Factors Promoting Online Distance Educational Programs for International Students and the Impacts of the Covid19 Pandemic

L. Magpili
Washington State University, Pullman, WA, USA

Abstract - This paper investigates factors promoting U.S. online distance education programs for international students located in foreign countries. Using a strong foundation of literature research, the paper identifies six factors- (1) market demand and supply, (2) consumer preference and affordability, (3) ease in market entry and operational challenges, (4) internationalization and local relevance, (5) visa/ immigration and legal factors, and (6) quality and reputation. The factors are reviewed in the context of delivering engineering management education online abroad as Mode 1 service export. The paper is extended by discussions of the impacts of the Covid19 pandemic.

Introduction

Transnational education (TNE) is defined as "all types of higher education study programs, or sets of courses of study, or educational services in which the learners are located in a country different from the one where the awarding institution is based" (Council of Europe, 2001). It is also known in the literature as cross-border, offshore and borderless education (Knight, 2016). Due to the advent of the Internet, online and video conferencing technologies, and lately in the back drop of the current Covid19 pandemic of 2020, students who traditionally could cross borders to study can now take their classes and pursue foreign degrees in their homes, or at local branch institutions close to home. Part of TNE includes online learning programs and distance delivery offered worldwide through satellites, televisions, computers, Internet, video conference or other technological means. In particular, it is categorized by the World Trade Organization's General Agreement on Trade Services (GATS) as *Mode 1 cross-border supply* where the service crosses national boundaries (GATS, 1994). With the proliferation of online programs in the United States and other countries, many scholars consider TNE as a logical growth area for online education (Guri-Rosenblit, 2012; Bannier, 2016; Merola, 2017).

It is worth noting that since GATS took effect, the U.S. has become the world's largest exporter of educational services primarily through *Mode 2 consumption abroad,* where the consumer of service (i.e. the student) moves to the country of the awarding institution (i.e. the university) where the educational service is provided. To clarify the difference, in Mode 1 the service crosses national boundaries, which is in contrast with Mode 2 where the consumer or student crosses the national boundaries. In 2018-2019 out of five million students, an estimated 1,095,000 international students traveled to the US compared to Australia in second place with 700,000 and Canada in third place at 642,000, effectively relegating the previous Top 2 UK now to fourth at 485,000 (ICEF Monitor, 2019, HESA, 2020, CIC News, 2020). The U.S. educational service export was a $45.3 billion industry that supported more than 455,000 jobs, and was ranked 5th largest in U.S. service exports [U.S. ITA, 2019). More than half of its international students come from India and China (IIE, 2019; U.S. ITA, 2019) and with international students paying higher tuition fees and cost of attendance, it has become an important source of revenue for many U.S. universities (Alam, 2013; Chen, 2015).

Although number one for Mode 2, the U.S. market share has eroded from 28% in 2001 to 22% in 2018 (ICEF Monitor, 2019) and in the past three years have consistently shown a slowing growth with new incoming international student enrollments declining (see Figure 1) (IIE, 2019). A significant proportion of institutions surveyed by NAFSA report that the U.S. social and political environment (60%) and feeling unwelcome in the U.S. (48.9%) are factors contributing to new international student declines. Colleges and universities also cite a significant increase (11%) in concerns about physical safety in the U.S., including gun violence and civil unrest (43.6%) (ICEF Monitor, 2019). Competitor countries such as Australia and Canada have posted record one year gains at 10% and 13% respectively (HESA, 2020; CIC News, 2020) in 2019, effectively toppling the UK that had been in the top two for decades. The report by NAFSA also highlights the post-study work opportunities available to international students in these countries that work to attract talented individuals (ICEF Monitor, 2019). This is in contrast with the UK and the U.S.' more restrictive visa and immigration provisions for students that consequently contribute to the U.S. and U.K. losing market share.

With 10 million cases and half a million deaths worldwide as of June 30, 2020 (WHO, 2020), the Covid19 pandemic has disrupted learning for 87% of students worldwide

according to UNESCO (ICEF Monitor, 2020a). Continuing the decline for the U.S., is the expected sizeable drop in international students for the years 2020 and 2021. From a U.S. survey conducted by the IIE, 88% of colleges expect a sharp decrease in the number of international students and

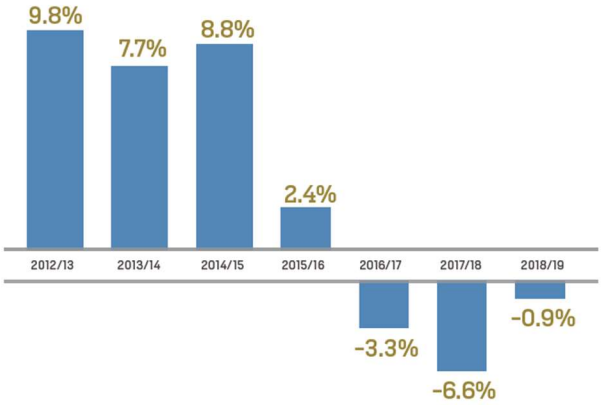

Figure 1 PERCENT CHANGE IN NEW INTERNATIONAL STUDENTS IN THE US Source: Open Doors (IIE, 2019)

the tuition revenue they bring in, and 70% expect that some students will not be able to physically come to campus in the Fall 2020 (IIE, 2020). Current conditions such as international travel restrictions, suspension of student visa processing, and limited commercial flight availability have drastically slowed down if not completely halted international student mobility. Although the survey indicates this belief to be short term, the long term impact is still very uncertain pending a vaccine becoming available and depending on the post-pandemic environment.

