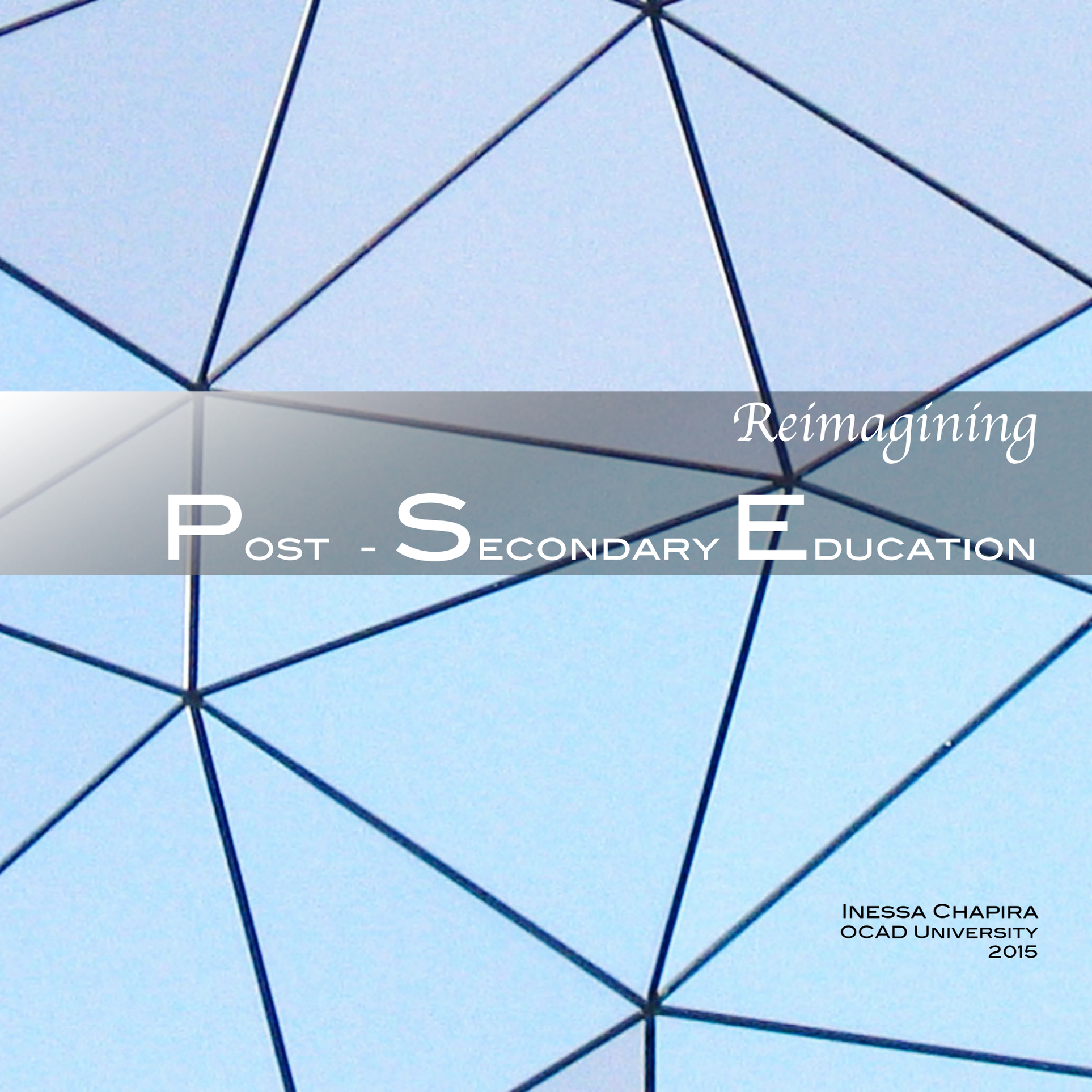


Reimagining Post - Secondary Education

Inessa Chapira
OCAD University
2015

Reimagining POST-SECONDARY EDUCATION

Inessa Chapira

Submitted to OCAD University in partial
fulfillment of the requirements for the degree of
Master of Design in Strategic Foresight + Innovation

Toronto, Ontario, Canada, December 2015

Author's Declaration

I hereby declare that I am the sole author of this MRP. This is a true copy of the MRP, including any required final revisions, as accepted by my examiners. I authorize OCAD University to lend this MRP to other institutions or individuals for the purpose of scholarly research. I understand that my MRP may be made electronically available to the public. I further authorize OCAD University to reproduce this MRP by photocopying or by other means, in total or in part, at the request of other institutions or individuals for the purpose of scholarly research.

Abstract

This Major Research Project (MRP) examines the post-secondary environment (PSE) in an effort to reimagine and explore its potential future. This project revealed how from a linear system with limited customer segments, the PSE system may transform into a multifaceted, multi-segmented, adaptable holistic system. Presented are a series of recommendations created for post-secondary institutions to consider. A primary recommendation is an authentic student-centered atmosphere with a focus on quality education, experience and freedom of choice that is cost efficient. These recommendations are derived from an assessment of stakeholders' needs and desired results. Introduced are experts' opinions and students' true inclinations for the post-secondary educational environment. The project includes an analysis of external and internal interventions affecting post-secondary education in the form of identified trends and drivers. This project referenced the academics' and experts' opinions through the interview process, literature review and presented alternative scenarios for the PSE environment. The decision belongs to University or College whether or not to use the results of this research and put recommendations forward into actions for returns that would benefit PSE stakeholders.

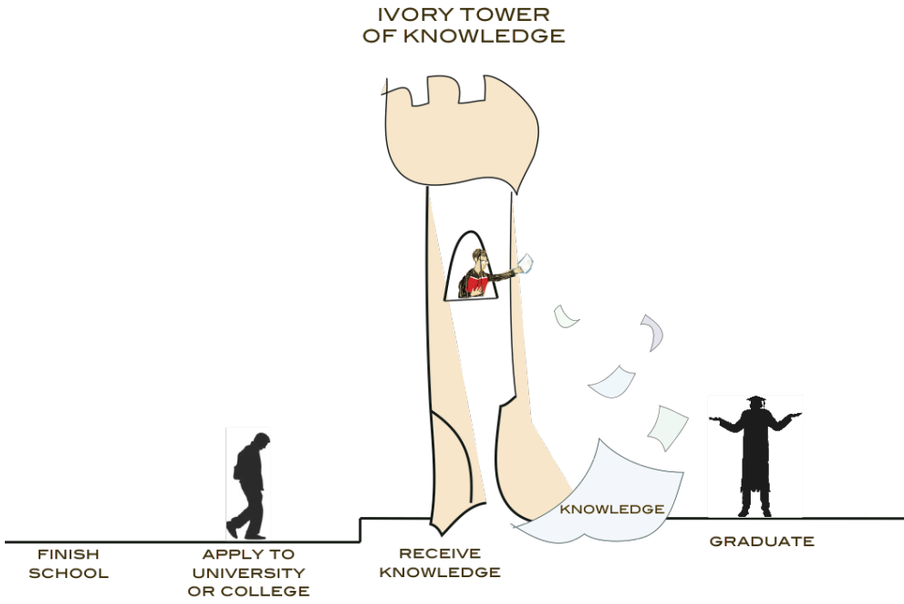


Figure 1. Ivory Tower of Knowledge

Keywords

Post-Secondary Education, Online Learning, Practice-Based Learning, In-Person Learning, Life-Long Learning, Blended Education, Global Education, Flipped Classroom, Unbundled Programs, Integrated Approach

Acknowledgements

This was one of the most important milestones for me to achieve and with the strength, support and inspiration of my family and friends I came to realize it. Special gratitude goes to my mentors Jeremy Bowes and Lenore Richards. I learned a lot from you and am grateful for your patience, inspiration and wisdom. I thank all the faculty, staff and students who participated or contributed to the work through interviews and surveys. Thank you Nabil Harfoush, Patrick Saavedra, Mark Robertson, Peter Thompson, Vincent Hui, Andrew Clifford and Sylvia Link. Your input and experience in the field of post-secondary education was highly valuable and a great contribution to this project.

Dedication

To my Husband, daughter and son with all my love.

Table of Contents

Figures and Illustrations

introduction

CHAPTER 1 INTRODUCTION

We live in a time of post-secondary educational environment change; change that provokes us to question the way we learn and teach; change that questions post-secondary educational facilities' existence; and new changes that have not affected post-secondary educational institutions before. Teaching pedagogy has evolved from the knowledge delivery model to an interactive culture of intellectual exchange, co-creation and experience. Many external and internal changes are affecting the educational environment, with the major ones being the emergence of the Internet, new technologies, and increasing financial costs of delivery. The current institution is a dichotomy of competing activities: self-study versus collaboration; online learning versus face-to-face interaction; independence versus integration; large lecture halls versus smaller flexible classroom spaces; confidentiality and transparency; local and international students; home-based and global education. The relaxed borders of a global market provide diversity and lead to broad active learning that is driving the need for collaboration and group work. Open sources and digital technology are no longer a novelty but rather an anticipated standard norm to a young generation that requires built-in technology to support learning. This project research confirmed many statements reviewed in literature about the current issues and trends in education. As such, Cindy Frewen's position is that participants see future post-secondary environments as "…flexible, creative, and collaborative, and blend virtual and real world experiences."[2] This research reveals, however, that although students are technology-savvy and independent to acquire knowledge through the Internet, they are more than ever, seeking face-to-face interaction with teachers and mentors. "Traditional brick and mortar institutions, however, provide students with a community where they can engage, interact, and support each other" according to Arleen Bejerano.[1] I suggest that these changing attitudes are an opportunity to reimagine post-secondary education and present recommendations for future consideration.

---

1. Bejerano, Arleen. "Face-to-face or online instruction? Face-to-face is better." *Communication Currents* 3, no. 3 (2008).
2. Alexander, B., Birch, D., Frewen, C., King, K., Robinson, S., Tibbs, H., Schultz and Lum. *The Future of Education*. APF Compas (2014).

Background

My interest in this topic is not recent, as I am immersed in post-secondary educational environments having worked full time at York University for ten years, being a part-time student at OCAD University, and am the mother of a University graduate who is now a teacher. I am constantly surrounded by students, faculty and staff; only for a short time do I separate myself from this atmosphere. By the nature of my work as a facilities planner I tend to notice changes and look for things to improve. I automatically tune in to news or articles about education. Having realized that post-secondary education is going through a turbulent time, I felt compelled to investigate, probe to provide research information, recommendations and enhancements, based on perceived changes.

Research Questions

- What is the future of the higher education as an ecosystem and what lies ahead in the future of post-secondary educational business?
- What are some gaps in the current higher education business model system?
- Is the centralized university's business model the best model to integrate digital technology and efficient financial resources?
- What are the opportunities for innovation in the field of education that deliver better educational services?
- How might the higher educational system be developed into a long-term, holistic, adaptable business model?
- What are the viable user-centric methods that can be applied to a new educational model?
- How can we provide equitable education for all; unbiased of nationality, age or status?

Objectives

This work is an exploration of the future of the post-secondary environment, using some of the methods offered through the Strategic Foresight and Innovation program. Multiple factors are influencing the Post-Secondary Educational (PSE) system. It was my personal and professional interest to find out how an open source context and economic changes would affect PSE environments in the future. My commitment was to explore an enhanced student-centric PSE environment that focuses on education, experience and service. I chose strategies and methods that align with the stakeholders' desired outcomes. The goal was to meet anticipated students' needs by improving learning outcomes and cost-efficiency. It is both my objective and subjective decision to include social and economic considerations for users for the PSE system. I believe that successful outcomes are the result of working closely with multiple stakeholders. The goal was to ensure their visions are achieved.

Scope of Work

The process began with a review of needs, identification of PSE conditions, and recognition of stakeholders' dissatisfaction with the current system. Reviewing literature and using survey and interview methods helped to uncover this information. Further project activities included the development of future scenarios, reviewing different customer profiles, designing value propositions and building business model maps. The entire MRP process enabled a search for innovative solutions, new concepts and developments.

Before favoring or highlighting an innovative solution for stakeholders' requirements, it was essential to have a thorough understanding of the issues and users' dissatisfactions. Explorations of the existing PSE system and analysis of potential opportunities were part of current design solution. There was a concentrated effort to unpack the PSE environment by looking at different user pains and gains. This process found gaps in the system between user dissatisfaction and desired outcomes.

The Need For Change

With the greater cost of living, many students are accepting the PSE system as Canadian students pay a fraction of tuition fees compared to our neighbors in the U.S. PSEs offers, however, are practically the same as there are no alternatives. Universities have the same structure of a linear system to recruit students, give them knowledge and finally graduate them. Then the same process starts over. This is no different than an industrial production process. Knowledge is currently the main purpose provided by universities to their students. With information becoming more easily accessible via the Internet, however, universities are losing the "monopoly" over knowledge, according to H. Tibbs.[3] This system outdated itself, as changes happening outside of the system are greater than the system can ignore. The disruptions are happening at all fronts including open sources of information or democratization of knowledge, technological and digital progress, open market, high competition in global economy, changes in job market demands, increased cost of living, rise in population and longer life span, awareness of global issues and recognition of different learning styles and abilities.

Figure 2. Robarts Library, University of Toronto
(Source: http://heritage.utoronto.ca/fedora/repository/islandora:12155/TN)

The flexibility of the present educational system does not seem to be adequate enough to have learners prepared for the fluctuating environment of industry demands.

3. Alexander, B., Birch, D., Frewen, C., King, K., Robinson, S., Tibbs, H., Schultz and Lum. *The Future of Education*. APF Compas (2014).

Students' dissatisfaction with the PSE system is already happening during their years of study or after their graduation. These include: lack of choices with rigid program structures, prescriptive approach, lack of administrative and technical support, frustrating complexities of a larger system, bad planning resulting with many unemployed graduates, lack of experiential learning or opportunity to gain experience in the industry due to lack of internship programs or universities disconnection from industries.

The current PSE system, like many large structures, is very bureaucratic and full of rules and regulations controlled by system administration. In this system, all students are treated the same regardless of their status or learning styles. The PSE system is rigid and does not allow for a lot of course choices or schedule flexibility compared to growing choice availability outside of the PSE system. There are more open and customized approaches offered through the use of leading digital and technological organizations like Apple, Google, and Autodesk through open source information, personalized digital devices and flexible and less expensive educational programs. Hardin Tibbs states, "Digital technologies have created an information-saturated environment in which the individual's effort to create personal meaning has rising importance."[3] The current university system is too complex to navigate through, especially by new students who feel lost and isolated in large lecture halls and impersonal campus spaces. According to McCabe, "… educators across the country are concerned that the traditional classroom lecture model may be turning students off rather than engaging their curiosity."[4] Students feel the lack of support or advise from their faculty while the faculty struggle to find new ways of learning methods or time to support students. Current assessment and student progress systems are lacking transparency. Universities invest more in research to compensate for the lack of funds available to run their large structures while education is taking a secondary priority.

The system is too stiff in its current structure to adapt to the rapid changes happening in the professional world. The PSE system is for most, works in isolation, disconnected from other industries or communities. It is illogical as it raises professionals for these industries, citizens of these communities. Graduates feel unsure about their career's future and their skills or experience in adaptation to professional environments. Due

3. Alexander, B., Birch, D., Frewen, C., King, K., Robinson, S., Tibbs, H., Schultz and Lum. *The Future of Education*. APF Compas (2014).
4. McCabe, B. So long, lecture hall. Johns Hopkins Magazine (2012). Retrieved from < http://hub.jhu.edu/magazine/2012/spring/so-long-lecture-hall>

to the lack of internship programs in many PSE institutions, students feel uncertain about their future career or job opportunities. After graduation, students feel pressure from employees or high job market competition for knowledge and skills upgrades. The PSE system, however, has not developed its continuous learning programs to satisfy students' demands. Instead, the industry has taken on an educational role to satisfy professionals' needs with the skills and competencies they need to progress in their career. Attwell notes that most learning is now informal; offered by a variety of providers at various times.[5] New educational initiatives through Autodesk, Lynda.com, MOOC, or courses through professional memberships are available for a small fee or free of charge at any time, always current and in-line with industry demands. It is a lost opportunity for PSE institutions.

There is need for a shift in the system from production of specialized professionals of the industrial era toward growth and continuous development of highly adaptable, versatile specialists with broader knowledge and collaborative skill sets. PSE's established culture needs to transform in order to survive through the highly changing environment. The PSE system needs to satisfy current students' needs and professional demands. With on-line learning and further development of the virtual environment, education will become open to all. The further development of broader global education will potentially eliminate language barriers. Industries' fast approaching progress might lead to their own educational models. These are some of the potential disruptions that PSEs should contemplate if would like to survive. Strategies developed through Foresight methodology will help to understand the challenges, demonstrate possibilities for the future and establish strategies for the PSE system.

5. Attwell, Graham. "Personal Learning Environments-the future of eLearning?." *Elearning papers* 2, no. 1 (2007): 1-8.

Gaps in the Current PSE System and Students' Discontents

- Many students are experiencing financial barriers as tuition fees and cost of living are increasing.
- Students are dealing with career uncertainty as many fear there are no job prospects after graduation;
- Lack of practice-based learning;
- Few internship programs available in many post-secondary institutions;
- Lack of student-teacher face-to-face interaction;
- Courses are often not available part-time to meet students' interest and flexibility in time;
- There is a need for business, entrepreneurship, time-management and collaboration courses;
- Program structures are rigid and do not allow for choices;
- Students feel the lack of time for learning due to external pressures such as: work, family obligations and limited financial support; all of which have an affect on the time management;
- University/college systems are too complex to navigate;
- Classes are too large;
- Universities seem to be more research – rather than education-focused

methods

CHAPTER 2 METHODOLOGIES

The project process included various foresight and strategic methods. The process started with environmental scanning. This is an analysis of current PSE environment trends and drivers. These trends were then combined in groups and major trends were identified. The key drivers then help to create scenarios. Simultaneously, a student survey and expert interviews were conducted. The analysis of trends and drivers help to identify three critical uncertainties: empowerment, delivery methods and pedagogy. Based on these three critical uncertainties the potential scenarios were created. The scenarios help to look at future opportunities and imagine different futures including a preferred future. The three horizons were created to illustrate the current gaps in the PSE system and how these can be transformed in the 3rd horizon. Through this process, three strong strategies were established that included a series of recommendations; these along with the results of each method are described and illustrated in the rest of this research document. Business models were put together to identify the structure such as gaps in the current PSE system and recommended potential strategies for a new radical approach.

