual credential aspect of the program that allows students to obtain both a Chinese diploma and a Canadian diploma is attractive to many students who seek further studies at BCIT later.

2 PROGRAM DETAILS

2.1 Curriculum

The BCIT – DP program consists of courses delivered by both BCIT and DP instructors. While the BCIT courses are delivered by BCIT instructors with an instructor from DP, the DP courses are entirely delivered by DP instructors. During the vetting process for program approval from both colleges, it was recognized that half of the courses in the diploma program can be taught by DP and the credits transferred to BCIT. To set the standard for these DP courses, BCIT provided the course outlines and examined the material taught by DP. DP also took into consideration the topics taught by BCIT and adjusted the courses to match BCIT standards. Overall, the entire process was conducted meticulously, and the final approval was given by several committees from both colleges.

Despite the due diligence that has been given in this program, there are still issues that did not surface until the program was launched. One of them is the required level of prerequisite of each course. Although the prerequisites of each course are clearly stated in the program proposal, the level of instructions and competencies expected from the students regarding each of these prerequisites are not easily stated. For example, one of the prerequisites may be to require a student to program in a programming language in a lower level course, but it is unclear as to the level of difficulty of the programs the student can write. At each college, there is a certain understanding, often unwritten or stated explicitly, among the faculty members within a program as to the level of difficulty each course should be taught at. However, when two colleges try to match how each of their courses are taught, it is often not an easy to define precisely. Even when assignments, or exams, or final projects are considered, it is still not clear how each or any of these are the results of the students' individual effort or with other supports. As BCIT and DP work through the first-time delivery of the program, both colleges are learning and adapting to the expectations of each other, and it is really through trial and error to make adjustments whenever it is necessary to deliver a quality program to the students.

2.2 Technologies

One of the main characteristics of the BCIT – DP program is the combination of the use of learning technologies for classroom and virtual instructions. BCIT uses a campus-wide learning management system called Desire2Learn [3] (D2L) to facilitate classroom and online delivery to their local students. Most of the course content can be uploaded to D2L including lecture slides, video lessons, labs, assignments, etc. Online exams can also be conducted through D2L. One of the newer features in D2L is Virtual Classroom where instructors can conduct online real-time classroom with students with video, audio, messaging, and screen share capabilities. We have also experimented with other technologies such as Zoom [4] and WebEx [5]. Most of them function well when there is fast consistent internet connection. However, there have been times when technologies have failed us, which could be due to the internet, or audio / visual equipment, etc. These online real-time sessions are not usually used for delivering lectures as lecture materials are mostly prepared by instructors in the form of videos and uploaded as part of the course content in D2L. The real-time sessions are mostly used to address student's concerns, clarify labs and assignments, demonstrate the use and development of key software development tools and techniques, etc. BCIT instructors identify the subtler areas of each lesson where students may have difficulty with the material and focus on them specifically in these sessions. These sessions usually only run about 30 to 40 minutes since each class at DP is only 45 minutes, and due to the 16-hour time difference between BCIT and DP, the online sessions must be planned and conducted carefully.

Although technology plays a vital role in this program, it only plays a minor role. The other key component of the BCIT – DP program is the local faculty at DP who structures and supplements the material provided by BCIT in the physical classroom. Students require a well-defined and regular

structure for their studies. This includes the daily schedule and routine, the format of each class, the general overall schedule and structure of the entire course, and they need to be constantly reminded how each topic relates to the entire course and program. These details can easily get lost when the students are only given the digital content of specific topics to be covered. The local faculty at DP works closely with the students with their weekly labs and assignments. Students at DP attend scheduled classes each week where they receive instructions from the local faculty and work on labs and assignments with each other. Like BCIT faculty, DP faculty have practical industry experience with a strong interest in teaching. They are familiar with the tools and technologies used in the program and can supplement the student's learning when BCIT instructors are not available.