Comparison of U.S. Education Service Exports Modes 1-3

The U.S. has consistently dominated Mode 2 with few Mode 1 and negligible Mode 3 (see Figure 2). Mode 3 *commercial presence* is when the awarding institution establishes a physical presence in other countries other than where it is located. Examples of Mode 3 are establishing branch or satellite campuses in other countries, franchising, or establishing dual/ joint partnership agreements with local institutions. For both Modes 1 (online) and Mode 3 (branch), travel by the international student across borders to another country is not necessary, but rather it is the educational service that is delivered to the student's country of residence. In 2016, the UK lead in Modes 1 and 3 until it was overtaken by Australia and Canada in 2019 (ICEF Monitor, 2019). Note that TNE by definition (i.e. student and awarding institution in separate country locations) includes only Modes 1 and 3 and excludes Mode 2.

According to the Observatory on Borderless Higher Education (OBHE), there were only around 43,000 international students located outside of the U.S. who were taking exclusively distance courses via Mode 1 in 2016 shown in Figure 2. In the Babson study, the numbers tally to 45,000 students shown in Figure 3 (Seaman, 2018), and the National Center for Education Statistics (NCES) counts 42,600 with recent growth over 5% per annum (Kemp, 2019). While slightly differing in numbers, they still

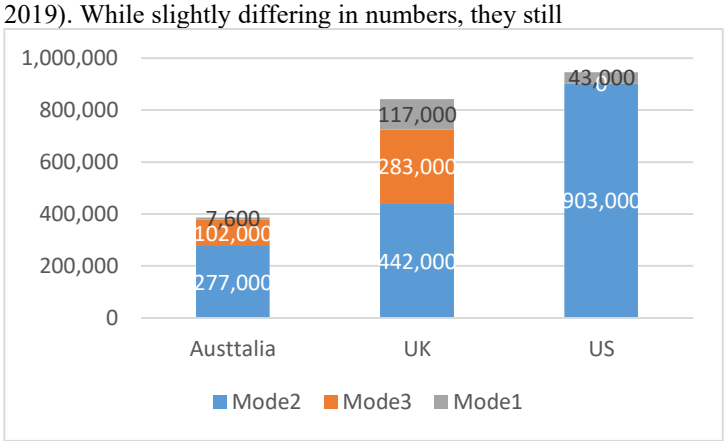

Figure 2: INTERNATIONAL STUDENT ENROLLMENT FOR 2016 IN AUSTRALIA, THE UK, AND THE U.S. BY MODE OF DELIVERY. Source: OBHE (Garrett, 2017)

represent a small fraction (~3%) of the overall cohort of U.S. international students. Still, the OBHE reports a 23% increase from 2009 (Garrett, 2017) and it has shown an increasing trend in the U.S. since then (see *Figure 3*) This is in contrast with the slowing growth for U.S. Mode 2 (i.e. international students traveling to the United States).

Note that the data to date excludes students enrolling in Massive Open Online Courses (MOOCs) or students taking mixed modes (e.g. students taking courses through a combination of Modes 1, 2, and/or 3). Data available is also only limited up to year 2016. Data gaps underscore the need for more comprehensive and up-to-date statistics on Mode 1 international students in order to determine a deeper understanding of the market, whether there is actual growth and if so, from where it is coming.

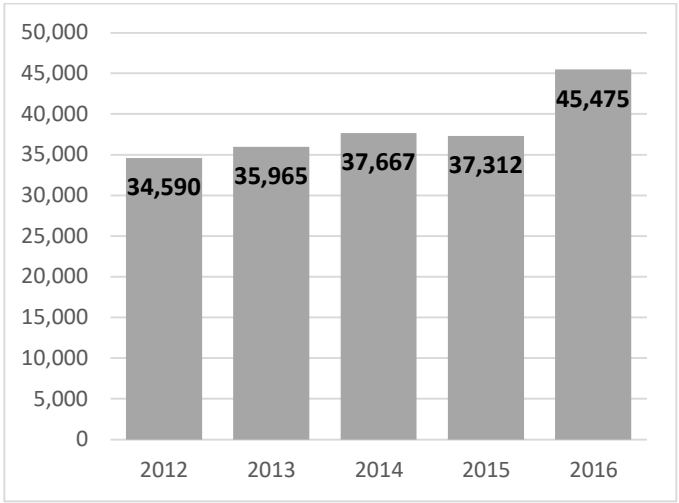

Figure 3: NUMBER OF STUDENTS TAKING EXCLUSIVELY DISTANCE COURSES LOCATED OUTSIDE OF THE U.S. – 2012-2016 Source: Babson Survey (Seaman, 2018)

Pre-Covid19, the growth in Mode 1 already seems to indicate that online education may be becoming a more viable choice for students located in foreign countries. During the pandemic, in an analysis conducted by Marmolejo of relevant Google searches for study abroad between February and April, "the term 'online courses' became extremely popular and the term 'study abroad' basically disappeared from Google search popularity" (Sharma, 2020). This also suggests perhaps a sudden change in student interest with more positive regards to online learning given the circumstances brought about by the pandemic.

Factors for Promoting Online Distance Education (Mode 1 Exports)

A previous paper by the author has identified several themes that have emerged in the literature to promoting online programs abroad (Magpili et. al., 2019). These themes are: market demand, ease in market entry, consumer preference, online culture, internationalization, emerging visa and immigration policies, and partnerships. Similarly, various aspects that can hinder its development have been identified. Barriers include: legal/ regulatory factors, economic, technology, language and culture, curricular relevance, quality and reputation, and the competitive landscape. This paper still focuses on Mode 1 Online Distance Education Exports but attempts to relate the enablers with the barriers and includes thoughts on the impacts of the Covid19 pandemic. The following sections are categorized according to six factors- (1) market demand and supply, (2) consumer preference and affordability, (3) ease in market entry and operational challenges, (4) internationalization and local relevance, (5) visa/ immigration and legal factors, and (6) quality and reputation.