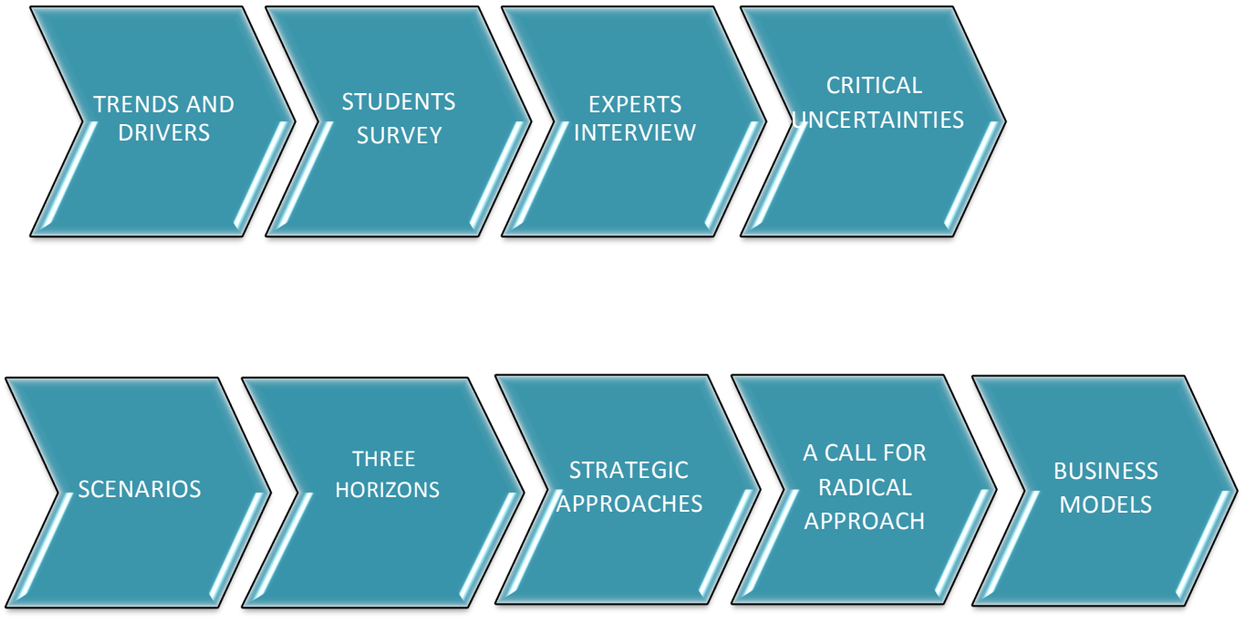


Figure 3. Project Process

Trends and Drivers

A review of literature helped to scan the PSE internal and external environment to better understand the current situation and changes that are already affecting PSE. Information sources including newspaper and scholarly articles uncovered some of the recurring tendencies that already impact students or PSE systems. These tendencies are provoked by technological, social and economic transformations in the environment. Twenty trends and drivers were identified and described. These trends helped to find a direction for this research project as well as prepare questions for interviews and the student survey. Key trends and drivers were considered as preliminary signals to future potential routes.

Trend 1

Online Learning

Figure 4. Online Learning
(Source:http://www.cambridge.org/discoveryreaders/files/8913/9384/9778/online_learning.jpg)

Category Distinction: Technological and Social

Trend Summary:

Computer based, web-based learning and teaching is growing in popularity among students and faculty.

Signals:

Emergence of new online programs and courses such as MOOC and Lynda.com. Many Universities and Colleges are already implementing distance learning programs and online learning courses including Degree courses such as Queens University.

Driver: Access to information has become widespread with technological progress, the popularity of the Internet, mobile technology and social media. Benefits include convenient access to knowledge and more control over one's own learning. Government funds are diminishing for PSE. The government incentive is to reduce delivery costs through online learning courses as a more cost effective option compared to a Universities and Colleges' physical classroom facility experience. [7]

Industry:

Education, Information Technology

Implications:

Online learning allows for wider population access to knowledge (global education). Implications include policies and procedure changes for online teaching. Better technical support will be required for students to assist with the seamless process of online learning. Online learning opens up new methods for teaching where the instructor plays the role of facilitator figure. It also opens up new methods for learning where students become more self-directed learners and obtain new skills as strategists.

Extrapolation:

Digitization - "By 2050, futurists believe, schools will no longer teach children to read and write, because those skills will be as useful as stringing telephone lines is to today's youngsters" according to Jim Parsons.[6] The education will be free and open for all who has access to technology.

Counter trend: Maker's schools

---

6. Parsons, Jim. Envisioning Education in the Year 2050. The Alberta Teachers' Association. ATA Magazine (2010). Volume 90-2009-10.
7. Reducing Costs through Online Learning. *Five Proven Strategies from the US, Canada, the UK and Australia 2013*. Contract North (2013). Retrieved from HYPERLINK http://contactnorth.ca/sites/default/files/reducing_costs_through_online_learning.pd

Trend 2

Self-Directed Learning Using Technology

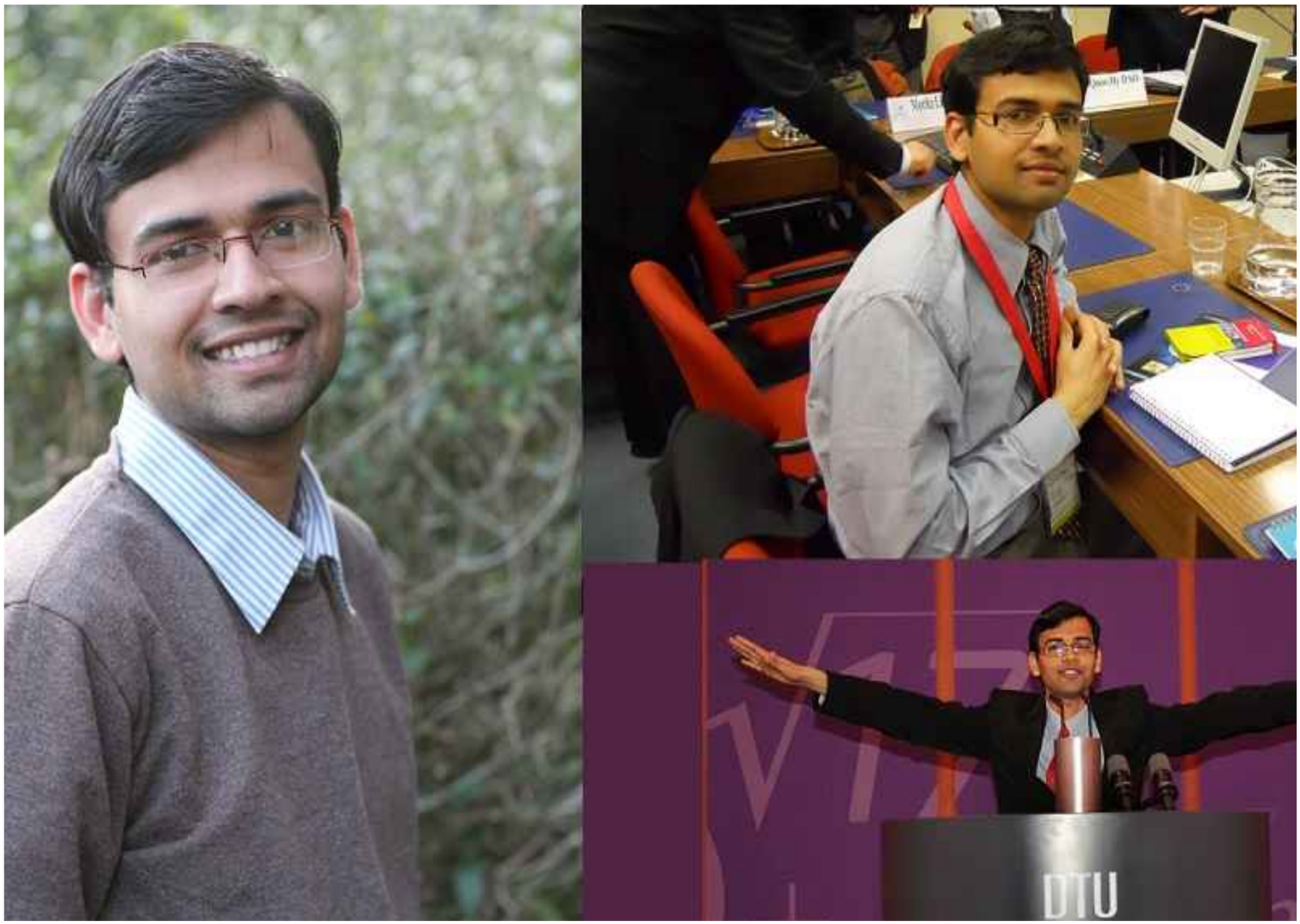


Figure 5. Great Real Life Example of Self-Directed Learning Using Technology
(Source: Khandelwal, A. (2014))

Category Distinction: Technological, Social, Economic and Environmental

Trend Summary: Packaging educational materials in units that one is able to use online. This approach opens up new opportunities for systematic learning and skills upgrading at any time of one's life experience to take continuous courses. According to Hardin Tibbs (2014), "Digital technologies have created an information saturated environment in which the individual's effort to create personal meaning has rising importance."[10]

Signals: Signals include individual examples of successful outcomes; for example: "Ankit Khandelwal has designed his own self-study program to become a global business leader."[8] Technology allows for mobilization of knowledge. Learning is a life-long experience and technology is providing this means of having access to knowledge wherever we are. "Brandman University for example recently launched a competency based degree on a mobile platform where students have access to 30,000 pages of course material from a tablet or smart phone."[9] Web based gaming allows for social interaction and learning.

Driver: This shift resulted from high tuition payment, the availability of information through the Internet, and the opportunity for collaboration through social media/web. This new means to knowledge such as social learning and online learning is incentive to try new self-directed approaches in receiving education and are cost effective, flexible and have high quality educational apps. "Mobile devices along with low barriers to connectivity and the choice of hundreds of new apps specific to education puts access to education in the hands of learners making learning-on-the-go a reality."[9] Another driver is an individual's decision to select self-directed leaning.

Industry: Education

Implications: Self-directed learning opens up an opportunity for more rounded education as one studies materials in different industries and fields of knowledge based on one's curiosity and interest. Technology has the potential to completely change how we learn.

Extrapolation: We will see improvements and further progress in new educational digital applications.

---

8. Khandelwal, Ankit. Great Real Life Example of Self-Directed Learning Using Technology. ED Tech Review (2014). Retrieved from < http://edtechreview.in/e-learning/1496-great-real-life-example-of-self-directed-learning-using-technology>
9. Morrison, Debbie. Three Trends That Will Influence Learning and Teaching in 2015. Online Learning Insights 2014. Retrieved from < https://onlinelearninginsights.wordpress.com/tag/social-learning/>
10. Tibbs, Hardin. The Future of Education. The Emerging Learning Models. APF Compass | Education Special Edition 2014.

Trend 3

Student as Creator and Innovator

Figure 6. The Maker Breaker

(Source: https://s-media-cache ak0.pinimg.com/736x/49/ae/0d/49ae0dabd963121cd5af5682d4987065.jpg)

Category Distinction:

Technological, Social, Economic, Foresight

Trend Summary: According to NMC Horizon Report, students are "…making and creating rather than from the simple consumption of content."[11] This trend is gaining traction with many universities that are encouraging and assisting students with innovation by providing hands-on training, lab facilities and supportive technology. From prototypes to final products, students are no longer waiting for solutions as they create these themselves.

Signals: Emergent examples include the Standford Product Realization Lab.[12] According to the NMC Horizon Report, "In the past few years, academic makerspaces and fabrication labs have popped up on university campuses in a variety of places, including libraries."[11]

Driver: Employers have higher expectations from graduates that they will get things done. Students also need to be more creative and innovative, as jobs become sparse and competitive. Universities have recognized that allowing students to take risks and fail during the time of their studies will potentially pay off for students to be successful in their future working environments because they learned from their mistakes while in school.

Industry: Education

Implications: With support from PSE institutions, students will be able to gain confidence in what they learned and accomplished in school which will provide a greater start when they enter their work environments. The "Make-to- Learn Initiative is a higher education example that brings together makers, educators, and researchers to understand how DIY culture can advance learning outcomes, be effectively integrated into educational institutions, and engage different learning styles" as listed in NMC Horizon Report.[11] Students are learning how the process of innovation and creativity works and will be able to experience it first hand.

Extrapolation: In the near future, skills in entrepreneurship and invention will be in high demand and having an opportunity to develop these skills along with skills in collaboration, project participation, and peer-to-peer learning will be encouraged even further.

11. New Media Consortium. "NMC Horizon Report 2014 Higher Education Edition." (2014).
12. Stanford Product Realization Lab: Transformation. (2013). Video retrieved from < https://vimeo.com/66198276>

Trend 4

Decentralization and Democratization of Knowledge

Figure 7. LinkedIn Group

(Source: http://latimerappleby.com/wp-content/uploads/2015/01/technology.jpg)

Category Distinction:

Technological, Social, Political

Trend Summary:

Increasing access to technology and the expansion of knowledge among the general population is growing. The Internet allows for transparency and freedom of information.

Signals:

We have already observed the true potential of knowledge democratization when readers and users of the Internet and web are becoming the authors of articles, blogs, and creators of applications. Meier references Muki who argues "the artful alteration of technology beyond the goals of its original design or intent," enables "Deep Democratization."[13]

Driver: The progression in technology, the emergence of the Internet, mobile technology and specifically social media create a condition of a wide distribution of information. Google and Wikipedia play a major role in the ongoing access to information.

Industry: Education, Information Technology

Implications: From the age of the Industrial Revolution, knowledge was democratized through the emergence of the printing press. This day when knowledge is democratized even further with the mobilization of technology. Access to digital files on literature are gradually replacing the need for University libraries that are the main keepers of knowledge, according to Robinson.[14] Challenges still include a social and political divide as well as technology affordability.

Extrapolation: Increasingly decentralized, affordable, and mobile technologies will allow for even further knowledge distribution and an exchange of experiences globally. This will lead to the popularity of global education and work exchange among countries. We will see a further reduction in social division and an increase in countries' democratization as this is already happening in Egypt and the Middle East. In fields such as healthcare, science and engineering we will see further progress not only in terms of disease prevention, but huge progress in innovation of new cross-disciplinary products and services to improve humanity's well being.

---

13. Meier, P. Crisis Mapping, Neogeography and the Delusion of Democratization. iRevolutions. From Innovation to Revolutions. (2013). Retrieved from < http://irevolution.net/2013/03/17/neogeography-and-democratization>
14. Alexander, B., Birch, D., Frewen, C., King, K., Robinson, S., Tibbs, H., Schultz and Lum. *The Future of Education*. APF Compas (2014).

Trend 5

Broad Dissemination of Knowledge

Figure 8. Leadership

(Source: http://www.aiche.org/chenected/2012/12/calling-cross-disciplinary-innovators-green-guy-wants-you)

Category Distinction: Technological, Social, Political, Economic, Environmental

Trend Summary: Crossing boundaries of individual fields and overlapping skills and knowledge of various disciplines such as: engineering and science, art and technology, business and design, and so on…

Signals: Many universities foster new ways of innovation by offering cross-disciplinary courses. For example: George Washington University's strategic plan: "Many research centers, institutes, colloquia, lecture series, and seminars bring diverse groups of faculty together regularly, and numerous research groups and teams meet informally with colleagues inside and beyond the university."[16] There are also collaborations among universities. Also, universities cooperate with communities, cities (with the example of the SCYP program). In music and art industries we see collaborations among artists.

Driver: Progress in technology leads to collaboration and shared knowledge among disciplines in work environments, which becomes the primary reasons for broader knowledge required from graduates and the ability to collaborate with specialists in other disciplines.

Interdisciplinary approaches began to be used in fields of research in order to create new solutions. The shift in the work environment demands new skills for collaboration and co-creation.

Industry: Education, Information Technology, Engineering, and Science

Implications: There is an opportunity to study and work with people from different disciplines and, therefore, gain broader knowledge, skills, and develops new ideas. Working with other disciplines makes us aware how many professions are related and assist each other in creating innovative solutions. The interdisciplinary approach affects specialists who would need to change the way they conduct their work to a new collaborative style of working.

Extrapolation: The is going to be a much bigger shift in the future to move from specialized knowledge and education to a holistic/collaborative way of learning and working in the future as innovative, economical and environmentally beneficial solutions take priority.

---

15. Jensen, Cory. Calling Cross Disciplinary Innovators: The Green Guy Wants You! AICHE (2012). Retrieved from < http://www.aiche.org/chenected/2012/12/calling-cross-disciplinary-innovators-green-guy-wants-you>
16. The George Washington University. Cross-Disciplinary Collaboration. Retrieved from https://provost.gwu.edu/cross-disciplinary-collaboration

Trend 6

Continuous Education / Life-Long Learning

Figure 9. Continuing Education

(Source: https://cdn.ncees.org/wp-content/uploads/2012/11/525x242continuing_ed.jpg)

Category Distinction:

Social, Economic, Environmental

Trend Summary: Many people are returning to universities and colleges to continue their study in post secondary education after already obtaining a degree or diploma. Some return in hopes of advancing or changing their career.