2.3 Site Visits

BCIT faculty site visits are also very important to the successful delivery of the program. BCIT strives to provide at least two site visits each term to DP. Each visit is between one to two weeks where BCIT faculty provides instructions in the classroom and labs. Lectures are delivered live and along with their DP counterpart faculty, students get to work closely with both instructors. Like the online real-time sessions, these visits are planned carefully so that the more challenging parts of the courses that are better delivered with face to face interactions are conducted during these site visits. The teaching faculty needs to be flexible in changing the schedule to accommodate the student learning. In one case, students had difficulty understanding a topic in a course. This topic was scheduled after two prerequisite topics have been covered. However, the students did not have enough background knowledge to understand this new topic. Fortunately, there were other topics with minimal dependency on this topic and they were covered first. Towards the end of the course, a faculty was able to teach the topic which the student had difficulty in understanding through a week-long visit. DP was also flexible to arrange a special weekend all-day seminar so the students can have more time and concentrated learning with the faculty. Through this experience, effective teaching methods as well as flexibility to modify the delivery of the courses are especially important.

2.4 English Requirements

One of the most common issues related to program delivery in a foreign country is language proficiency. BCIT is located in Canada and the normal language of course delivery is English. DP is located in China and the normal language of course delivery is Chinese (Mandarin). The students at DP began the program with an intensive English language training. Beside the traditional classroom instruction on English grammar, students are provided with additional classes with a native English-speaking instructor to help them with conversational English, focusing on the style, intonation, mannerism of native English speakers. Students watch videos in English, practice oral conversations, and presentations in class. 3.5 hours of English classes are allocated throughout the two terms in the first year. However, this does not continue into the 2nd and 3rd year. It was assumed that by the 2nd year, students have gained enough English skills from the English courses as well as the computing courses by BCIT instructors (which are all conducted in English) that no other English courses are required. Unfortunately, this is only true for a minority of students. Most of the students require further English language training. A summer program with additional English training, through a voluntary short-term visit to BCIT, may help in improving their English skills. We will provide additional details later in this paper.

2.5 Operation

The BCIT – DP program requires extensive coordination between the two institutions. At BCIT, an operational / curriculum coordinator is assigned to coordinate with DP on course scheduling such as term start and end dates, grade submission, BCIT instructors site visit, term schedule for each course such as the days and times of the classes to coordinate with BCIT instructors for online sessions, etc. The scheduling of each course is particularly important since BCIT instructors need to be available (at reasonable waking hours) to conduct online sessions with the students. Grades have to be submitted and recorded both at DP and BCIT student registration systems. There is also a program coordinator at BCIT which handles most of the academic issues of the program. He is responsible for the academic standard of the program, the equivalency of credits between the two institutions, faculty hiring, and program quality. The program coordinator also teaches in the program to gain a better understanding of the strength and weaknesses of the program.

DP also has a similar set of program and operation coordinators, and administration staff to ensure the program is delivered smoothly to the students. There is not an academic program coordinator like the one at BCIT although there is a lead instructor who teaches most of the technical courses in the program. He helps in guiding the administration on faculty hiring, course delivery, and various aspects of the program.

3 STUDENT AND FACULTY

3.1 Student Expectations and Feedback

Chinese post-secondary college system operates quite differently from Canadian post-secondary college system. In China, there is a higher education entrance examination [6] that each student interested in pursuing higher education at the undergraduate level must write. Once a student is admitted into a college based on their examination score, it is pretty much understood that they will complete their program and graduate without much complication. However, the BCIT program is an intensive program and the attrition rate of the domestic program is considerably high. Many students take more than the prescribed two-year completion period to finish the program. DP students were advised about the level of difficulty before they applied into the BCIT – DP program, so they are well aware of the amount of work and level of difficulty of the program. While most students in other Chinese post-secondary programs do not have much school work during weekends and evenings, such is not the case for students in the BCIT – DP program.

Despite the amount of work and the level of difficulty of the program, the students seem to be enjoying the challenge. At the end of a first term course, the majority of the students wrote about their experience positively. Their English writing skills were also much improved. Although they were apprehensive about the subsequent terms, they seem to be looking forward to the next set of more advanced courses.

From the student's feedback, the students also seem to enjoy the site visits from BCIT faculty most compared to other aspects of the program. While most of the students like the online learning and find it innovative, there are also many who prefer the classroom instructions.