Market Demand and Supply

TNE can help countries implement and achieve their economic development plans to increase higher education capacity, satisfy local employment needs, and contribute to national knowledge and innovation priorities. The educational service export market at the global level is primarily driven by this demand in emerging economies, and the unmet demand is typically serviced by institutions from developed nations such as the U.S., UK, or Australia (Alam, 2013; Chen, 2015). The TNE market which includes Mode 1 (online) and Mode 3 (international branch), was estimated to be between 800,000 to 900,000 in 2017 (GEANT, 2018). It is fast becoming a significant fraction compared to the 5 million internationally mobile students (Mode 2) that traveled to host countries during the same year. Although market data specific to Mode 1 is severely lacking, as most reports include TNE data lumped together.

Even pre-Covid19, the educational service export market has already become increasingly competitive, and institutions are undergoing pressure to develop programs in a variety of modes to offer more market choices. Aside from sending students abroad (Mode 2), many developing countries have also attracted leading universities from developed nations to establish international branch campuses or offer online programs in-country (Mode 1 and 3) [15] which can be advantageous to both developing and developed countries by attract regional international students. In 2017 China hosted 550,000 international students studying TNE within its borders (GEANT, 2018). Hence, without sizeable growth there is the potential for cannibalizing existing markets of foreign students, as they typically offer the same curricula in the home campus, in branch campuses and online.

Moreover, as developing countries increase access to higher education, universities of developing countries have emerged as strong competitors themselves, offering comparable cost-effective programs at local universities. Take China for example, primarily sending students a decade ago. China now draws regional enrollments from its neighboring Asian countries and has become an international player as one of the top five host country that export educational services (IIE, 2019). The development of these regional hubs like in Asia make foreign higher education available regionally or locally at more affordable prices. (Alam, 2013; Chen, 2015).

Ancillary to competition is cooperation. TNE has also evolved to embrace partnerships among institutions of educational providers. Partnerships are important to support teaching, marketing, program management and finances. Guri-Rosenbilt (2012) stresses that "successful institutional collaborations of educational providers have the potential to attract new students, reduce costs for course development, enhance flexibility, ensure high quality mechanisms, provide richer and better programs, and strengthen the financial basis" of TNE. Knight (2005) and Alam et al. (2013) describe forms of partnerships that have been commonly found in many TNE arrangements and can have varying degrees Mode 1 (online) component.

1. Double/Joint Degree – An arrangement where education providers in different countries collaborate to offer and deliver a program for which a student receives a qualification from each institution or a joint award from the collaborating institutions. Courses can be offered as a combination of online courses from host countries (i.e. a provider from U.S.) and online or face-to-face courses in source countries (i.e. a provider from another country). The student earns either a dual degree or a joint degree from the two provider institutions in both host and source countries.
2. Articulation – Various types of articulation arrangements between education providers in different countries permit students to gain credit for courses/programs offered and delivered by

collaborating institutions. Courses can also be offered as a combination of online courses from host countries (i.e. a provider from U.S.) and online or face-to-face courses in source countries (i.e. a provider from another country). Courses taken from the provider in the source country are articulated to the provider in the host country. The student receives the degree from the provider of the host country only.

3. Virtual/Distance – Arrangements where education providers deliver courses/programs to students in different countries through distance and online modes. These may include some face-to-face support for students through domestic study or support centers. All courses are provided by the education provider in the host country with partner institutions providing student support services if available. The student receives the degree from the provider of the host country only.

Pre-Covid19, Mode 1 has already been showing signs of an increasing trend in the market share and serves as a practical alternative to Modes 2 and 3. The pandemic conditions has made Mode 1 even more relevant, while Modes 2 and 3 have become almost infeasible due to the lockdowns, travel restrictions and visa suspensions. Thus Mode 1 seems to be in a particularly unique position to expand market share during this time. However, overall reductions in national investment by countries on higher education (IIE, 2018) have also been made worse by the pandemic. This will lead to decreased subsidies and scholarship availabilities, and along with the depressed economic positions of potential students, the demand near term for education service exports in general and TNE in particular is expected to worsen. Also, long term global demand is presumed to corollate with the economic decline or recovery post-pandemic of countries that the TNE market serves.

Consumer Preference and Affordability

The popularity and prevalence of the Internet, social media, smart phones, gaming and online technologies have created a thriving online culture. Liang and Chen (2012) even suggests that an online presence over the Internet for many has become more engaging than physical presence and has become a major source of social interaction. The online culture has also progressively invaded the education space with traditional classrooms transitioning to online environments. Pre-Covid19, in the Fall of 2018, there were 6,932,074 students in the U.S. enrolled in any distance education courses at degree-granting postsecondary institutions. Almost half of those students (3 million) were taking exclusively online courses (NCES, 2019). This number is expected to reach greater proportions during the pandemic and post-pandemic years as both public and private schools and universities in the U.S. have most if not all transitioned to online learning at some level in the last quarter of the 2019-2020 academic year. In China, the education sector responded to the pandemic by quickly developing and offering 22 online curriculum platforms 24,000 online courses for higher education institutions including 1,291 'national excellence courses' and 401 virtual simulation experimental courses, covering 12 undergraduate programs and 18 tertiary vocational programs (Leung & Sharma, 2020). Over 10.31 million high school students in China began online courses since the pandemic began (Leung & Sharma, 2020). In many other countries similar transitions to online have transpired, albeit at varying degrees. And so worldwide, students' exposure to and interface with online education have been both large scale and far reaching, cutting across all educational sectors in the primary, secondary, and tertiary levels. Inadvertently, the pandemic has produced digital natives for this online environment which bodes well to the further acceptance and normalcy of online education.