Signals: According to A. Kyriakos:"Almost 8 per cent of college graduates furthered their education in a degree program in 2008-2009, up from 5.3 per cent in 2001-2002. The percentage of college students who are university graduates has also increased: 10 per cent in 2009-2010 compared to 8 per cent a decade earlier."[17]

Driver: The world's increasing complexity of changes in the economic market, the labour market and technological advancements create considerable pressure for people over the age of twenty five to upgrade their knowledge and skills in order to become marketable. Those skills include entrepreneurship, technological and language skills. Many industries have now implemented higher standards requiring licensing and certification. The changing labor market conditions, demands for higher education, and fierce competition are a result of constant changes in economy, technology, environment, and politics.

Industry: Education

Implications: Universities and colleges are already preparing to appeal to diverse groups of students. Many of these include those who already have an education and are looking to receive skills that will help them to differentiate and advance themselves in the current competitive employment market or open up opportunity to become entrepreneurs. These groups, however are still underrepresented by universities and often supported by private sector educational institutions.

Extrapolation: The continuous educational programs for adults are different as they need to be flexible in schedule adaptable to different delivery methods, and to work in an integrated way. The rapid changes in economy and technology suggests the belief that in the future we would need continuous lifetime learning, which is an opportunity for PSE institutions to consider. The faculty needs to be taught new skills and new teaching method approaches to be able to adapt to external environment changes.

17. Kyriakos, A. What will postsecondary education look like by the time my kids get there? Higher Education Quality Council of Ontario. (2015).

Trend 7

Away from the Lecture Hall to Active Classroom

Figure 10. Active Learning Classroom
(Source: http://www.case.edu/its/media/caseedu/its-media-library/active-learning/ActiveLearning_Nord_01.png)

Category Distinction: Social, Economic

Trend Summary:

The current drive is to foster a culture of active learning that encourages full participation, collaboration and active learning.

Signals:

Many universities retrofit their existing large lecture halls into collaborative / flexible classroom spaces with round tables, mobile furniture and multiple LCD screens, USB and power ports for each table, to stimulate collaboration. The demand is for classrooms to enable technology with the flexibility of furniture reconfiguration for multiple courses. Teachers and instruction use the flipped classroom with the availability of smart technological devices.

Driver:

The awareness about cognitive learning styles and recognition of the fact that more people are identified with learning problems, is the main driver for introducing alternative classroom environments. Redesigning classrooms to implement 21st century technology is another reason universities are changing classroom environments and teaching methods. This approach stimulates innovation in students' academics by changing the style of teaching from a lecture reading method to course facilitation where students take an active role in learning. According to McCabe, "… educators across the country are concerned that the traditional classroom lecture model may be turning students off rather than engaging their curiosity."[19] According to T. Bates, "Emphasis needs to be placed on skills such as critical thinking, creativity, communication, user orientation and team- work, in addition to domain-specific and linguistic skills."[18]

Industry: Education

Implications:

There is a shift from large course environments to smaller modular course environments where students feel more comfortable and have more of an opportunity to experiment, to speak up, and to be heard. More funds are required to retrofit lecture halls to suit new ways of teaching with technology. Innovative ways are needed to provide education with technological support but without having to spend a significant cost on retrofits.

Extrapolation: Future classrooms will need to have the capabilities of courses, presentation recording and interaction with mobile technology devices.

18. Bates, T. "Innovate or die: A message for higher education institutions." *E-Learning and Distance Education Resources by Tony Bates* (2010).
19. McCabe, B. So long, lecture hall. Johns Hopkins Magazine (2012). Retrieved from < http://hub.jhu.edu/magazine/2012/spring/so-long-lecture-hall>

Trend 8

Large Class Sizes and Decreasing Student-Faculty Interaction

Figure 11. Large Class

(Source: http://www.tonybates.ca/wp-content/uploads/Large-lecture-class1.jpg)

Category Distinction:

Social, Economic

Trend Summary:

Student – Faculty ratio in PSE is associated with the quality of education and reflected by University/College funding.

Signals:

T. Bates referencing M. Jennings, general secretary of the Irish Federation of University Teachers, who states that "People are doubling up and academics can give lectures to 1,000…"[20]

Driver:

The rising population, increasing enrolment in PSE and the decreasing funding and support from the government are resulting in large class sizes that lead to less frequent student-faculty interactions which affect the quality of education.

Industry:

Education

Implications:

According to A. Kerr who referenced Svinicki and McKeachie, "One of the most critical problems faced by instructors of large classes is that students feel isolated and are often anonymous to both the instructor and to one another."[21] Students' participation and active learning processes are affected by being part of a larger audience of mainly undergraduate students. According to Kerr, "Large classes often employ large numbers of teaching, instructional and/or administrative assistants, which require coordination, management and training…"[21] Other important aspects affected are student assessments, one on one student instructor time management, and the creation of a learning community.

Extrapolation:

The projection is that the larger classrooms will be sustained in the future, therefore, "many faculty are seeking out creative ways of adapting their teaching approaches, by being informed through research and connections … to enhance their pedagogical knowledge and skills" according to Kerr.[21]

20. Bates, T. "Innovate or die: A message for higher education institutions." *E-Learning and Distance Education Resources by Tony Bates* (2010).
21. Kerr, Angelika. *Teaching and learning in large classes at Ontario universities: An exploratory study*. Higher Education Quality Council of Ontario, 2011.

Trend 9

Re-emergence of Practice-base Learning

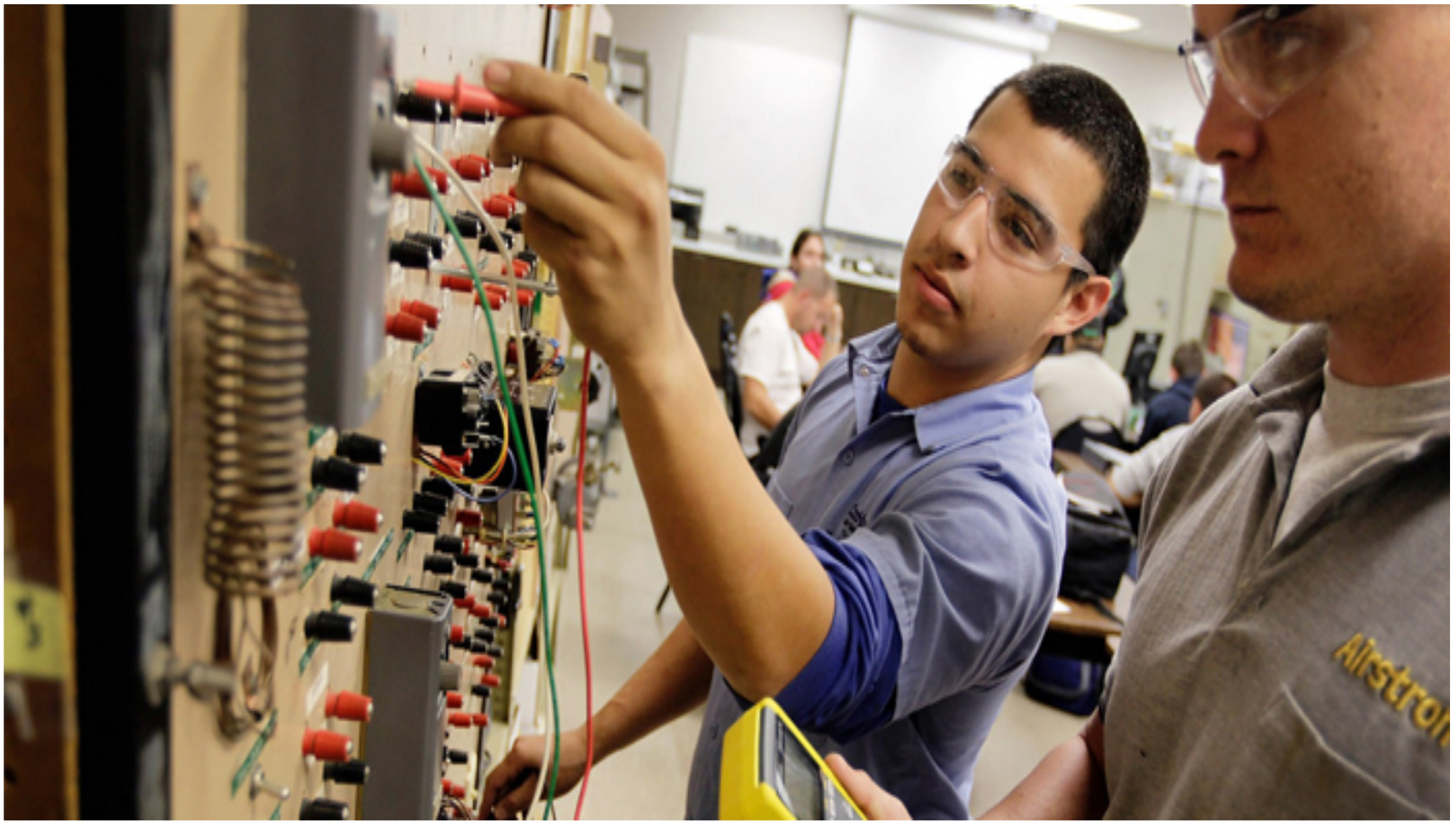


Figure 12. Trade School

(Source: http://mercadobilingue.com/wp-content/uploads/2014/09/vocational-school-trade-school-electrician.jpg

Category Distinction: Social, Economic

Trend Summary: Trade schools are providing students with technical skills for particular jobs. Trade schools are also named technical colleges. Many community colleges offer trade certification programs after which graduates are ready to begin working in the selected trade. Those are considerably shorter programs starting at nine months.

Signals: Demand for skilled workers is rising as "American manufacturers in certain sectors are enjoying a rebirth fueled by the return of overseas production back to the United States" according to P. Kavilanz.[25]

According Tim Grant, "The College Savings Foundation's survey showed 76 percent of high school students said the price tag associated with higher education will affect their college choice, and 71 percent plan to choose a more affordable option".[24] According to Bates, "…there is a shortage of skilled workers such as computer specialists, engineers and qualified workers for the creative industries."[22]

Driver: There are more jobs in practical placements. There is an increasing demand in skilled workers due to baby-boomer retirements and students' preference in university degree programs rather than college.

Industry: Education

Implications: When choosing a school students consider the cost of education. "The average cost of trade school is $33,000, considerably less than the average cost of $127,000 for a bachelor's degree" according to M. Bilingue.[23]

Extrapolation: Although trade skilled workers are a high commodity with the rise of automation and digitization, there is high risk for skilled workers to lose their jobs in manufacturing in the future.

22. Bates, T. "Innovate or die: A message for higher education institutions." *E-Learning and Distance Education Resources by Tony Bates* (2010).
23. Bilingue, M. Learning a Trade. (2014). Retrieved from < http://mercadobilingue.com/learning-a-trade/
24. Grant, T. Rising college costs push students to technical schools. Pittsburgh Post-Gazette (2014).
25. Kavilanz, P. Manufacturing boom: Trade school enrollment soars. CNN Money (2012).

Trend 10

Diversification in Education

Figure 13. Choosing Your Career

(Source: http://www.jpeducation.co.uk/wp-content/uploads/2013/12/about-featureimage3.jpg)

Category Distinction:

Technological, Social, Economic

Trend Summary:

Differentiated teaching and diversity of educational models have been combined to allow for more flexible education and credit transfer.

Signals:

Emergence of open online courses that allow up to 50,000 participants to take MOOC courses simultaneously.[26]

Driver:

With rapid changes in the external environment and with the democratization of knowledge, PSE institutions are trying to find ways to stay afloat and resilient. Technology is a major driver for universities to seek diversification. Technology enables new ways of learning including eLearning self-study, peer networking and support, mentorships and an adaptive curriculum. Technology also allows for flexible course schedules, distance learning, and maximization in the number of participants.

Industry: Education

Implications:

According to the Ontario Online Learning Portal, students seek more flexibility in credit recognition and transfer.[26] Diversification is also used and has "succeeded in transferring the financial burden from the government to the diversified institutions, and the institutions have consequently succeeded in transferring it to the students and their households" as stated by N.V. Varghese and V. Püttmann.[27] Diversification leads to PSE policy changes. The common believe is that people with broader knowledge are contributing to societal implications/development.

Extrapolation:

Universities will be further adapting to external economic conditions, and students creating new habits of technology.

---

26. Five Ways Online Learning is Enabling Change in Post-Secondary Education. Ontario Online Learning Portal for Faculty and Instructors. Contact North. Retrieved from < http://contactnorth.ca/trends-directions/evolving-pedagogy/5-ways-online-learning-enabling-change-post-secondary-education>

27. Varghese, N. V., and Vitus Püttmann. "Trends in diversification of post-secondary education." *París: International Institute for Educational Planning* (2011).

Trend 11

Global Education

Figure 14. Global Business

(Source:http://www.ipixsoft.com/images/global%20business%20around%20the%20world.jpg)

Category Distinction:

Technological, Social, Political, Economic, Environmental

Trend Summary:

The underpinning of Global education is based on solving global issues such as environmental, social, political and economic by engaging global citizens. Educating new global citizens will promote equality, inclusiveness, and justice that are responsible for humanity's peace and the planet's safety and sustainability.

Signals: Many schools are creating new international Global Educational programs such as the University of Alberta and the University of Victoria who have programs for their students where upon completion students receive a Certificate in International Learning.[28,29]

Driver: Global education began as an awareness and response to action around global issues such as environmental disasters, social and political injustice, poverty and violence. In today's global economy, global education is a necessary practice to be implemented in the University curriculum.

Industry: Education, Information Technology, Human Rights

Implications:

By completing Global Education programs, students get recognition for international knowledge, learn how to work collaboratively, expand their knowledge by learning about the world from a holistic global perspective, and will be able to open up new economic opportunities. Students have opportunities to study, get experience in other countries, assist in resolving global issues, and create a globalized awareness of events.

Extrapolation: More universities will implement global education programs /offerings in the future to differentiate themselves. That will create more opportunities for students to work abroad and share knowledge and skills. The geographic barriers will be less evident with this exchange in experience and knowledge. Other developments and changes in universities' are expected to be redeveloped from specialized/localized studies of the subject to globalized/holistic approaches in such fields as medicine, science, engineering and other programs.

---

28. International Global Education. University of Alberta Retrieved from < http://www.globaled.ualberta.ca/CertificateinInternationalLearning.aspx>
29. The Changing Environment for Post-Secondary Education. Global Shift in Education and Research. University of Victoria. Retrieved from < https://www.uvic.ca/strategicplan/home/context/changing.php>

Trend 12

Spaces for Commuter Students

Figure 15. Space for Commuter Students

Photos courtesy of Liz Hilliard, UBC Okanagan. (Source: http://eduvation.ca/ideas/space-commuter-students/)

Category Distinction: Social, Economic

Trend Summary:

To retain students, provide comfort, and look after students' well being, some universities provide spaces for students where they can rest, eat lunch and meet with their friends in a home-like atmosphere. These spaces are specifically intended for students who commute to universities.

Signals:

Universities are going the extra mile to maintain students' retention, including new hub spaces for commuter students. According to C. Lozano, "Many local universities, including the University of San Diego and the University of California, San Diego, already have similar spaces available for commuter students, a trend that has recently caught on quickly among schools throughout the U.S.."[30]

Driver: One of the drivers is polarization of ethnic and geographic groups in a multi-cultural society. University residences are expensive and not many students can afford to live on campus. Therefore, they must commute every day for an average of 40 min or more one way. A large portion of these students work part-time and do not have a lot of time to socialize with their fellow peers. The long commute to campus, formal lecture halls, homework and large impersonal campus spaces can be overwhelming for students - especially those who are just beginning their university experience. To offset lengthy bus commutes and stimulate students bonding, some universities offer new spaces for students to relax and catch up with their friends when on campus in order to provide a welcoming and positive student experience.

Industry: Education

Implications: This new idea creates an opportunity for students to bond and to build communities. There is a cost associated with the creation of these spaces, however, the social and economic benefits for student retention and the rise of enrolment are due to the quality of these services-are worth the effort and expense.

Extrapolation: A higher proportion of students at York University commute to campus, thus, commuter centres can be a great solution that universities should consider for commuter students. More student spaces will be required in the future to promote social learning and collaboration.

30. Lozano, C. Commuter Center for new Aztec Student Union. The Daily Aztec (2013). Retrieved from < http://www.thedailyaztec.com/43067/news/commuter-resource-center-to-be-established-in-new-aztec-student-union/>

Trend 13

Surplus of Graduates with no Prospects for Jobs

Figure 16. STEM Paradox

(Source: http://live.iop-pp01.agh.sleek.net/2014/09/25/the-stem-shortage-paradox)

Category Distinction: Social, Economic, Political

Trend Summary: By describing skill shortages, Margaret Harris referenced Chandravadan Shah and Gerald Burke who stated, "the demand for workers for a particular occupation is greater than the supply of workers who are qualified, available and willing to work under existing market conditions."[31] The opposite is true; there are no shortages if graduates cannot find employment.

Signals: There is an overflow of graduates. For example, S. Swain stated that "Last year research from the University of Melbourne revealed more than 44,000 trained teachers in NSW were waiting for a permanent job and only 16,000 graduates found work in the first four months."[33] Also, "…the 2006 census showed that as many as one-quarter of young people with bachelor's degrees were holding down jobs that did not require one" according to T. Hopper.[32]

Driver: Rapidly rising PSE enrolment and an unstable economy resulting in rising unemployment are all drivers for the current inflation of qualified graduates.