3.2 Faculty Expectations and Feedback

BCIT currently has seven instructors teaching into this program. All instructors have taught the same course in the domestic program. Hence, the preparation of the course material for the BCIT- DP program is not an onerous task. However, only one of the instructors had practical experience in a totally online teaching and learning environment. All the instructors have used the institute Learning Management System (D2L) for their classroom-based courses. To deliver the same course online had been a totally new experience for all of them. Also, given the requirements to make available both online contents, as well as online real time sessions, the first time offering of these courses incur significant amount of course preparation and delivery time.

One interesting note from one of the BCIT instructors who has taught into the program is the amount of details she needed to prepare for the video lessons. In the physical classroom where she has face to face interactions with her students during her lectures, she could read off from the students' demeanor their comprehension level of the material she presents. However, in preparing the video lessons, she realized that many details are either assumed or she may have expected her students to learn on their own subconsciously. This, in turn, caused her to rethink how she would teach the same course to her local students the next time! She may also use some of the same video lessons to supplement her lectures too. In a way, the process has helped her to be a better teacher for her students in the physical classroom!

Faculty at DP faces similar challenges. All the instructors employed at DP for the BCIT – DP program are native Chinese speakers and have limited English language skills. However, they also step up to the challenge and adapt both to the language as well as the technical challenges of the courses.

Instructors from BCIT and DP seem to have enjoyed the program so far. There have been some challenges in scheduling of the courses, coordinating between the BCIT instructors and the students for the online live sessions, accessibility to different internet resources (since some of the websites referenced in the courses are not accessible behind the firewall set up in China), technical issues

regarding computer equipment, internet speed, etc. However, in general, the instructors from both colleges cooperated and collaborated well with each other.

4 FUTURE PLANS

The BCIT – DP program needs to continue to evolve to accommodate the changing academic requirements as well as industry requirements for the graduates in the program. The domestic BCIT program is constantly changing due to the fast pace of responding to technological changes in the industry by the faculty. Since the program was initially approved by the BCIT education council, the diploma program has already changed significantly. Some courses have been dropped from the BCIT program, and others have been added. However, due to the time required by DP to set up the program and their selection of faculty to assist in the courses, there is an approximate two-year lag between the two programs.

As mentioned before, although the students have gained English proficiency quite significantly in the first year, most of the students still have difficulty in understanding the English video lessons and online sessions. Most are not comfortable to ask questions in English during the online sessions. BCIT plans to provide online sessions at least once per week for each course to provide students with more exposure to conversational English. Several other proposals have been made to help students in their English skills. One is to provide additional English classes beyond the second term as mentioned before. Another proposal is to include English training in the BCIT courses even though they are not English courses. Other than providing technical content to the students, perhaps BCIT instructors can include teaching or emphasizing how different technical terms can be used in English during their courses. Yet another proposal is to provide opportunities for students to visit Canada in a short two to four weeks stay in the summer months. These short programs are intended to immerse the students in English learning and may include some preparatory courses in computing so they can be more prepared for the next term. Stronger students may be even prepped to act as mentors to help other students after their visit.

5 CONCLUSIONS

This paper attempts to summarize some of the features of the BCIT – DP program. Obviously, there are myriads of aspects to the program and we can only highlight some of the more unique ones in this paper. Technologies are indeed a crucial engine that enables this program to be offered. From the quintessential learning management system, to the video production, and online sessions, this program could not have been possible without these technologies. However, as discussed in this paper, there are numerous factors and issues that surfaced that are beyond the realm of technological solutions. We dare not claim that the BCIT – DP program is a success, but neither is it a failure. Both BCIT and DP have learned a lot from this joint venture. Perhaps the most important part of this collaboration is the ability from both sides to adapt, to each other (among the administrative staff and faculty), to both education systems (which are known to be inflexible in almost any education environment), and to the governing bodies (which can be an even bigger challenge). The program will continue to evolve and perhaps the mode of delivery and the learning technologies will be completely different next year. In any case, as long as there is a commitment on both sides to the successful delivery of the program, we believe that such joint venture is worthwhile for both education institutes, faculty, and of course, the students.

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