Aside from attending to the pandemic's mobility restrictions, the advantage of online education has always been the flexibility and availability of content for the student to learn anywhere anytime. Its market appeal attracts older working professionals who want to advance and upgrade their credentials while working full time at their jobs. Mode 1 allows international students to pursue education and training without leaving their home country and existing employment. It is precisely for those who are able to afford foreign tuition costs and want to avoid the effort, financial cost, and disruption of moving to another country.

Challenging economic conditions however, have placed greater emphasis on affordability with the U.S. at a disadvantage having educational services among the world's most expensive. New surveys over the past years highlight the issue of affordability for students considering studying abroad (ICEF Monitor, 2020b). IIE (2019) found that the top factor for the decline of U.S. international students is the cost of tuition/fees at U.S. host institution. In a 2015 study by Levitz (2015), "Financial requirements" was cited as the most prominent concern for nearly eight in ten respondents, both undergraduate and graduate students. Online programs can offer a low-cost alternative for delivering U.S. education to a greater number of students (Ward, 2016; Deming, 2015). International students can get a high quality U.S. degree at a lower cost than physically traveling to U.S. institutions. Still, students who can afford the tuition are considered more likely to come from economically or educationally advantaged backgrounds (Rhoads, 2017). This means that the majority of people in developing countries, those that are economically disadvantaged, may still not have access to higher education. Moreover, credit instruments, consumer loans, or installment loans for education are severely deficient or nonexistent in developing countries.

Ease in Market Entry and Operational Challenges

By means of Mode 1, universities can offer already existing online programs to expand their global presence with relatively less investment, as compared to Modes 3 that requires capital investment and efforts to establish actual physical presence and infrastructure in foreign countries, or Mode 2 that also requires investment to increase classroom space in the campuses. During the pandemic, most U.S. universities were able to transition to online learning in a relatively short amount of time [Sharma, 2020]. A survey of US colleges conducted by the American Association of Collegiate Registrars and Admissions Officers (AACRAO, 2020) found that nearly six in ten responding colleges (58%) are "considering or have already decided" to remain fully online for Fall 2020. Almost three quarters of respondents (73%) said that they are "considering increasing, or have increased" the number of online courses available. This gives credence to the relative ease of scalability and natural adoptability of online environments. Further, the pandemic conditions showed the inherent resiliency of already existing online programs in the face of such disruptions like hurricanes or pandemics. As other programs were scrambling to develop online versions of their curriculum, those that were exclusively online or have online options were able to carry on with very minimal interruption.

Further during the pandemic, online courses have been offered as a temporary stop-gap for current as well as incoming international students in academic year 2020-2021 (ICEF Monitor, 2020c). Thus, online distance courses can serve as a transitional program to studying in the U.S. For institutions hoping to recruit new international students and retain the ones they have, they must however continue to improve the online learning experiences they can offer to students. As a result, students are now much more influenced by what an institution can do with its online offerings.

Entry to online programs can be an attraction, a gateway or a pipeline for international students. An online pipeline of courses can give potential or incoming students initial exposure to foreign education systems. This can be useful not only to assess the fit of the student to the program, but also to successfully transition non-English foreign students to the U.S. system and culture. This practice has been done in the past with some Chinese students enrolling in online programs of foreign universities in the hopes of eventually earning acceptance and transitioning to on-campus programs later (Bannier, 2016).

Online programs, however, require advanced technologies in computers, multi-media and learning management systems (LMS), that are capable of supporting audio and video functionalities, but these may be out of reach for many students due to prohibitive cost or absence of the technology. Videoconferencing that requires more bandwidth is usually not adequately available in many parts of the world due to the lack of investment by nations to support infrastructure such as broadband technology. Even with emerging mobile technologies that offer connectivity to remote areas, the requirements of many online platforms may still be unattainable. In places where there is adequate availability and connectivity, the reliability and resilience of these critical infrastructure is questionable. Depending on where they are located, these infrastructures can be especially vulnerable to natural disasters and political instability that are quite common circumstances in many developing and emerging countries. A case in point is the pandemic. Developed nations such as the U.S. were able to continue K-12 schooling for students in the home through online learning. However, in developing countries such as the Philippines, schooling grounded to a halt during the lockdowns.

Challenges exist related to operational aspects as well (Wilkins & Juusola, 2018), specifically in the area of administration, technology, resource, communication and monitoring. Different time zones, separate academic calendars, uncommon grading structures are among the administrative concerns found in online distance programs. Technology concerns on the other hand, include availability of computers and IT equipment, availability of the Internet and broad band, data handling and security, skilled technical support, and computational capacity to collaborate at a distance. Resource concerns include limited support from home institutions or unclear and ambiguous commitments between partner institutions. Institutions with TNE partner arrangements sometimes have little or no control over the execution of programs overseas (Wildavsky, 2010). An essential operational challenge is communicating and monitoring remotely. The broader and farther the operation of the service provider from the students, the more difficult to communicate and track students. This becomes especially challenging when students are not particularly fluent in English, and where the academic cultures differ.