Industry: Education

Implications: T. Hopper referenced Benjamin Tal, deputy chief economist with CIBC World Markets who stated: "We are number one in the number of people with university degrees that live in poverty."[32]

Extrapolation: There is a discrepancy between what employers require and what graduates can offer. According to M. Harris, "July 2014 report by the UKCES on *Skills for the Future* reiterated that the UK is not predicted to experience shortages of higher-level of science, technology, engineering and math (STEM) skills."[31]

31. Harris, Margaret. "The STEM shortage paradox." *Physics World* 27, no. 10 (2014): 56-59.
32. Hopper, Tristin. Critics complain of qualification inflation as more Canadians hold university degrees — and low-paying jobs. National Post Canada (2014).
33. Swain, Sarah. Surplus teaching graduates in NSW forcing teachers to find work overseas in places like UK. The Hills (2015).

Trend 14

Rising cost of University' Tuition Fees

Figure 17. Students Day of Action 2008

(Source: https://aonomus.wordpress.com/category/other/rant)

Category Distinction: Economic, Political, Social

Trend Summary: According to the Canadian Press release, the"…annual fees projected to rise 13 per cent on average to $7,755, having almost tripled over the past 20 years…" Government rolls back post-secondary findings for education.[35]

Signals: Increasing number of students' protests against continuous escalation in tuition fees. Evidences include 2008 and 2012 students' protests in Quebec. Also in US and many European countries "…universities are facing budget cuts in the region of 20% in the next year or so" according to Bates. [34]

Driver: There is a rising cost of technology to equip educational environments. Also, there is an increased cost in healthcare due to the baby boomer generation getting older. This takes priority over the funds available to allocate for education. The increased cost in natural resources resulting in economic plunges is also a major reason in limited funds for operations of PSE older infrastructure. In addition, students have more expectations including the cost of living and social pressure that create incentive to be successful in a short period of time.

Industry: Education

Implications: There is a rise in students' tuition debt. Many students find themselves over $20,000 in debt by the time of graduation. Parallel to the tuition increase, there is an increasing cost of living and a rising cost for technology that makes it harder for students to meet the fees for education. Many students find that they need to be working not only through the summer, but also throughout the whole year to be able to pay for an increased tuition. There is an increased need in jobs for students. New financial models need to be created and implemented to support students financially. T. Bates references Baty who states that while North American and US universities are experiencing funding struggles resulting in declined prestige the "…East Asian institutions are enjoying serious government investment and rapidly rising prestige, which in turn are driving their knowledge and innovation economies."[34]

Extrapolation: According to Canadian Press, the individual contributions and private funding will increase.[35] In addition, students will seek other sources to obtain education through less expensive distance learning programs that will become increasingly popular.

Counter trend: Private educational institutions and businesses, self-directed learning online, democratization of knowledge.

34. Bates, T. "Innovate or die: A message for higher education institutions." *E-Learning and Distance Education Resources by Tony Bates* (2010).
35. Babbage, Maria. Cost of university to rise 13 per cent over 4 years: report. CBC News Canada. The Canadian Press (2014).

Trend 15

Future for Unemployed Youth

Figure 18. Jobless not hopeless

(Source: http://cdn2b.examiner.com/sites/default/files/styles/image_content_width/hash/28/b8/1-6-11-jobless-not-hopeless_7.jpg?itok=qfPX7VcO)

Category Distinction:

Social, Economic

Trend Summary:

There is a growing need in assisting young people with the right career choices and employment as a response to the current phenomena of a high number of unemployed youth.

There is a high number of unemployed youth in Ontario and Toronto. Every year many graduates with $20,000 to $50,000 in student loans are desperate for a source of income. Graduating from universities, many find that they need practical skills to help them to adapt to the working environment. Many Universities and Colleges such as the University of Waterloo, Wilfrid Laurier University, and Conestoga College began to implement new resources and programs such as co-op, internships and mentorships to help students to gain initial professional skills and potentially find a work placement with organizations.[36]

Signals:

The jobless youth phenomena was on the rise in 2013 with 17% unemployed youth in Ontario according to M. Leung.[37] Baby - boomers are postponing their retirement. Mendleson indicates that Toronto is starting a Civic Action plan by collaborating with private sectors, and creating mentorship programs in order to assist young people with jobs.[38]

Industry:

Education, Employment

Implications:

On one hand, with little job prospect or start of a career young people's lives will be delayed. With high prices and inflation, young people have to delay the purchase of their own place to live and start a family. On the other hand, baby-boomers eventually vacate current jobs which will provide a situation for the need for fresh minds. Job placements, with the assistance of universities and colleges, will prepare youth for future employment that will benefit both youth and employees.

Extrapolation:

The question is: will unemployment rates still remain high in the future? This puts pressure on government, high schools and post secondary educational facilities to implement mandatory foresight programs, with occupation and job placement projections for graduates.

---

36. Kolm, Josh. "Why are so many of Canada's young people out of work?." *CBC News* (2013).
37. Leung, Marlene. Ontario's youth unemployment among worst in Canada. CBC News (2013).
38. Mendleson, Rachil. Ontario private sector to play pivotal role in youth unemployment. The Toronto Star (2014).

Trend 16

Internship, Mentorship, Fellowship Programs

Figure 19. Mentors Empresariales

(Source: http://career.uconn.edu/wp-content/uploads/sites/7/2014/10/mentor-620x320.jpg)

Category Distinction: Social, Economic

Trend Summary: There is a need for a better relationship between the institution and the working world. There is an interest in participatory-driven education in order for students to be able to gain experience. According to Allison Battista, an Intern from Uconn University of Connecticut, "Mentors have experience within the position and most likely have an in-depth knowledge about how the office works."[40] Mentors are able to assist students with constructive criticism and networking in career development.

Signals: According to S. Roy, "Skills shortages have regularly been identified as one of the top 10 barriers to competitiveness in Canada by the Canadian Chamber of Commerce…"[39]

Driver: Graduates' demand for practical skills as well as quick and easy adoption into the work environment is becoming essential. There is pressure for students to be employable. Students' demand for finding a job placement or starting their own startups shortly after graduation is necessary to pay tuition debt. The demand for internship is due to the desire for an opportunity where students are able to apply theory into their practice.

Industry: Education

Implications: To maintain economic growth and retain local knowledge and skills, the Canadian PSE system must implement new opportunities for students and graduates to participate in work-integrated learning. Mentorship programs will assist students with selections for the right career programs, helping them establish network relationships and obtaining job placements.

Extrapolation: Further partnership between companies and PSE institutions will take place in the future to endorse this beneficial approach for both students and employers. Work-integrated learning might become a part of the norm where the PSE goal would be to successfully transform students from educational environments to job placements.

Counter trend: College as a primary field of practical education, Maker's school

---

39. Roy, Stacey. A Battle We Can't Afford to Lose: Getting Young Canadians from education to Employment. The Canadian Chamber of Commerce (2014).
40. Battista, Allison. How Can Mentors Help? UCONN University of Connecticut (2014).

Trend 17

Increase in PSE Enrolment

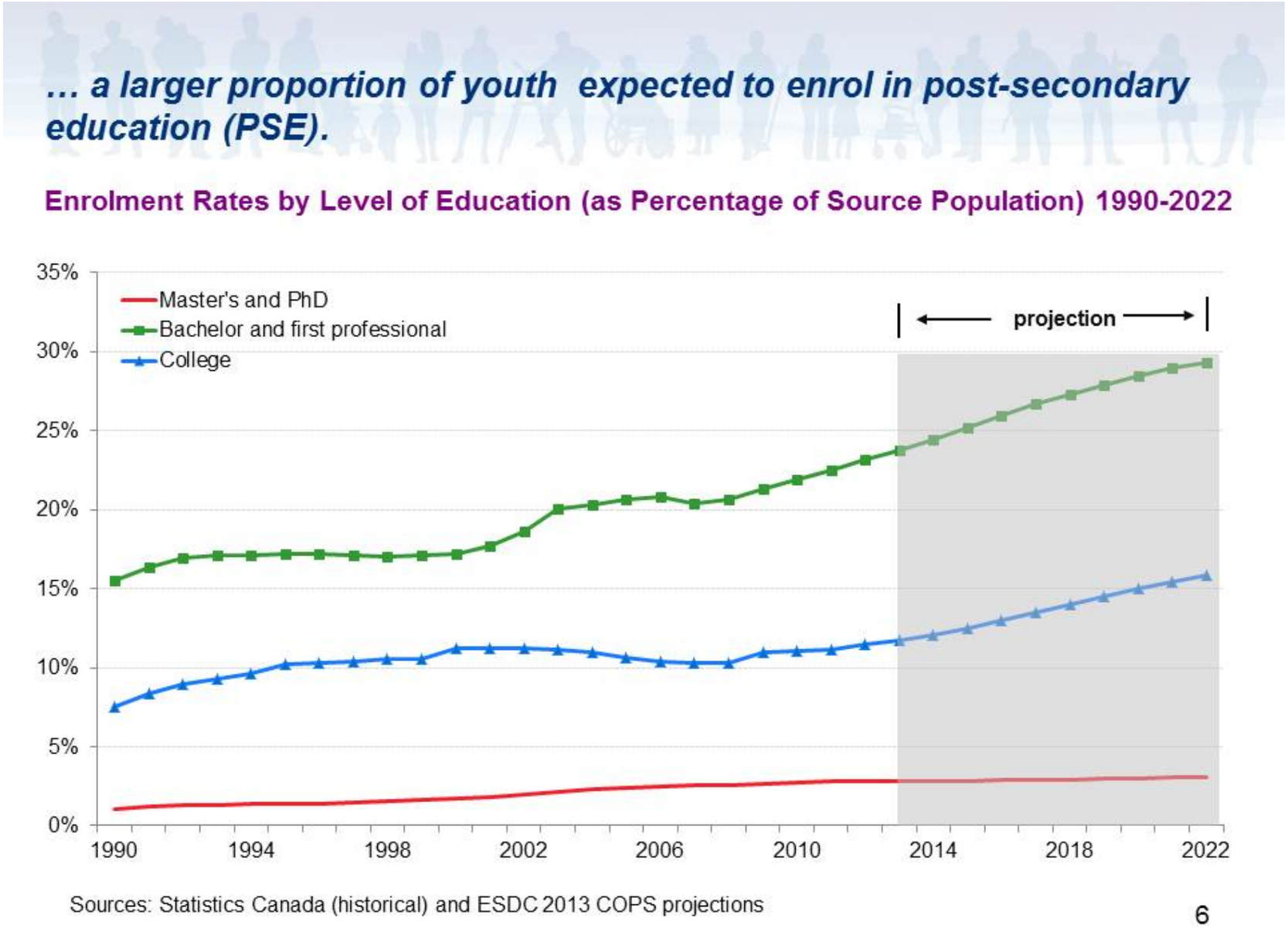


Figure 20. Statistic Canada Historical and ESDC 2013 COPS projections.

Category Distinction: Social, Economic and Political

Trend Summary:

According to Employment and Social Development Canada, "a college or a university education are projected to increase at annual average growth rates 1.3% and 1.7% respectively."[41]

Signals: According to the Association of Universities and Colleges Canada, "Universities have more than doubled their capacity in the last 30 years, and continue to introduce new programs that meet student demand".[43] Also, there is evidence that "The total number of graduate students grew from about 77,000 in 1980 to almost 190,000 in 2010" as per AUCC.[43]

Driver: "Increased student aid corresponds to increased enrolment and persistence" explains Canadian Council.[42] The labor-demand curve is changing due to manufacturers' rapid automation. Employers' expectations from new hires are more demanding in terms of level of education, computer knowledge and skills. There is an increasing requirement to be technologically savvy. Population growth, urban population growth and an increase in the immigrant population lead to increased university enrolment. Demands in university education could also be rationalized by the social perception that higher education is associated with better job opportunities and better pay.

Industry: Education

Implications: Changing universities educational methods and administrative policies to meet labor demands. Increased enrolment will only increase the tuition fee. The high interest in PSE creates a decline in trade workers that are much needed for Canada's economy as construction is the country's major economic driver.

Extrapolation:

The need for professionals will increase as the total working age population will decline with baby boomer retirements. The demands from Universities and Colleges to meet students' expectations of high-quality education and services will increase.

Counter trend:

To move from professional education towards personal skills and experience.

---

41. Canadian Occupational Projection System 2013 Projections. Employment and Social Development Canada. Retrieved from < http://occupations.esdc.gc.ca/sppc-cops/l.3bd.2t.1.3lshtml@-eng.jsp?preview=1&fid=1&lid=25&preview=1>
42. Factors influencing post-secondary enrolment increases and decreases. Systematic Review. Canadian Council on Learning.
43. Trend in Higher Education. The Association of Universities and Colleges Canada (AUCC). Published in 2011. (Volume 1 Enrolment).

Trend 18

PSE Shift Towards Privatization/ Entrepreneurial Opportunities

Figure 21. Queens Park

(Source: http://thevarsity.ca/wp-content/uploads/2012/06/QueensPark_Gospic.jpeg)

Category Distinction: Social, Economic, Political

Trend Summary: Private sector businesses are offering educational alternative modular structures. These new private educational institutions open up opportunities for user-centered education; the ability to have customized educational approaches with immediate feedback. Knowledge exchange leads to accomplishment of completed solutions.

Signals: In the province of Alberta, for example, the budget cuts are significant and PSE institutions will have to rely on private funds. The Academica Group statement indicates that "The budget will cut spending on PSE institutions by $55 M. AB will work to reduce program duplication…"[46] Universities and colleges start to combine and join their programs to downsize their own programs and support each other.

Driver: The primary reason for educational privatization is to reduce government expenditure. Government reduction to universities' funds is due to the rising demand for higher education. Private for-profit and not-for-profit institutions are keen on providing higher educational or specialized standards. As stated in the article by Academica Group about economist report "…the mixed funding model favored in the United States is spreading throughout the world as governments struggle to balance their budgets."[44]

Industry: Education

Implications:

Students' tuition fees will increase and, as a result, student loans will rise and students will need more financial assistance. The new wave of privatization in education creates a conflict of private vs. public equilibrium. On one hand, it could result in higher levels in education with benefits in individualized and customized approaches for students. It opens various doors for new entrepreneurial opportunities in education. On the other hand, it will result in high tuition fees and, therefore, may only be affordable by the elite.

Extrapolation:

The public should not need to compromise their access to education. The much-needed innovative approaches towards the PSE funding model will include more private-public affiliations.

Counter trend: Centralized traditional educational model of university**.**

---

44. Economist reports on global shift toward mixed-model PSE funding. Academica Group (2015). Retrieved from < http://academica.ca/top-ten/economist-reports-global-shift-toward-mixed-model-pse-funding>
45. Mansour, Tamim. Ontario Budget criticized for privatization of higher education. Funding remains stagnant amidst OSAP indexation, consultations for new funding model. The Varsaty (2015).
46. Top Ten. AB to reduce public spending on PSE. Academica Group (2015). Retrieved from http://academica.ca/topten/20150330

Trend 19

Marketization of Universities v.s. User-Centric Education

Figure 22. Graduate Career

Image retrieved from http://www.nadinemuller.org.uk/wp-content/uploads/2014/04/26504262_ml.jpg

Category Distinction: Social, Economic, Political

Trend Summary: Marketization and commercially driven research objectives come at the expense of focus and investment into user-centric education.

Signals: "Growing marketization is seen in the restructuring of funding mechanisms … toward specific, time-limited funding envelopes for program initiatives that meet predetermined government objectives as opposed to that of institutions" according to Kirby.[49] Examples include governments' findings invested into innovative research projects in healthcare and technology. "In the UK, higher education is no longer a public good; it is a strictly commercial operation…" according to Bates.[48]

Driver: The drivers of change depend on market demands and include: globalization, profit, high-speed technology, competition and government cost-cutting. The universities are underfunded and, therefore, contract faculty and graduate assistants do more teaching. According to an article in The Globe and Mail for March 2015, "At York University, contract staff and teaching assistants handle 64 per cent of undergrad courses, according to the union, CUPE."[47]

Industry: Education

Implications: Focus on education should be the number one priority as most students and parents would like to believe. While a university's students are taught by part-time faculty and graduate assistants, the full time faculty focuses on research projects to satisfy the university's marketization objectives to achieve innovation and competitiveness outlined in government objectives. This makes it a two-tiered complex model.

Extrapolation: Students will eventually demand that universities' priorities straighten out. Students and their parents, as consumers, will become more demanding as tuition rises. As this trend persists, the transparency and metrics of higher quality education in this new commodity model will be required as in any service-oriented business. There should be a goal to implementing methods that encourage and reward quality teaching.

---

47. At University, Who is doing the teaching? The Globe and Mail (2015).
48. Bates, T. "Innovate or die: A message for higher education institutions." *E-Learning and Distance Education Resources by Tony Bates* (2010).
49. Kirby, Dale. "Globalization and post-secondary education policy in Canada: A review of trends." *Comparative and International Education/Éducation Comparée et Internationale* 37, no. 2 (2008): 1-17.
50. Maiony, A. Canada's universities need to connect themselves to their students and the world. The Globe and Mail (2015).

Trend 20

Expand Internationally

Figure 23. Photo by Jeff Miller

Image retrieved from < http://www.news.wisc.edu/story_images/8752/full_width/Peace_Corps_UClub12_3171.jpg?1401296832>

Category Distinction: Social, Economic, Political

Trend Summary: According to Charbonneau, "There is much merit in attracting more international students to our campuses and to encourage Canadian students to study abroad."[52]

Signals: To exchange knowledge and resources: "There are growing institutional domestic and international strategic partnerships to realize opportunities for joint academic programs, collaborative research, and shared infrastructure and operating costs…" according to Brandon university's promotions.[51]

Driver: Higher tuition fee charges for international students have: "…provided institutions with an avenue for coping with the decreases in government funding over the past two decades" according to Kirbi.[53] Faced with budget pressures, the government is pressuring universities to increase International student enrolment. The internalization is also driven by globalization, according to Kirbi.[53] The open market and ease of international borders are also reasons why many students chose to study abroad.

Implications: The negative impact is that investments in students' talents are not retained after international students leave the country of their studies.

Extrapolation: As universities further adapt to external economic conditions, open market ways of sharing knowledge would need to be facilitated. This can be achieved through international student exchange programs. These programs would require support by federal and provincial governments.

51. Post-Secondary Education Trends. Brandon University (2014).
52. Charbonneau, L. Five ideas for improving Canadian postsecondary education. University Affairs (2012).
53. Kirby, Dale. "Globalization and post-secondary education policy in Canada: A review of trends." *Comparative and International Education/Éducation Comparée et Internationale* 37, no. 2 (2008): 1-17.

Trend Analysis

Trends and drivers were divided into technological, social, and economic categories identified by different colours in Figure 24. These trends were then grouped into six different categories and classified as:

Self-directed learning using technology;
Practice-based learning;
Global Education;
Surplus of university graduates;
Changes in PSE facilities;
PSE privatization

Each trend category transpired as a result of numerous affects from within the PSE environment and external factors. For example: the outcomes of open source information with the emergence of the Internet, Google, advancements in mobile devices, personal computers, and high-speed technology give an opportunity for us to learn on our own. Self-directed learning using technology becomes the result of these external factors. The reality of the aging generation is resulting in the requirement to fulfill practical-based positions and skilled professions. That fact, plus the economic pressure to be employed, leads to changes in the labour demand curve that forces PSE to develop practice-based and experiential-based learning. Global competition as well as social and technological progresses with the increase in automation are resulting in employers' higher expectations. At the same time, multiculturalism and awareness about global issues leads to empathy for others and the demand for PSE in Global Education and broader knowledge-based learning. The ease of international borders lead to a rise in immigration. An increase in population with effects in urbanization results in a rise in PSE enrolments. Moreover, perception of higher education commanding higher living standards results in a surplus of university graduates. Recognition of different cognitive learning styles, polarization of ethnic and geographic groups, as well as graduates' higher expectations leads to new means of learning, and teaching methods that are changing PSE facilities. Unstable economy and the rising cost of technology lead to reallocation of funds to other priorities with less of a focus on education, which results in rising cost of tuition fees and drives PSE institutions to seek funds through private sources.

Trend Analysis

Figure 24. Trend Analysis Diagram

Students Status and Desired Outcomes

The student survey was conducted using the SurveyMonkey website to collect information through multiple-choice questions. All participants who provided information through the survey were undergraduate or graduate students of various colleges and universities including students from: Seneca College, York, Ryerson and OCAD universities. A total of 39 student participants completed the survey. The student survey process helped to identify students' current situation, discontent with the PSE environment and their desired outcomes. The complete analysis of survey results is outlined in Appendix B.

Face-To-Face Versus Online Learning

The goal was to establish whether or not the convenience of online learning suppresses the need for in-person education. Surprisingly, 25% of students never took online courses, the reason might be unavailability of online course offerings through universities and colleges.

Though 50% of students travel to school for 45min to an hour, the convenience of online courses was not a priority for them. Research shows that almost 50% of students would still prefer in-person courses.

Furthermore, 60% of students are convinced that teacher student face-to-face interaction is very important. The other 40% believe that the teacher has the role of facilitator who supports them in their pursuit of knowledge.

Students believe that an online learning phenomenon is the result of emergent open sources and technological progress such as: the Internet, Google and social media. The financial barrier is another reason why some students are turning to the cost-effective alternative of online education. The majority of students are imagining the future of the PSE model to be a combination of both face-to-face and online learning.

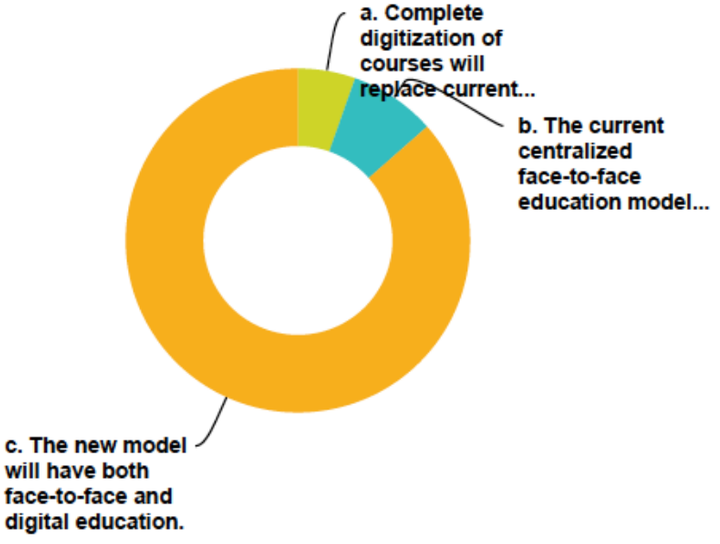


Figure 25. Face-to-Face Versus Online Learning

Practical Skills and Experience

With this next category the goal was to determine how important practical skills and experience were for students to be able to enter their careers after graduation. 59% of students answered that they would like to participate in a mandatory internship or mentorship program if one was available. 63% would like to be a part of an internship program although it is not currently available through their school. Overwhelmingly 76% believe that they would benefit from obtaining practical skills through their school.

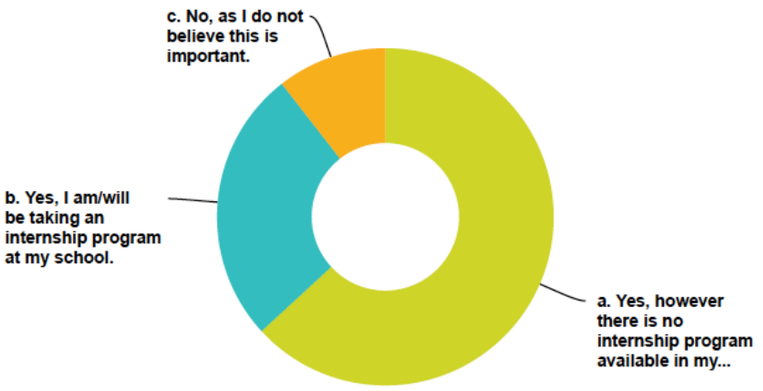


Figure 26. Internship Program Availability

Students' Status and Outlook

56% of students work to support themselves through school: 33 full-time, 23 part-time.

For 50% of students, this is their second or third degree that they are working on. 34% have enrolled in PSE for the first time.

31% of students have never heard about Global Education.

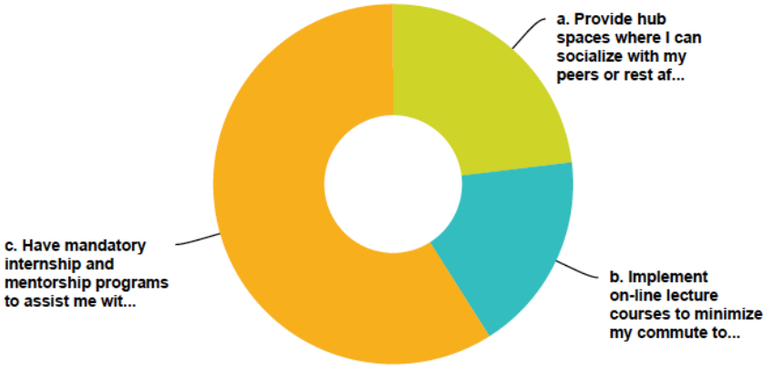


Figure 27. Practical Skills and Experience

PSE Environment

It was satisfying to know that almost 75% of students are already exposed to the "state of the art" facilities of flexible classrooms with integrated technology.

41% of students, however, experienced being in a large lecture hall environment with 100-300 other students. 25% of students attended lectures with 50-100 students where face-to-face interaction is not feasible.

In class learning and studio lab environments are the most important for students in their programs. Each scaled at 81%.

The second category was given to work-integrated learning and 51% selected self-study using technology.

Almost 92% of students would seek business skills and 64% would like to obtain organizational skills to become independent entrepreneurs.

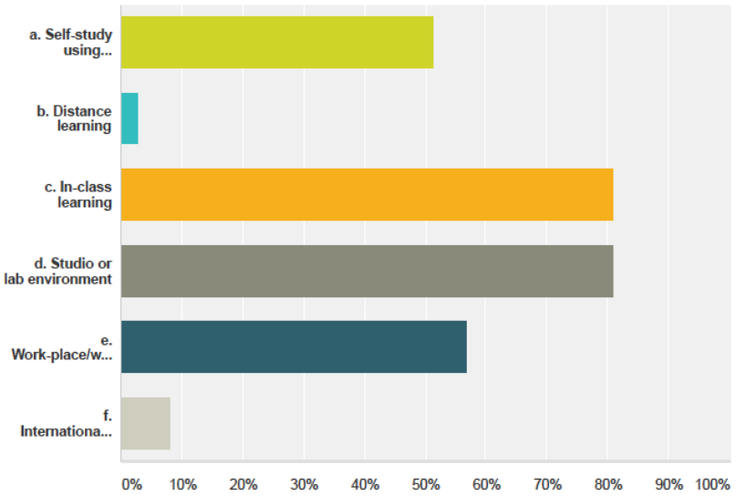


Figure 28. Students' Preference of PSE Environment

Expert Opinion

To gain a service provider perspective, the interviews were conducted with seven experts, post-secondary education professionals from OCAD, York, Ryerson, and Guelph Universities. The goal was to gain a perspective on several aspects of the PSE environment and get an inside view to uncover the project's research questions. These aspects included experts' experiences and opinions about: online learning versus in-person learning, the future of PSE model, educational methods, new learning environments, student's support services, experiential education, new skills and experiences offered by universities and colleges. PSE professionals were selected based on a variety of expertise and included educators, librarians, expert in space planning and renovation of educational facilities, administration and institutional space planning, the online instructor, educators in online interpreting, and an experiential learning expert.

The complete interview guide with analysis and summary is enclosed in Appendix C.

Nabil Harfoush
Professor, Strategic Foresight and Innovation Program
OCAD University
Areas of expertise: Information Networks, Business Models, Strategy, and Global Education

Peter Thompson
Sr. Advisor, Institutional Space Planning, York University
Department: Vice-President of Finance and Administration
Areas of expertise: Administration and University's Strategic Planning

Patrick Saavedra
Director, Planning & Renovations, York University
Areas of expertise: Universities Planning and Architectural Design + Education

Mark Robertson
Associate University Librarian, York University
Areas of expertise: Library's Students Services

Sylvial Link
Instructor, Communications Management, in the School Board Administration program, Guelf University
Areas of expertise: E-Learning and Distance learning in Communication and Stakeholder Engagement

Andrew Clifford
Graduate Program Director, York University, Glendon
Areas of Expertise: Conference interpreting using online method

Vincent Hui
Associate Professor, Assoc. Chair & Experimental Learning Director, Ryerson University
Areas of Expertise: Experimental Learning

Online Versus in person learning

The interview process revealed that experts who already had an opportunity to teach online were more lenient to try new methods involving digital technology. However, even they voiced opinions that digital methods needed to evolve; they must be designed and tested specifically to ease pedagogical processes but not to replace the current in-person educational model. Undeniably, all experts agree that digitization is here to stay and will become an integral part of the PSE system. The overall interview results showed that the "**blended educational model**" is favored and may potentially maximize benefits of all stakeholders'.

"Those who are born in the 90s or later are immersed in technology from day one".

-Sylvia Link

"The milenials have been brought up with the Internet. They will find the information on their own on how to do things just by the motivation of their own power".

-Vincent Hui

"Some evidence shows that finding the right balance becomes some form of a blended environment of both the use of technology and face-to-face model. With online learning, technology is going to be part of ecology, an essential part, but it is not a matter of replacing, as it is more of a supplementing and enhancing element. Students are so immersed in technology that this is one of the touchstones, the ways they operate, so there is an expectation that much of it will be accessible through technological modes".

-Mark Robertson

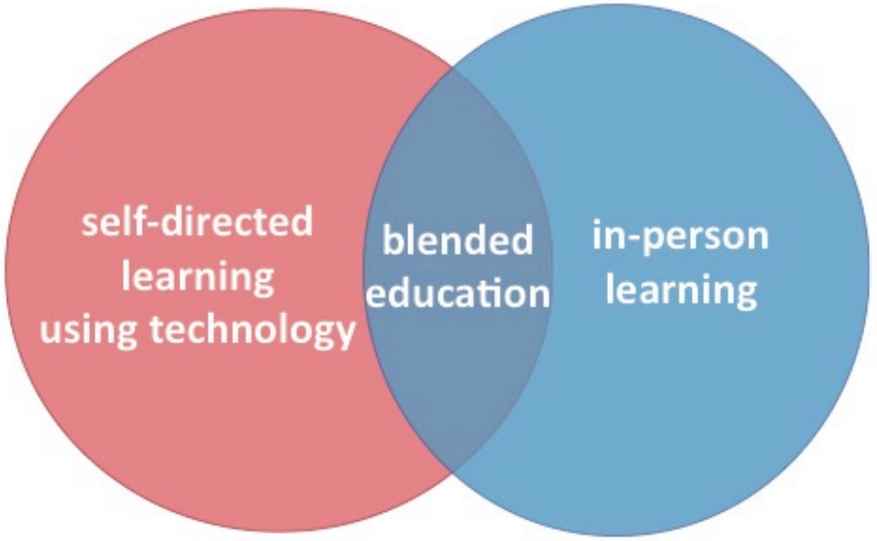
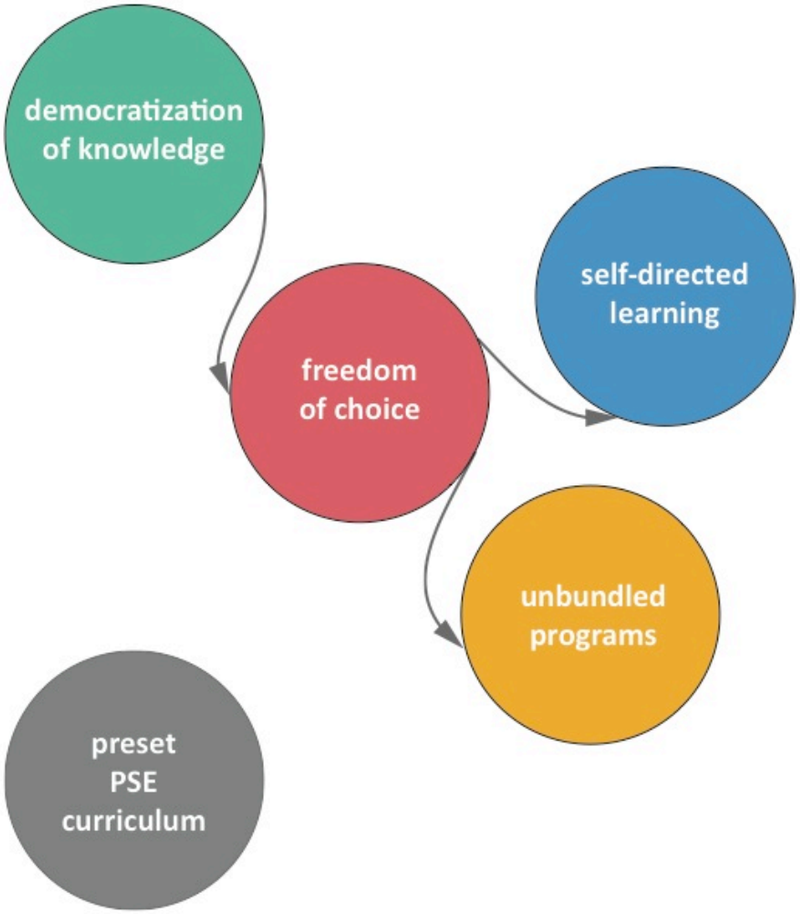


Figure 29. Blended Education

Having a Choice

There was no renunciation about the fact that open sources democratize knowledge. The democratization of knowledge is the key factor that drives students to seek self-directed learning, pushes them to be selective, and raises their expectations of having freedom of choice for the discipline, PSE institution, program and courses. Choosing a subject of interest drives students' motivation to learn and increases students' ability for independence. This seems simple but more often than not students do not have control over it due to a prescriptive set of subjects offered to us by institutions.



"The main driver is the democratization of learning. The students have a choice in whether to follow a university-offered learning program or fulfill their desire for a broader spectrum of what they want to do by developing their own learning".

-Nabil Harfoush

"People who have access to information will know what exists and find ways to improve themselves. That drive is independent and fosters learning".

-Vincent Hui

"The topic that you are studying should be of interest to you. Intellectual curiosity is driving the independent investigation of the topic and drives your motivation to study and topic. That then becomes the pivotal skill that helps you become innovative and self-directed because you are just genuinely interested in learning and motivated to learn".

-Sylvia Link

Figure 30. Democratization of Knowledge

Life-long Learning

Through the literature review and student survey, this study already revealed that students return to schools to upgrade their skills but often stumble to find a desired selection of courses, suitable schedules or convenient locations. What is offered is often unattainable to them and students frequently end up taking a full degree program instead of selected courses they are interested in. There is a commodification of degrees happening according to experts' observations. The desire to continue PSE education is there, however, the financial barriers, for many, are becoming a key turning point with whether or not to enter PSE degree programs. The current PSE system is too rigid and students can only make a decision based on what is offered without having much choice. Universities and colleges are missing a large customer market of those who are over 40 and who are still seeking an opportunity to advance their career. Consideration is not given to people who are living longer and continue their professional practice up until their 70s. Experts made a number of suggestions on how to implement **life-long learning** opportunities.