Internationalization

The conventional aspiration of global or international education is promoting multicultural, diverse and global outlooks among students (Varghese, 2009; Alam, 2013; Bannier, 2016; Ward, 2016). TNE provides a platform for students to interact with fellow students and teachers overseas with diverse backgrounds and have the exposure to adapt themselves in multinational environments as compared to local programs. Further educational value is associated with a culturally diverse student body (Ward, 2016). Using online platforms to connect faculty and students beyond national or physical borders is an accessible, affordable, and flexible option for acquiring global competency as an alternative to study abroad. Like many study abroad programs, online classroom environments can

provide meaningful global learning and cross-cultural experiences.

Therefore, TNE needs to be culturally sensitive and responsive (Guri-Rosenblit, 2012). Culture is a broad term and encompasses language barriers, work culture, cultural habits, traditions, learning styles and communication styles. While the English language itself is already a barrier for many students (Guttman, 2000; Fischbacher-Smith, 2015), the online learning environment presents additional challenges. The relative lack of body language and heavy reliance upon written words for example, can be difficult for some students from cultures which rely heavily on informal or non-verbal communication (Guri-Rosenblit, 2012).

Further, some researchers have expressed concerns over the westernization of education (Alam, 2013) or the lack of context in the curriculum. Globalizing curriculum requires standardizing teaching to ensure that students share the same education regardless of their location. This relies on removing specific references to local experiences and examples that may confuse or distract students in order to focus on universal approaches that can be applied in any context. However, by trying to standardize and universalize courses runs the risk of abstracting the curriculum from real world contexts. UNESCO Assistant Director-General of Education, Jacques Hallak warns- "the danger is that companies selling education outside their frontiers will attempt to impose the same standards everywhere, and this will dissociate education from the social, cultural and political origins of a country" (James, 2000). Guttman (2000) adds that the nation-building role of higher education can be undermined by "a mismatch between offshore curricula and addressing local resource needs". Thus, the success of global online education relies on being able to develop curriculum that is relevant to learners wherever they happen to reside.

Visa and Immigration, Policies and Regulations

Many governments in developing countries invest in subsidies and scholarships for their citizens to acquire higher education in developed countries as a means to address the lack of capacity of their own education system. However, developed countries are turning to this same pool of talent from which to draw their own workforce. Countries such as Canada, Germany, Japan, and even China have initiated policies that seek to enroll international students, but also retain them in their labor markets (IIE, 2018). Mode 1 online distance education offers a smaller risk for developing countries with regards to brain drain, loss of valuable human capital and loss of financial investment. It allows students to stay in their home country and reduces the temptation to migrate to another country.

On one hand is the competition for global talent, and on the other there is the social backlash towards immigrants and foreigners experienced in many host countries. Along with increased competition, this negative perception of non-nationals has been identified as one of the factors in the U.S. for a marked rate decrease in international student enrollment (Altbach & De Wit, 2017; Rhoades, 2017)). Other factors related to immigration are fear of terrorism, discriminatory policies, and tightening of visa requirements especially from high enrollment source countries such as Saudi Arabia and China. Many U.S. higher education institutions (76%) expressed concern about future enrollment from the Middle East and the impact on students' willingness or ability to study in the U.S. (IIE, 2018). In fact, Saudi Arabia has posted double digit decreases in the last three years (-14% in 2016, -14% in 2017, -16% in 2018) (IIE, 2019). Online distance education can be a practical option to this new norm of restricted mobility.

Especially during the conditions brought about by the Covid19 pandemic, status of internationally mobile students were placed in limbo related to their presence in host countries. Approximately 70% of around five million international students were able to return to their home countries during the pandemic. Still, at least 30% of the students remained abroad and many have had to face significant challenges, either feeling abandoned or suffering discrimination, often with no financial capacity and sometimes with legal problems in terms of retaining their visa status in the country (Sharma, 2020). Mode 1 online education has the advantage of avoiding these kinds of situations.

While Mode 2 is governed primarily by the awarding institution's host country, Modes 1 and 3 are regulated by both the awarding institution's host country (i.e. where the university is located) and the student's home country (i.e. where the student is physically located). Regulatory systems have been behind in responding to the challenges posed by Mode 1, and the regulations that do exist tend to relate more to programs established through Mode 3 (Wilkins & Juusola, 2018). Most governments cannot prohibit their residents from enrolling in online programs. However, they can require that such programs be registered or accredited locally in order for their credentials to be recognized in country, or to be able to advertise and market these programs in country. In many countries, foreign distance or online education programs are not recognized at all because they do not have a physical local presence (Ziguras & McBurnie, 2011). For example, the United Arab Emirates (UAE) Government has only recently started to recognize certain online programs, but it still enforces stringent criteria for such programs to be acknowledged. This has shifted the risk to the students, who may experience difficulties in getting their degrees attested or recognized by employers .

Aside from accreditation, measures used by countries that may limit access include restriction of student loan eligibility, higher education investment priorities, copyright regulations, and residency restrictions (Merola, 2017). Other governments though have worked to ease requirements. In Malaysia for example, students in higher education are required to complete three compulsory subjects set by the Malaysian government as part of their program of study. To date, Malaysia has passed measures to exempt Mode 1 providers from this requirement. Nevertheless, requirement and regulatory burdens do exist and vary from country to country.

Quality and Reputation

Unlike in the U.S. where a majority of academic leaders perceive the learning outcomes in online programs as "the same or superior to those in face-to-face" (Debowski, 2001), the perception and experience is quite different outside the U.S. Quality control measures in the U.S. for online courses are fairly robust. In contrast during the early years of online distance education, Guri-Rosenbilt (2012) point to the proliferation of low quality and spurious programs offered in many countries that do not have any regulations in place. Consumers have expressed problems about the low quality and lack of accreditation of foreign TNE providers, particularly when those providers are for-profit institutions (Merola, 2017). Thus, fully-online programs is generally perceived to be less effective than those that were face-to-face. Although negative practices of this kind happened a number of years ago, the perception from past experiences still persist.

Contrary to this belief, most host countries of TNE now have regulatory bodies and established procedures for assuring quality. Quality assurance mechanisms have become increasingly well-developed and, in several countries, institutions that have failed to meet the expected quality standards have been closed. In addition, much TNE provision must meet the standards of quality assurance agencies in the home countries as well. For example, the Quality Assurance Agency (QAA) conducts quality audits of UK TNE (Wilkins & Juusola, 2018). The audits of both host country and home country quality assurance agencies indicate that the vast majority of TNE is of an acceptable standard. While there is no one central international accreditation body, UNESCO has developed a Portal that provides reference to accredited online and distance education institutions in many countries (International Association of Universities, 2020).

A further study concluded that students as well as other stakeholders – such as parents and employers – are generally satisfied with the quality of TNE (Pieper & Beall, 2014). This study involved a survey conducted in ten different countries globally of students enrolled in TNE higher education programs from a range of countries that included the UK, Germany, Australia and Malaysia. The study found that students were satisfied with their TNE offering because it allowed flexibility not available in other higher education programs; it helped develop and strengthen intercultural awareness and competence; and it effectively equipped the student with the knowledge and skills needed to improve their career prospects (Pieper & Beall, 2014). It should be emphasized though that the comparability of student experience in home and host countries (based on campus environment and physical resources etc.) should not be equated with quality of learning and student achievement.

And so, in the light of the recent market developments (i.e. increased competition in educational services markets), and increased regulatory demands from countries and international bodies, TNE providers have been compelled to further improve quality through engagement of competitive TNE program development among foreign and local institutions. In addition, innovative pedagogies incorporating problem based learning and self-directed learning can be achieved through online learning. Such opportunities foster incorporation of local and international context to receive knowledge and skills with international standards of academic quality from diverse TNE programs. This can enhance student experience and improve overall satisfaction among students.

The attractions of TNE are also linked to reputation and image. Institutions believe that TNE brings them legitimacy and helps in developing global brands and improving status through rankings (Ward, 2000; Wilkins & Juusola, 2018). Institutions that participate in TNE may benefit from enhanced rankings and perceived brand value, and this in turn may help attract students and gain access to new markets. Even lower-ranked institutions with international branch campuses can brand themselves as 'global institutions', enhancing their perceived status.

WSU Online Program in Engineering and Technology Management

This section will describe how the factors appear to date in the Engineering Management Master's Degree Program offered at Washington State University in Pullman, Washington.

Engineering management (EM) is a relatively new discipline compared to the other traditional engineering disciplines and the number of EM programs has grown in response to increasing student enrollments (Daughton, 2017). In the last decades, the earlier growth of EM that started in the U.S. (Storto, 2008) has now expanded to a large number of universities all over the world.

The ASEE Profiles of Engineering and Engineering Technology colleges lists approximately 100 EM and EM-

related programs (ASEE, 2017). The American Society for Engineering Management (ASEM) lists well over 100 EM programs in its current roster for 2018 (ASEM, 2017). Compared to graduate programs, there are fewer undergraduate EM programs (Daughton, 2017). At the Master's level, the percentage of EM graduates relative to the total of engineering graduates remains constant and relatively stable. Universities in 41 states have some kind of graduate level EM program (only 9 states do not) (ASEE, 2017). Thus, although Engineering Management is a relatively new discipline, Engineering Management programs are clearly well established throughout the U.S. and therefore can potentially benefit from considering Mode 1 education service export.

Of the existing EM programs, most of the EM Master's programs, have already been established online. For example, the U.S. News and World Report lists 63 online EM programs (US News and World Report, 2018). EM online programs are offered in the following formats:

1. Asynchronous: The lectures are pre-recorded and are viewed and listened to by the students at any convenient time and place. Then students are expected to take some assessment like quizzes or tests. This is the most common form for online education as it is easily implementable, and it gives faculty and students flexibility to be located from anywhere as long as they have access to the Internet. Depending on the medium of the course being offered, there may be little interaction with a professor. For example, a recorded program in CD-ROM has very limited interface between fellow students and faculty. Other asynchronous courses on online platforms may require more participation and interactions in the form of discussion forums and group work through wikis.
2. Synchronous: The lectures are in real-time, typically with live interactions through videoconferencing, chat, and/or messaging apps. Although it also has no location restriction like asynchronous, both faculty and students have to be available and connect together at specified times that the real-time live interactions take place. It mimics more closely to the traditional classroom experience except that instead of being in a physical classroom, the teacher and students meet online in a designated "course room" weekly. The students and teacher access and connect to this collaborative space to meet as a live class session. During the class session, the teacher may lecture, facilitate class discussions and/or interactive activities, assign classwork to be worked on individually or as a team, or administer a test. The activities are very similar to what can be done in a traditional classroom setting.
3. Hybrids: This is a combination of synchronous online and in-class learning. An online class shares the professor in a traditional on-campus class by broadcasting that class in the Internet. Hybrid classes increase space utilization and resources can be shared by both on-campus students as well as online students.

Washington State University's (WSU's) Engineering and Technology Management (ETM) program provides working engineering professionals with the knowledge, tools, and skills to manage projects, operations, organizations, finances, and people. Live, online courses (i.e. synchronous) are available and can be accessed from anywhere in the world. WSU ETM offers a Master's in Engineering and Technology Management (METM) and seven graduate certificates in constraints management, construction project management, logistics and supply chain management, manufacturing leadership, project management, six sigma quality management, and systems engineering management.