"BAs are much more common now and don't necessarily get you any further in the job market. I think there is almost a degree inflation. Everything is changing so quickly that one degree might not last your entire life".

-Mark Robertson

"Primarily, universities/colleges should unbundle the contents they have in a way that allows people to choose which pieces of content and in what time frame they want to learn. When learning is individualized and not limited in the time frame then it becomes life-long learning".

-Nabil Harfoush

"When you are a senior you can go to university practically for free. Unfortunately this is too little too late. Why not allow those people to perhaps change their career or upgrade themselves to get educated at a significant discount at 50 or younger for them to be able to re-immerge with the most current information. These people can move up in the ranks if they know computers or get more versatile in technology".

-Vincent Hui

New means of Learning / Educational Methods

The education methods are changing due to the availability of content through the Internet, Google, and social media. New methods have been derived including: the **flipped classroom** where content is moved outside of the classroom and activities are done in a class. First, the open source enables professionals to make these changes in the work place and now in universities and colleges. Lecturing is getting downsized and replaced by collaborative and peer-to-peer learning. Other methods start taking place such as badging, collaboration with industries and communities.

> "I think there is very little of the lecture experience that is engaging".
>
> -Peter Thompson

> "The onus is on the students to complete the basic learning on their own. We engage in activities in the classroom that help to strengthen what they learn independently. We did not do that because it is innovative or revolutionary in the way of teaching but simply because this is the way the work is done on the job".
>
> -Andrew Clifford

> "I think one of the most intriguing forms that are worth investigating are peer-to-peer systems and peer-to-peer learning. Whatever topic we are discussing there are so many different perspectives that peer-to-peer learning enriches us all and we all learn. This is a completely different, non-hierarchical format this is flat and much more resilient and rich"
>
> -Nabil Harfoush

Global Education

Discussion about this topic uncovered the importance and broad range of different aspects of **Global Education** including diversity, interconnectivity, globalization, internationalization and international degree validation. The benefits of diversity and interconnectivity as well as opportunities to connect globally were apparent and recognizable. Another aspect of this topic revealed that universities are expanding their catchment area to teach internationally in order to expand into new markets.

> "Here in the SFI program we have an approach called Designed Diversity that maximizes the diversity of the team in all dimensions. We found that the teams that have maximum diversity are the most effective in solving complex problems".
>
> -Nabil Harfoush

> "One of the big priorities for York U. is globalization. They are in the process now of expanding their global reach in terms of selling their brand abroad with the way people use York U. as a place to learn from".
>
> -Patrick Saavedra

> "I think there are opportunities for a completely different system of higher education. Imagine a global system where each university teaches only what they are good at and students can take what they actually need from different universities".
>
> –Nabil Harfoush

Experiential Education and Experience

Simulating the work place environment, or better yet, giving students real work experience in the organization will immensely assist students to gain their professional confidence as well as the chance to understand and learn their subject better. Practice-based learning is in demand and essential for students as it becomes more apparent through the interview process. Most experts agree that universities and colleges should help students make connections with organizations through either co-op or internship opportunities.

> "…we are in the business of creating good citizens so it is important that we are responding to the real world. It is important that we bringing that world into the university".
>
> -Mark Robertson

> "Universities are in an ideal position to partner with industries and I am sure it will be an appreciative partnership".
>
> -Sylvia Link

Skills

According to experts' opinions, skills that are offered to students by universities and colleges need to assist them in future careers including: finance, business, marketing, time management, entrepreneurship, collaboration, networking, research, and overall learning skills. Technical skills came up many times, not surprisingly, as we live in a digital age surrounded by technology and employees expect graduates to be technologically savvy.

> "What is significant is the quality of character, demonstrated wiliness, and motivation". How would universities help to develop these qualities in students? "I think by making education personal."
>
> -Peter Thompson

> "The only thing that you can really teach them that is most important is how they can learn on their own. If they learn how to learn then that is the best thing that you can teach them".
>
> -Nabil Harfoush

Effective Education

Experts believe that effective education is coming from good teaching abilities and students' interest in subject matter.

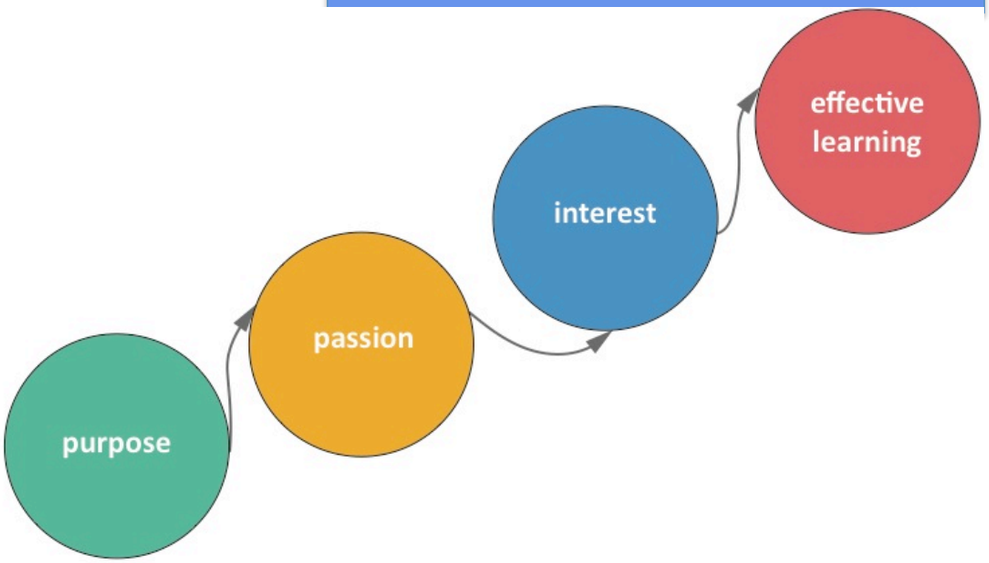
"…universities and colleges should train these /professionals to teach; rather than relying on their knowledge of the subject matter. They may know the subject but they may not be able to teach".

-Patrick Saavedra

"I think the most effective way to learn is to help students discover their purpose and this purpose will evolve over time. From the purpose you can then derive passion / interest and that can drive effective learning. We learn most if we are interested in something".

-Nabil Harfoush

Figure 31. Effective Learning



Recommendations for Improvements

Experts suggest that the current educational model needs to seek changes and efficiencies.

"It seems the teaching side is shifted more to part-time professors and tenure doing the research. There is a need to balance between teaching and research".

-Sylvia Link

"We spoke about the disconnect between the cost structure of the higher educational system and the output of the system. It is not linked together and, therefore, the cost is rising. That needs to be fixed. Enrolment should be in correlation with the demographics and market".

-Nabil Harfoush

"I think the Government and universities have to streamline their processes in such a way that it keeps costs down for universities so that they do not have to raise the tuition to a level that is ludicrous. Society is evolving so quickly these days that your course has to keep up and it is hard to do".

-Patrick Saavedra

scenarios

CHAPTER 3 SCENARIOS, YEAR 2030

Through the research findings of environmental scanning of trends and drivers, stakeholders survey, and interviews, three main uncertainties surfaced: delivery of education, pedagogy and learning empowerment. Each uncertainty has two distinct ends of spectrum: pedagogy (academic or practice-based), empowerment (self-directed or prescribed learning) and education delivery (digital or face-to-face methods). The next step in the process was to take this research analysis information and based on these revealed uncertainties generate potential future scenarios. Stories would depict diverse futures from plausible, to preferable; snap shots of the future that might be expected and surprise us by the year 2030. Each of the first four scenarios created in this document are emphasized by three critical uncertainties. Scenarios can be created where planes of three uncertainties are intersecting at vertices in the form of three-dimensional axes. Each of the four scenarios created here was based on deliberate choice of one of the two different ends of three intersected uncertainties. The selected spectrum of each uncertainty is based on some of the stakeholders' inclination for the first three scenarios, revealed by the research results. The fourth scenario was created to demonstrate the difference of a bleak future if the opposite of each spectrum of uncertainty is selected.

The scenarios provide a context for developing strategies and options for innovations and helped to:

- Expose predictable views and actions that are outdated and often inefficient or irrelevant;
- Discover new ideas and begin to resolve some discontents stakeholders might have with the current PSE system;
- Explore strategies for a new business model to establish a preferred future;
- Help to answer some of the posed research questions: What would the future look like if technology completely disrupted the existing PSE model or if the conventional PSE model remained?

Scenario 1 –Virtual Classroom

The Virtual Classroom scenario was created based on three critical uncertainties: digital delivery, prescribed education and academic pedagogy.

Scenario 2 – Learning Oasis – Technology Aside

The Learning Oasis scenario was generated based on three critical uncertainties: face-to-face learning, practice-based pedagogy and self-directed learning.

Scenario 3 – Personal Educational Portal

The Personal Educational Portal scenario was generated based on three critical uncertainties: self-directed learning and digital delivery of education and academic pedagogy.

Scenario 4 – Square Peg, Round Hole

The Square Peg, Round Hole scenario was generated based on three critical uncertainties: academic pedagogy, prescribe education and face-to-face delivery. This is slightly exaggerated scenario of the current PSE model that might still remain in the year 2030 if no improvements are made.

Scenario 5 – Re-Imaginary Education

The Re-imaginary Education scenario was generated based on the key elements of the first three scenarios.

❖ Selected spectrum of uncertainty for written scenario; ◆ Selected spectrum of uncertainty for possible unwritten scenario

	Dimension of Critical Uncertainty					
	Pedagogy		Delivery		Empowerment	
Scenarios Year 2030	Practice-based	Academic	Digital	Face-to-face	Self-directed	Prescribed
Virtual Classroom		❖	❖			❖
Learning Oasis	❖			❖	❖	
Personal Educational Portal (PEP)		❖	❖		❖	
Square Peg, Round Hole		❖		❖		❖
Possible Scenario	◆			◆		◆
Possible Scenario		◆		◆	◆	
Possible Scenario	◆		◆			◆
Possible Scenario	◆		◆		◆	

Figure 32. Dimension of Critical Uncertainty

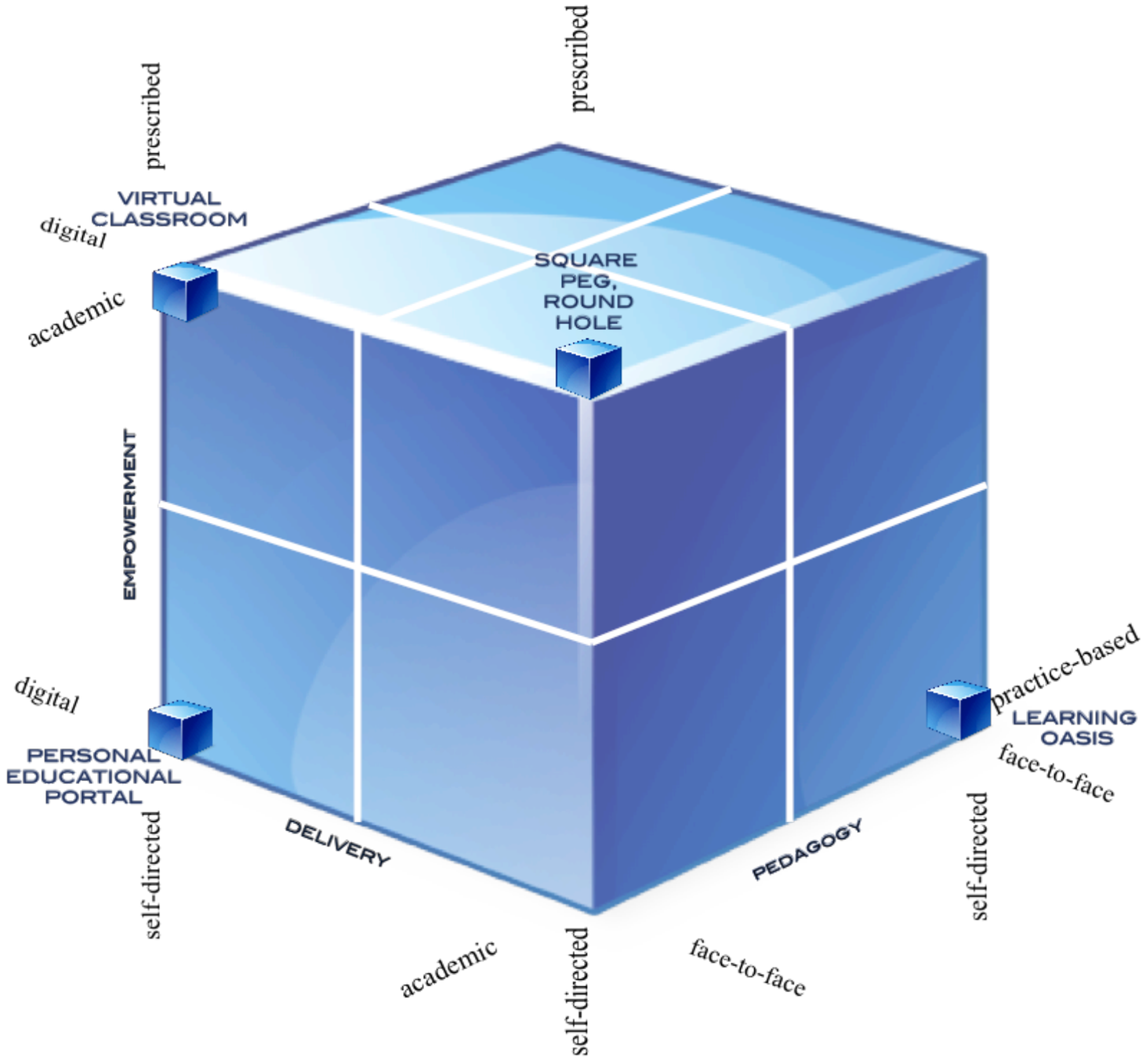


Figure 33. Scenarios Based on Critical Uncertainties

Scenario 1 Virtual Classroom

Year 2030 Progressive Future

Figure 34. Smart Glasses (Source:http://www.littleone.ru/public/img/articles/more/raznoe/article_780/article_780_1405990987410_5.jpg)

The Virtual Classroom scenario was created based on three critical uncertainties: digital delivery, prescribed education and academic pedagogy.

Story Elements

- Reduction in public funding;
- Increase in tuition fees;
- Technological delivery of education is a disrupter to conventional PSE institutions;
- New cost-effective, innovative learning methods using technology;
- Lecture content moves online;
- Flexible, mobile and cost-effective access to knowledge at any time and location;
- Availability of prescribed educational modules online;
- Students' new educational experiences through virtual classroom and wearable technologies.
- Affordability of new personal devices through 3D printing
- New online forms of teacher-student advising and mentorship;
- Learning using inexpensive and easily accessible technology;
- Mind-controlled technology;
- New memory stimulus

With the escalation of cost in post-secondary education and increased access to technology in the year 2030, new cost-effective, innovative learning methods using technology have become inevitable outcomes. Lecture content is only available online nowadays and no longer seems substandard as it was considered to be in 2015. Questions such as: 'should we go to the university's/college's physical location to receive education or can we learn on the move?' no longer come up. Maintaining larger infrastructures of university/college facilities is not economically viable. The unstable economic situation in 2015

led to the reduction in public funding which commanded the persistent increase in tuition fees. Technological delivery of prescribed educational curriculum becomes a disrupter to the short-lived appearance of private elite educational institutions. Time progresses with such speed that there is a need for expedient and more extensive knowledge to be received. We are constantly on the move and our attention span is getting shorter. We prefer to acquire knowledge within minutes or even seconds of our time. To seek time availability, humanity innovates with prefabrication, first in food, then in construction, and now in educational modules. The development of cutting-edge technologies and new digital applications support many new forms of education.

For a fraction of the cost, and more often for free, students are able to obtain degrees now by simply completing a number of prescribed, academic modules online. Innovative educational technology is taking a step further by focusing on the realization that virtual classrooms lead to new forms of education and complete changes in students' educational experience due to great accomplishments in wearable technologies. The initial focus of entertainment in the digital gaming world reached the next level of its potential to benefit education. Simulated experiences of 18th century Rome are a reality. The embodiment of traveling in space that only existed in our imagination or in scientific books and movies in the past, is now a new unprecedented experience that is taken for granted due to wearable devices and interactive tools that are affordable, easily accessible and modifiable through the use of 3D printing. No one is surprised anymore about the seamless and widely accessible ability to collaborate with students and faculty from different parts of the world due to language translation built into wearable devices. Technology enables new forms of online teacher-student advising and mentorship.

The next generation of technology is based on telepathic abilities. This new field of technological advancement evolves through the implementation of new methods based on discovery and understanding of how the human mind works. Mind control of technology is the focus of researchers to assist individuals in the ability to learn continually. In addition, researchers' understanding of how learning occurs develops new nutrients for the brain to stimulate memory functions, to absorb and retain information.

Being open and accepting to new technological tools allows universities the opportunity to facilitate education in a cost-effective way for a more extensive audience. Students receive educational services that are in demand such as flexible and cost-effective access to education.

Scenario 2 Learning Oasis - Technology Aside

Year 2030 Friendly Future

Figure 35. Manassas Park Elementary School (Source:https://grist.files.wordpress.com/2011/04/patel_mpes_outdoor-classroom-kids.jpg)

The Learning Oasis scenario was generated based on three critical uncertainties: face-to-face learning, practice-based pedagogy and self-directed.