Although online classes have been offered since 1998, WSU officially launched the Global Campus in 2012 which combines the university's online-based instructional programs and offerings, and adds programs designed to bring online education to a wider audience. It currently offers 12 fully online undergraduate degrees and 9 fully online graduate Master's degrees, including METM. The METM courses are also available to graduate students from other online programs as well as traditional on-campus programs as service or elective courses. WSU Global Campus has its own student services and technical support. It also seeks to engage distance students with co- and extra-curricular events that are free and online where they can connect with peers and experts via webinar, livestreamed events, academic contests, and various activities (e.g. online book clubs) (WSUa, 2019).

WSU in general uses all three online delivery formats. METM courses in particular are exclusively synchronous via distance learning delivered through the Internet. The courses require high-speed Internet access. If high-speed Internet is not available where students reside, many connect from their workplaces or Internet hubs. All synchronous sessions are recorded and thus students have the option of viewing (or reviewing) the recorded sessions any time. Course materials, recorded lectures, assignments, tests, and/or other assessments are all managed in course sites that are available on the Internet and can be accessed by students wherever they may be. Also, many of its faculty reside in different parts of the U.S and can teach from wherever they are. WSU uses the Blackboard Learning Management System (LMS) and Zoom as its videoconferencing application.

Factors at WSU ETM

The following section discusses the factors as it pertains to WSU ETM online education program- (1) market demand and supply, (2) consumer preference and affordability, (3) ease in market entry and operational challenges, (4) internationalization and local relevance, (5) visa/ immigration and legal factors, and (6) quality and reputation.

Market Demand and Supply. Of the approximately 3,000 Global Campus students (i.e. online distance education students), 170 are international students (i.e. Mode 1) (see Figure 4) who are located in 45 different countries (WSUb, 2020). Eleven are students in the College of Engineering (see Figure 5). Additionally, a number of students enrolled in METM courses are students from other non-ETM programs who take the courses as electives. Examples of the countries where Mode 1 students reside are Sudan, Canada, Mexico, Bermuda, Turks and Caicos, Qatar, Puerto Rico, and Sweden.

At WSU, international students comprise ~5% of total online distance education students with a significant portion of undergraduate and graduate enrollments (85%) in the business school. Engineering comprise ~0.3%, mostly graduate students which is miniscule amount. A general growth trend is observed but the effects of Covid19 pandemic is yet to be determined (See Figures 3 and 4).

WSU currently has no current partnerships with other international universities to offer EM programs abroad. However, faculty who are previous residents of countries abroad or have contacts with foreign colleagues have expressed interest in making connections to facilitate EM program collaborations with other international institutions. This has some potential to enable partnerships to further offer the EM program in foreign countries.

Consumer Preference and Affordability. It has been observed that most students in both synchronous and asynchronous formats, including Mode 1 students, exhibit proficiency with the online technologies and express an inclination with the online environment over a traditional classroom, further underscoring the online culture prevalent of the times. Moreover, the same as any online student, Mode 1 students confirm the benefit from the flexibility of the online format that is compatible with work-related requirements, especially those who frequently travel for work, and accommodate family obligations. This further highlights the advantages of the online preference over campus life. End of program surveys in WSU ETM show >90% satisfaction with the fully online format with positive comments specifically directed to the preference for the online nature of the program.

Affordability, especially from developing countries, has been the topmost known issue. WSU charges out-of-state tuition for foreign students at $1,375 per credit (WSU, 2019). This is more costly (up to 10X more) compared to local institutions in developing countries (e.g. Ateneo (2019), a private university in the Philippines charges less than $100 per credit). Other universities have offered international scholarships to ease this burden.

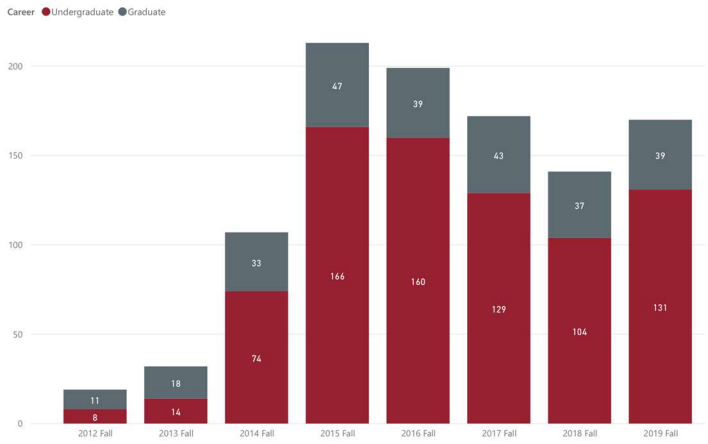

Figure 4 WSU GLOBAL CAMPUS: NUMBER OF INTERNATIONAL STUDENTS STUDYING ABROAD, 2012-2019 Source: www. wsu.edu, 2020.

Ease in Market Entry and Operational Barriers. The leading driver for offering courses via Mode 1 for WSU ETM is ease in market entry. There were no additional costs incurred as the courses were already developed and available across all states in the U.S. The value proposition is that opening these courses to a worldwide audience increases the numbers of students with no requirement for physical classrooms outside of the technology required to access the online platform. Thus, the expectation is that whatever market demand is out there for EM, is captured by merely opening access to students abroad (Mode 1). This is not unlike many EM online programs where the strategy is to take an existing program, migrate it to an online platform, and then extend it locally, regionally, nationally, and finally internationally. For WSU, providing access to students abroad means admission and entry through the university website and connecting to the university's LMS platform via the Internet to access and/or attend classes. International students can learn about WSU's distance course and submit applications through its WSU Global Campus webpage (https://globalcampus.wsu.edu). Though named "Global Campus", the website caters to any student outside of its traditional campus.

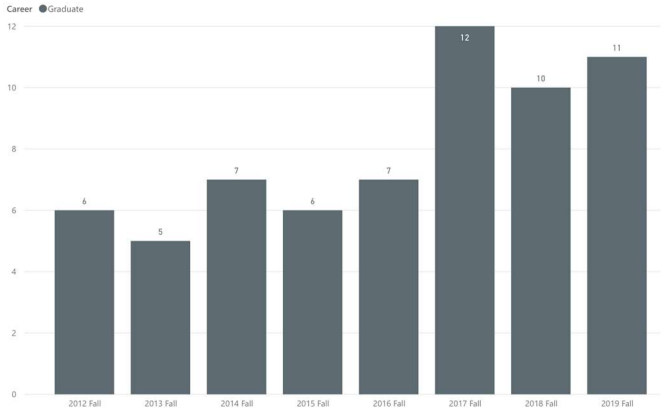

Figure 5 WSU GLOBAL CAMPUS: NUMBER OF INTERNATIONAL STUDENTS STUDYING ABROAD IN ENGINEERING AND ARCHITECTURE, 2012-2019 Source: www. wsu.edu, 2020.

An operational barrier identified was the time component of synchronous courses. Synchronous courses have a set time for student to attend live classes with instructors. So corresponding times may be the middle of the night or really early in the morning for students abroad. To get around this, recordings of the live sessions are available to students for viewing at any time. Connection issues are also addressed by allowing downloadable versions of the recordings. Acquiring textbooks and/or software applications for the courses has also been an issue. Print copies take time to be delivered to other countries by mail. Downloadable digital versions of textbooks and applications are faster to get and more convenient. However, embargoes such as the US embargo with Sudan (US Treasury, 2019) for example have imposed an extra challenge to acquiring academic resource requirements that require financial transactions.

Internationalization and local relevance. The benefits of internationalization have been observed in the classroom experience of conducting classes with a diverse student body sharing varied perspectives in a global context. However, language continuous to be a barrier. This is evident in the experience with English as a second language (ESL) students. WSU does not require English proficiency tests. However there are support services available such as the Graduate Professional Writing Center to help all online students at WSU.

Visa/ immigration and legal factors. Legal and regulatory barriers abroad are not explicitly known by most educational providers and there is no formal process to identify or address them. WSU for example, rely on the students to ensure that they are not in violation of their own country's restrictions. Thus, only students whose country residence have free markets to education can feasibly and practically enroll, while access to those countries that do not recognize U.S. qualifications remains out of reach.

Quality and reputation. Like many universities, academic integrity is a serious institutional cornerstone at both institutions, as it is directly related to academic rigor and quality. Operationally, securing examinations and verifying identity is the topmost concern. WSU subscribes to programs like ProctorU, which provides electronic proctoring. Various assessments at WSU are not proctored such as take home exams, case studies, and/or projects. These alternative assessments tend to be highly individualized original inquiry, exploration of knowledge, and investigation of problems. Plagiarism is checked through applications such as Self Assign or iThenticate.

Another barrier met is the perception that online courses are not as rigorous as face-to-face courses. As stated previously, past experience from low quality programs, mostly for-profit, have plagued online education abroad. This is a significant hurdle for many US programs now seeking to offer their own online programs, especially those with less name recall. What many U.S. institutions are counting on is the overall recognition of the unparalleled quality of the U.S. higher education system, in whatever shape, form, or mode it is offered.

Lastly, a note on the experience of WSU during the Covid19 pandemic. As lockdowns and travel restrictions were announced, WSU's ETM classes continued as business as usual. WSU ETM had no internationally mobile students residing in Washington and so unlike other programs, there was no crisis about stranded students with visa and legal status issues for staying in the United States. Additionally, extra accommodations were extended to students as they had to make adjustments to their own work and family environments in their homes.

Conclusion

Current trends comparing specifically cross-border supply of education (Mode 1) and consumption of education abroad (Mode 2) indicate a plateau or slowing of Mode 2 export services and a growth in Mode 1 export services for the U.S. Using the Mode 1 Engineering Management Master's Degree Programs offered by Washington State University in Pullman, Washington several additional suggestions emerge:

- develop a dedicated international webpage specifically targeted to Mode 1 students;
- embrace students from anywhere in the world putting in place policies to deal with political unrest, world climate, and additional factors which can otherwise impact student success;
- consider collaborating with other international universities so that EM programs can be offered abroad but through local channels;
- offer international scholarships or leverage existing international student funding programs;

- provide formal support for English as a second language students;
- consider synchronous and asynchronous delivery the perspective of the international student;
- investigate legal and regulatory barriers abroad to address these potential barriers; and emphasize university reputation and faculty expertise in delivering high quality online education.

How enablers and barriers combine to determine the viability of Mode 1 Engineering Management Programs is a function of the students, the host countries, the offering institutions and the competitive climate at any time. While the Engineering Management example programs currently involve a very small number of international engineering management students, their existence suggests that the enablers and barriers for exporting online engineering management programs may align in a manner that could permit growth of this product with resulting benefits to the universities offering such programs and the students taking the programs.

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AUTHOR

Luna Magpili is an Associate Professor of Engineering and Technology Management at Washington State University, Pullman, WA 99614, USA (e-mail: luna.magpili@wsu.edu).