Story Elements

- Surplus of university students;
- Constant connection through technology is a nuisance;
- Disconnecting from personal technological devices;
- Increased frequency of cyber attacks;
- Abandoning online learning and turning to studio-based education;
- Turning to yoga, meditation and nature;
- Preference of face-to-face interaction;
- Students direct interface with industry professionals;
- Internship programs;
- Collaborative and group works in the natural settings of green lounges and lecture halls;
- Practicing in industry facilities rather than the limited spaces of university/college buildings.
- Demand for highly knowledgeable and trained local specialists;
- Cultivation of entrepreneurship and retaining local talents;
- Peer-to-peer learning;
- Learning through case-studies and analogue examples;
- Partnership between PSE institutions with industry and among themselves;
- New generation of holistic, streamlined education complete with knowledge, skill sets and experience;
- Organizations investments in individuals' education;
- Practice in industries' facilities;
- Student opportunity for experimentation and innovation;
- PSE institutions improved planning for industries demands and projection of students enrolment

An increase in population leads to a surplus of university students. Building and maintaining post-secondary institution facilities for so many students has become costly. Self-directed learning using inexpensive and easily accessible technology is a

temporary resolution to this issue when students receive knowledge without much of an added cost for new institutional facilities. By 2030, however, technology becomes a nuisance in people's lives as it occupies all of their time. It has left them with no time for a social life, personal space or privacy. As we become further connected through technology, we become isolated and lonely on an overpopulated planet. Cyber attacks become increasingly frequent and invade our lives by breaking into personal information. Many people reach the tipping point of disparity with the constant interface with technology. Research studies prove that people have a high stress level due to constant confrontation with technology. People take an initiative to be disconnected from their mobile devices and start putting technologies aside to return to social life, environment and face-to-face communication with others. Individuals realize that life is passing by too quickly and they are missing their life priorities, such as spending time with their loved ones and getting a real life experience and wisdom from their peers. Taking yoga, meditation and exploration of natures' beauty overtake people's interest for a life of enjoyment with the goal of minimizing stress and happy living. New clubs emerge with groups of people traveling to remote parts of the world where there is still no wireless coverage.

Opposing technological progress, the population's desire is to connect with nature in an aim to reinstate face-to-face interaction. This is a new trend that impacts the post-secondary educational system and to meet these new demands desired by the younger generation, post-secondary educational institutions had to implement new methods. Universities and colleges abandon many on-line learning courses and return to teach in physical facilities. The tendency is toward a more studio-based education and direct interface of students with industry professionals. Gaining knowledge and practice through internship programs has become widespread by students in colleges and universities. Collaborative, group work and peer-to-peer learning have started taking place in the natural settings of green lounges and lecture halls. Many new educational methods are selected based on student's demands as such: learning through case studies; examples that students remember and use by analogy. Such methods common in law practice are now applied in education for other industries. The goal for new architectural facilities is now to implement, incorporate or bond with nature.

Government pressures on educational institutions lean toward cultivating entrepreneurship, developing and retaining local talent, and investing in research and innovation. To realize this mandate of integrated academic and practice – based facilities

and offerings / experience, institutions forge new partnerships with industry. Complementing each other by sharing knowledge, facilities and resources, universities and colleges are working hand in hand to provide a complete knowledge and skill set to a new generation of highly skilled and knowledgeable specialists. Competing for the specialist title, industries begin to invest in individuals' education in order to retain highly skilled employees for longer periods of contractual obligation. By interfacing with industries, educational institutions facilitate knowledge, while the majority of training and practice is experienced or applied in industries' facilities. This emergent practice is highly beneficial for all parties involved including educational institutions as it allows an opportunity to provide knowledge to a larger number of students without investing in larger facilities, expensive equipment and technologies. Students not only receive knowledge but they also streamline the process of transition into a professional environment with the training they receive. This process enables students not only to learn, but also to experiment. Such opportunity creates new innovations and entrepreneurships. In addition, students receive work placements even before graduating from universities and colleges. Interfacing with industries, educational institutions are able to better plan for new course offerings and prepare for anticipated market needs. Industries, however, are putting pressure on educators to provide specific courses and methods for training students. Furthermore, employees demand that universities and colleges teach courses and provide specific content which present some challenges and disagreements amongst stakeholders.

Scholars' collaboration with industries are essential to receiving practice-based knowledge, gaining confidence in the workplace, and learning to be an entrepreneur or secure job placements in the industry. Ultimately, industry alliance with universities and colleges is constructed to be mindful of graduates' expertise, involved in course progress, and to have input into new requirements for future experts. By implementing internships and mentorship programs, universities/colleges solve the social issue of giving students an opportunity for face-to-face interaction. Moreover, they are accommodating the growing student population by having many of them practicing in industry facilities rather than the limited spaces of university/college buildings.

SCENARIO 3 PERSONAL EDUCATIONAL PORTAL

YEAR 2030 PLAUSIBLE FUTURE

Figure 36. Kids-With-iPads
(Source: http://www.studyhall101.com/#home)

The Personal Educational Portal scenario was generated based on three critical uncertainties: self-directed learning, digital delivery of education and academic pedagogy.

STORY ELEMENTS

- Importance of time, flexibility and mobility;
- A significance of personal choice;
- Service-driven, user-centric PSE system;
- Self-directed learning process;
- Self-directed portal;
- Early planning of career path;
- Forecasting personal progress;
- Personalized career navigation and tracking portal;
- The "Global Credit System";
- Possibility to link to universities' special events, receive fee discounts;
- Flexibility of taking courses and working in different parts of the world.
- Life-time learning.
- Delivery of education through personal technological devices.
- Customized, preassembled learning modules;

Time, flexibility and mobility become highly important and necessary in the year 2030. A self-directed personal choice in the age of high-speed technology is the demand of new students. Research of cognitive development and learning styles has furthered the educational system with the creation of new educational methods. A more self-directed and self-sufficient educational system is realized through a self-directed portal; a new technological application for personal use. This allows one to plan their career ahead of time, starting as early as in elementary school by selecting targeted courses for future career paths as well as tracking their own progress and credits going through university and college. This portal allows one to

navigate through and get direction for his or her own education and career journey including: exploring career options, planning where he or she would like to go and completing courses to reach this destination. This career journey, with the support of personal technological applications, permits one to have a combination of courses taken in different universities and colleges all over the world. The degree is no longer associated with one particular program or university, as long as one completes the required credits. Education becomes diversified with a "The global credit system". Many students are selecting courses based on their interests rather than requirements as it was in the past. With this new personal support system, students have flexibility of time and money as they are able to select a time frame for study that is preferable for them and choose courses and universities/colleges that they can afford. The personal educational portal app does the entire job for the student by searching through vast amounts of information to select the most appropriate and desirable courses, times, fees, and locations. The highly attractive option of self-directed learning using technology supersedes long-lived conventional university physical structures. The option of having flexible, mobile and cost-effective access to knowledge at any time and any place has developed into a full potential of knowledge democratization. Students are now able to track what subjects they excel at, listen to testimonials of others, link to universities' special events, receive fee discounts for certain courses, and listen to interviews of the industry's professionals. Students have flexibility to move to different parts of the world and continue their careers studies by taking courses in other universities/colleges. This personal app realizes the high potential of global education. It can forecast personal progress; give a choice for taking a different career path if needed, but overall, it helps individuals to realize their dreams.

Students become more knowledgeable and independent with their education and are able to manage their time better. A portal is designed to use free open sources. Students' awareness of their own learning styles enables them to fast track their own learning processes.

It is clear that the most important thing is to choose one's own path in education that is adaptive and flexible. The career journey should not be viewed as a task of climbing stairs to get to the destination but a beautiful journey. Therefore, the support system should not be labeled as a burden but as a tool that effortlessly assists one going through an exploratory and enjoyable journey that open's the individual's eyes to a sea of possibilities.

Scenario 4
Square Peg, Round Hole

Year 2030 Bleak Future

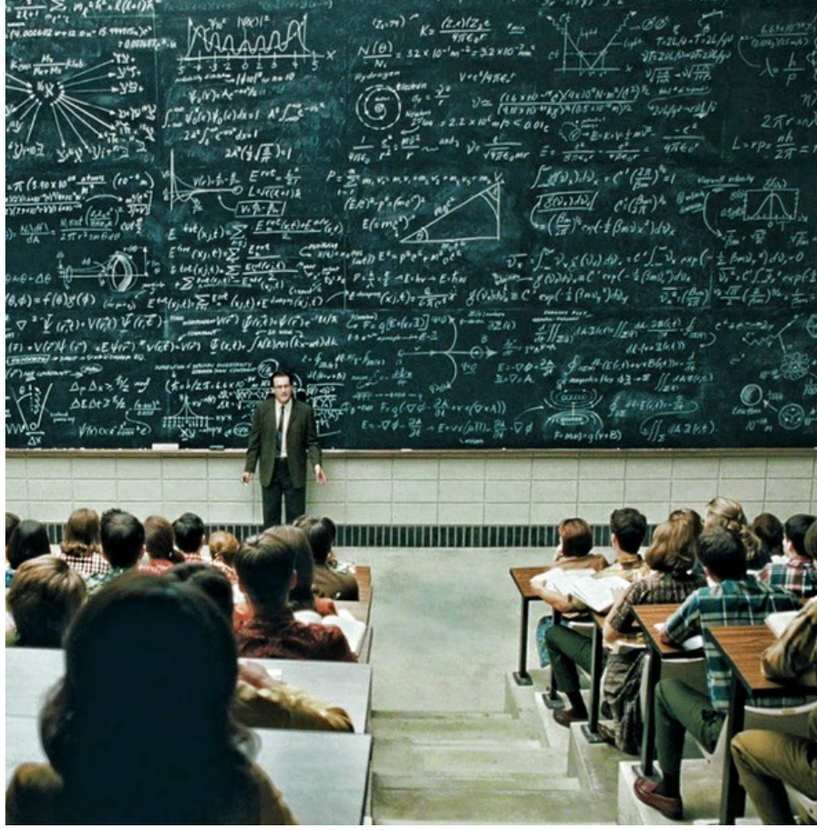


Figure 37. How to Stand Out in a Large Lecture Hall
(Source: http://www.locvn.info/2015/11/how-to-stand-out-in-large-lecture-hall.html)

The Square Peg, Round Hole scenario was generated based on three critical uncertainties: academic pedagogy, prescribed education and face-to-face.

Story Elements

- Economic issues and high cost of living;
- Overpopulation and surplus of graduates;
- High cost of PSE tuition;
- Canada's democratic education is compromised;
- PSE non-changing environment;
- PSE rigid and bureaucratic system;
- Power of administrative control of PSE institutions;
- Prescribed theoretical knowledge of PSE curriculum;
- Lack of experience and no experiential education;
- PSE institutions are disconnected from industries;
- Students treated equally;
- Lack of students' support;
- No choices for courses offered;
- New alternative courses offered by smaller private organizations;
- Students diverge from PSE environment to seek new alternatives;

The overpopulation and large increase of university graduates leads to more stringent rules in university enrolment in year 2030. Healthcare spending has left a heavy burden on taxpayers and a lack of economic funds for PSE institutions, which results in a high cost for PSE tuition. With the increased cost of living, an individual's debt increases. Now, only the elite can afford to go to university. Canada's democratic attitude towards education is now compromised and less investment is now put

towards advancing human resources. Internally, PSE institutions have experienced a non-changing environment. PSE administration pushes back any proposed changes that would involve change of the existing linear educational model due to the potential risk of additional expenditures. The old PSE educational system that remained unchanged since the industrial era is still the same and there are no prospects for improvements. This system becomes rigid, more bureaucratic and complex. The power of PSE institutions is even more concentrated at its executive offices than ever before. Students are not happy about the current model and knowledge they receive is strictly theoretical knowledge without any opportunity for experiential or practical skills. Internship programs are no longer offered as universities' focus is on academic knowledge only. PSE institutions see internships as additional costly tasks to manage. With this decision PSE institutions disconnected themselves from industries even further. Collaboration is used at minimum and only within the university. Students feel a lack of experience after graduation as employees clearly show their discontent with new specialists. The Faculty does not permit making any alterations that would differ from the set curriculum. Students must complete academically prescribed credits in order to graduate. All students are treated the same despite their learning styles and abilities. Students do not get a lot of support due to the lack of funds available for additional university staff. PSE environments are still full of larger lecture halls with 200 to 300 students where students feel lost and unengaged. Not very many students are enthusiastic to go to university, as what's offered does not match their passion or interests. People are pursuing two to five professions over their lifetime. There are no alternatives in course selection. Continuous education programs are closing due to a lack of students. Not very many can afford to take an additional degree. Graduates and professionals feel a void in meeting their need for upgrading their knowledge and skills, as there are no alternatives given in PSE education. Now new, smaller, private organizations and institutions are trying to fill that void by opening a variety of courses for students and specialist to take. Plus, professional organizations offer internship programs at their organizations as they see the lack of experience given to students in PSE. More online courses start popping up with alternative courses, programs, and webinars for little to no cost to give students and professionals the skills and knowledge that PSE institutions are not offering. Many students, for that reason, stop relying on PSE institutions and search directly outside of the PSE environment for better course offers.

The PSE model is heading for failure if the system remains the same and students won't receive desired competencies.

Scenario 5 Re-imagined Education

Year 2030 Preferred Future

Figure 38. Lake Tahoe Hiking
(Source: http://www.sunbearrealty.com/real-estate/assets/images/Local_Tahoe_Guides/hiking/family_hiking_south_lake_tahoe.jpg)

The Re-imagined Education scenario was generated based on the key elements of the first three scenarios with some additional points.

Story Elements

- Awareness of global economic issues, overpopulation and resource depletion;
- Increase in population, migration and urbanization;
- Surplus of graduates and high market competition;
- Specialists searching for jobs through global market;
- Diverse education;
- New innovative technologies;
- Training based on real cases in different parts of the world;
- Versatile experts;
- Increased students expectations for individualized offers;
- Increased peer-to-peer learning;
- Self-directed learning using inexpensive and easily accessible technology;
- Life-long learning;
- Holistic education;
- Increased support for students and faculty;
- Popularity of International Innovator's Competitions organized by universities.
- Implementation of foresight into PSE curriculum;
- Transformation of theories into realities;
- Research and education achievements in adaptation to different climates and environments of other planets;
- Intervention between post-secondary education, global education and the industry's space programs.
- Demand for Global Education;
- PSE shift toward exploring the future rather than learning from the past;

Increase in population, migration and urbanization leads to a surplus of graduates and high market competition. Ease of borders and high-tech developments increases movements around the world for specialists who are looking for work globally. Information, openness and travel create an increased awareness about global issues. People are living longer and obtaining two to five professions over their lifetime. Post-secondary educational institutions long realized the need for training specialists that are able to work in any part of the world. For that purpose, education needed to be diverse to fit for many demographics and to cover many subjects including global economics, history, politics and business.

Tendencies towards customized approaches in digital industries and discoveries of different learning styles, change students' expectations. Awareness of different learning styles leads to customized education geared towards individuals' needs. Students' demands for more subject choices and diverse education drive PSE institutions to unbundle some of the programs. By offering diverse knowledge through a variety of courses, PSE institutions not only benefit graduates but also help employers by providing very versatile experts.

The emergence of customized learning modules and popular visual methods are supported by technological applications. New educational modules are initially built to recognize audio, visual, tactile, verbal, social or mathematical learning styles. These modules are further tailored towards the individual's ability to learn with built-in personalized device algorithms.

Students' demands for a student-centered approach is realized through a personal education portal; a digital device used by students to plan their career, select desired courses and move into internship and work placements. It permits one to keep track of all certification courses one would accumulate throughout his or her lifespan. People now have an opportunity to be a member of international educational programs to continue taking courses at any time during their life span. People are given the opportunity to gain points from educational credits to get discounts for their next courses. This is a great offer that allows one to advance their career or realize many occupations despite their age.

Importantly, students take charge of their own education; creators of their future careers where academics are the mentors and facilitators that direct them to the right path. Students receive great support from their advisors online. The instructor/faculty role has changed radically. He or she is no longer a contributor of information but rather the facilitator of

vast amounts of information in a complex world that students submerge themselves in every day.

With the increased awareness of global and economic issues, overpopulation and resource depletion needs arise for industries to collaborate in solving potential negative outcomes. The demand in the radical shift towards resolution has affected post-secondary institutions. A necessity arises to shake the existing aged 'ivory tower' concept of post-secondary institutions. Educational institutions realize the need for integrated and holistic education. Institutions offer a complete package of education and experience. Through PSE integration with industries, many students are now trained in different parts of the world during the time of their internship study, depending on their specialty. They have a great opportunity to learn from real cases and practices by participating in real events. Also, education is now delivered with both on-line and in-person methods to allow for more time flexibility to students, faculty and stakeholders' cost savings.

Recognition and identification of cognitive learning styles assist in meeting students' expectations and allow the provision of good quality education. This also assists facilitators/teachers in aligning students with other individuals of similar learning abilities into hubs where they collaborate with their peers and advance their learning.

Universities are now trying to keep the balance between education and research by giving their students a chance to learn by participating in research and innovation projects. New research discoveries we achieve assist us in improving our lives and resolving the issue of resource depletion. We are realizing our desire to be able to extend our lives and are exploring possibilities to harness and use our own kinetic energy. We are learning about the potential of energy more than ever before. Educational institutions are presenting an opportunity for students to participate in international competitions for innovation and research. Universities and colleges have assisted students and society in achieving much-desired progress in educating forward-thinking and highly trained specialists. International innovators' competitions gain popularity and are sponsored by world-renowned organizations. These events become public entertainment and are managed by educational organizations that compete against each other for global recognition. Graduates compete to win monetary prizes but mostly to become highly desired candidates to work for sponsored organizations. Winning such a prestigious award is every graduate's dream as it automatically gives him or her a lifetime opportunity.

For centuries, education was based on evidence and history from the past rather than exploring the future. Post-secondary

institutions realize that it would become extremely beneficial to explore the future. Science and Engineering programs take an especially radical turn in their educational programs by implementing foresight in their curriculum studies. The intervention of Foresight and Global education takes place among many different programs such as medicine, space biology, physics, chemistry, engineering, foresight architecture and so on. Theoretical knowledge is turning into reality. Foresight provides insight into what education, methods and skills will be necessary in the future and assists institutions with better planning.

A more personalized, service-driven, user-centric system is achieved for improved student support. With a personalized support system, a university assists students to better engage in university events, connect with specialists in the industry, manage their time better, and plan and forecast personal progress. Educational institutions' information is now transparent, free for viewing and accessible with personal portal devices. It is evident that by using integrative approaches students achieve success in their career through life and society benefits by having responsible citizens who are able to resolve many global issues and come up with innovative ideas. With this new holistic education, individuals are able to achieve their dreams, enjoy their occupations and have a beautiful journey of life-learn learning.


three
horizons

CHAPTER 4 THREE HORIZONS

The three horizons model of Andrew Curry and Anthony Hodgson was used as a framework for analysis of the current and future PSE environment status. The three horizons diagram shows a vision of the future with the current conventional centralized model (administration centric) which is weakening. The transition is to take place with online learning gaining momentum (decentralized model) and a preferred future of blended, holistic education and experience (student-centric) to prevail by the year 2030. Horizon 3 is a preferred scenario five based on a combination of scenarios 1, 2 and 3. Open sources and digital technology disrupt the current knowledge-based centralized model. Inevitably, this will lead to a shift of the old centralized model (controlled by PSE institutions administration) into a decentralized model of online and in-person learning. This process will misbalance the current model until a new model is created with holistic, blended education and experience that is student centric.

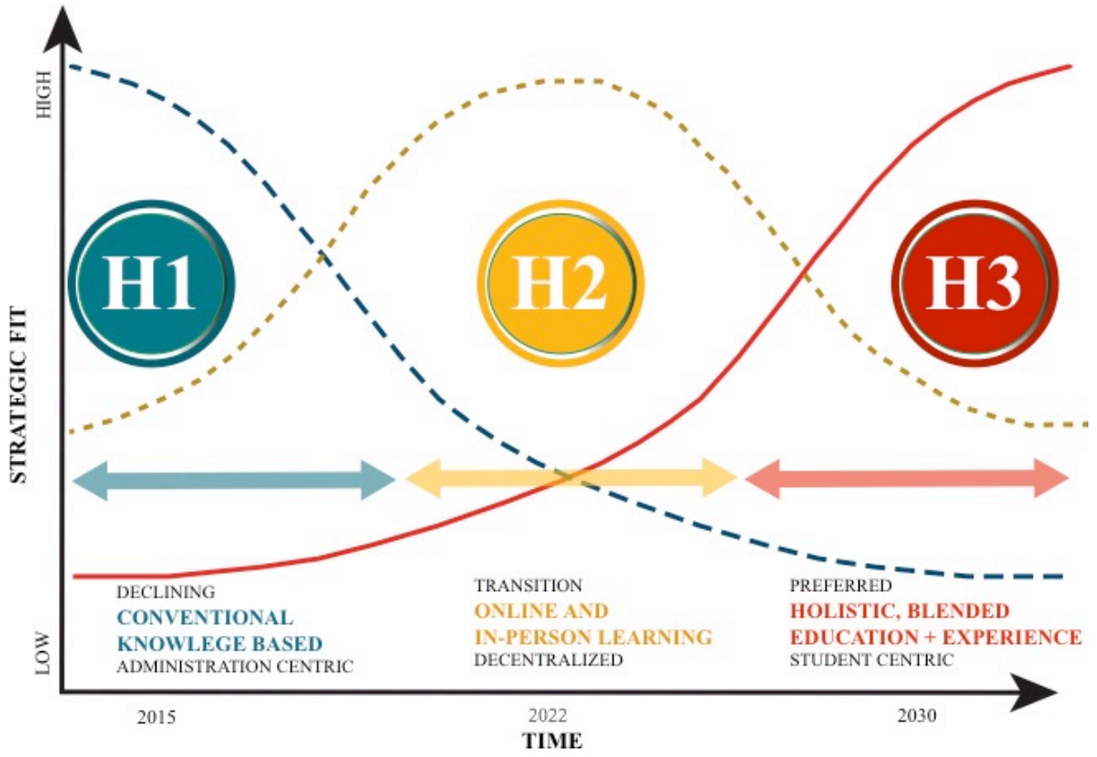


Figure 39. Three Horizons

The framework of three horizons reveals the current status quo and offers various strategic approaches for the preferred future of the PSE system. The three horizons diagram illustrates a strategic way to transition and settle existing PSE system contradictions. The way to achieve this is through collaboration, integration and openness to new, innovative support approaches and learning methods. There is tension between the state of the existing PSE offering and progressive offers through the external environment that alters our vision. This demands improved student experience where the product is holistic quality education and experience with a strong support system of services to achieve that. This requires support and collaboration with specialists from industries and members of the community. That also necessitates a transition from a complex system to a transparent system and an ease of navigation through it.

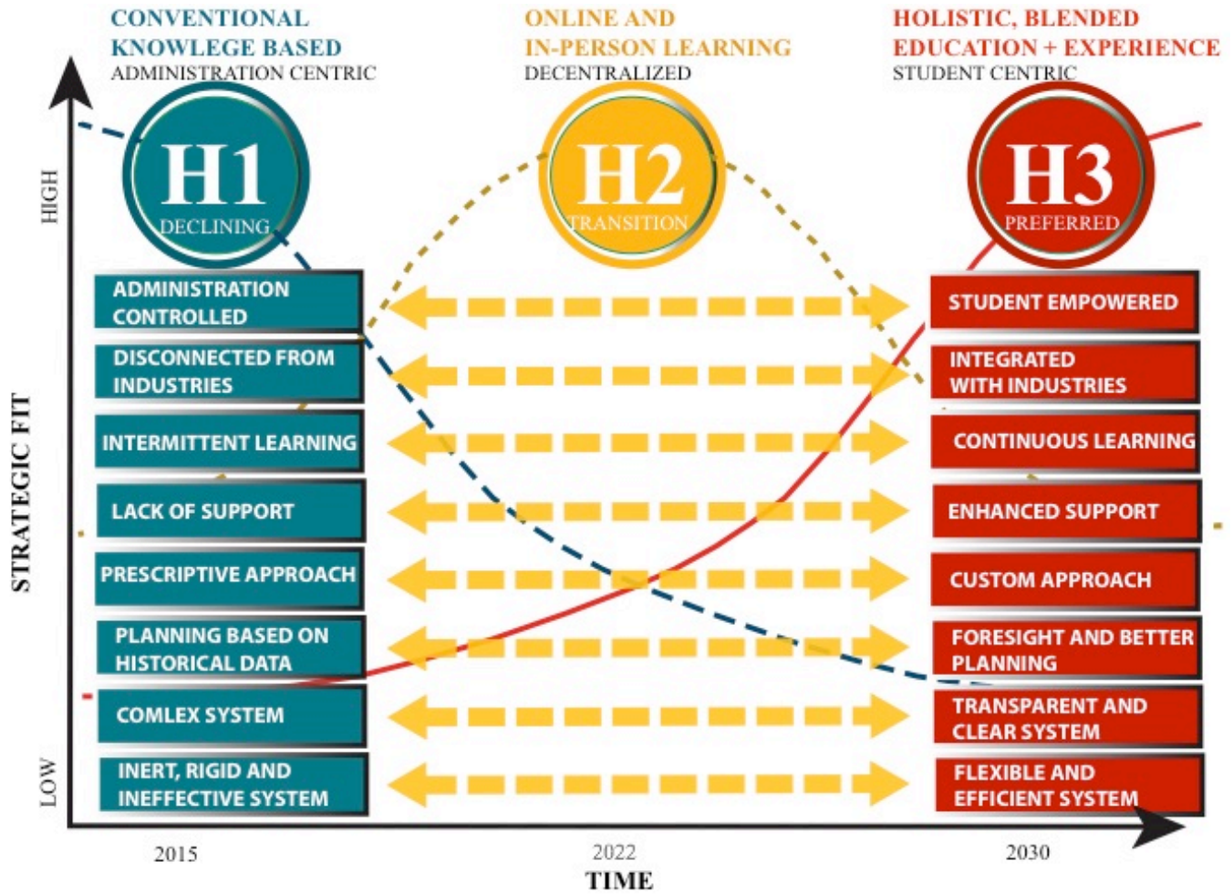


Figure 40. Three Horizons –Existing and Preferred PSE System

The transition should take place from H1 to H2 first and then to H3. The face-to-face student interaction with professor and students collaboration should be kept and transition from horizon 1 to horizon 3. The PSE model will be affected through the process of transition in some form of decentralization as changes in H2 start taking place through implementation of internship opportunities, technological and administrative support services for students, and policy changes.

Horizon 1 provides:

- Knowledge-based education;
- Centralized model in PSE campuses;
- Administration control;
- Isolated PSE environment from industries or communities;
- Intermittent learning;
- Unified, prescriptive approach to all students disregarding their status;
- Face-to-face delivery of education and advising;
- Priority to advance research;
- Students collaboration within each program;
- Complex system that lacks transparency;
- Large lecture halls;
- High cost tuition

Horizon 2 requires strategies that will assist to transition from complexities of the current model to a preferred future and mitigate stakeholders' risks during this process.

- Virtual vs. brick and mortar education;
- Power struggle between administration, faculty and students. Administration control is minimized;
- Some Internship opportunities;
- Emergence of different options for students' support services including job searches and network building;
- Collaboration vs. individual approach;
- Quality of education vs. quantity of students;
- Struggle between education versus research. Education gains priority;
- Changing policies;

Horizon 3 demands innovations that would change the existing PSE system and implement the desired vision of an integrated student-centred system with blended education and experience.

- High choice for students;
- Emphasis on individualized approach and quality of education;
- **Integrated approach** with industries and communities;
- **Life-long learning**;
- Blended on-line and in-person learning;
- **Peer-to-peer learning**;
- Embrace of technology and open sources to seek improved student support and systems' efficiencies;
- System transparency;
- Reduce tuition fees through self-directed administration, online courses and advising

strategic approaches

Chapter 5 Strategic Approaches

The next project step was to bring to the surface the main strategic approaches from the key strategies initiated through the analysis process of three horizons diagram (Figure 40.) and preferred scenario.

The initially proposed strategies were used as the basis for developing more detailed and robust tactics to build third horizon of student-centered PSE system.

Individualized

Approach

Integrated

Education and experience

Online and in-person learning

Service Oriented

Model

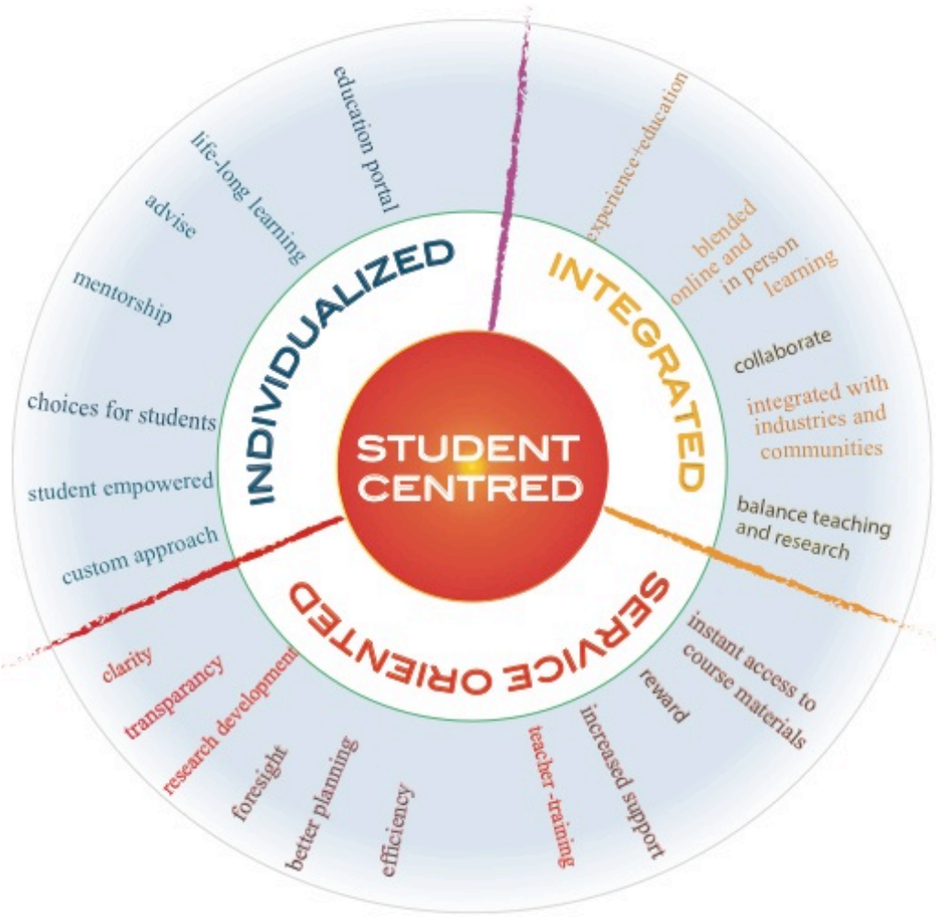


Figure 41. Strategies

Individualized Approach

These were transitions from administrative controlled Horizon 1 to student empowered Horizon 3; from a prescriptive approach to an individualized approach and from intermittent to life-long learning.

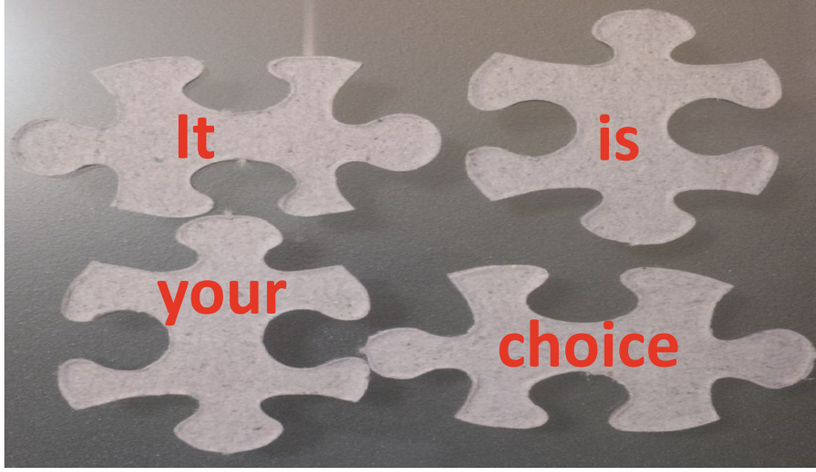


Figure 42. It is Your Choice

1. Mentorship and Advice

To achieve more person-to-person contact for students with teachers, provide a program of post-graduate students or retired professors to assist teaching in both virtual and physical environments. This can be implemented through development of online advising, support, and mentorship of PSE students by involving retired faculty and retired industry professionals who desire to be involved in PSE.

2. Smaller Class Size

To offer smaller class sizes, consider the inverted educational process of the faculty by offering face-to-face mentorship to students and TAs to give content through lectures and work provided through online learning modules prepared by faculty members.

3. Choice

Give students a choice by **unbundling some program materials**. Students will follow their passion and maintain interests in learning, enquiring, curiosity, collaboration, innovation and co-creation by having freedom of choice.

- Ease the system for students to take courses from different universities and colleges to complete their programs. Show course options available in other locations in order to complete their program.
- Let students take courses at different times to fit in their busy schedule.
- Allow students to stretch payment for their education by paying for one course at a time.

4. Personalized Student Portal

Embrace technology and use it to your advantage. Develop **Personalized Student Portals** that were described in scenarios to assist students with their educational and career choices..

5. Life-Long Learning

Help those who would like to continually engage in ongoing education pursuits. Create optional university membership for people to use facilities and continue to take education. By reducing tuition fees for people after the age of 50, universities/colleges will complement their clientele.

INTEGRATED SYSTEM

Transition from disconnected, isolated entity in Horizon 1 to integrated, collaborative system of desired future in Horizon 3.

Figure 43. Experience + Education

1. BLENDED ONLINE AND IN-PERSON LEARNING

Achieve **blended education of in-person and online** models by moving some content online; for example: use Podcasts to deliver content to students. This method is helpful in giving students an opportunity to repeat the material as many times as needed to fully understand the topic. By providing a better quality of education through blended face-to-face and online learning, educational institutions will allow students to learn at a reduced fee and on their own time in the convenience of their home.

2. EDUCATION + EXPERIENCE

Rather than focusing on knowledge delivery, emphasize students' education and experience in order to achieve holistic education

- To achieve holistic education, implement experiential learning. Realize experiential activities through case studies in teaching and simulate practice online. Clark, Threeton and Ewing give a lot of credit to "experiential learning as a true learning methodology for students to obtain occupational skills valued by employers."[54]
- Help students to connect with industries and communities to create environments for students to gain real life experiences.

54. Clark, Robert W., Mark D. Threeton, and John C. Ewing. "The potential of experiential learning models and practices in career and technical education & career and technical teacher education." (2010).

Cortese advises that students will benefit by retaining 80% of knowledge by "…working on actual, real-world problems facing their campus, community, government, industry."[55] Create a relationship between students' part-time work and practice. Different revenues can be established for practical experience through co-op, internships and volunteering. Students should have an option to dedicate their summer time to gain real experience by the time they graduate. Allow students to teach community members in community centres, and show opportunities and job postings in related job markets.

3. Collaborate and Integrate

To achieve students' holistic education, universities and colleges should consider collaborating and complimenting each other's strong qualities. Create environments of co-education among different universities, colleges, industries and communities. Increase **peer-to-peer learning**. Introduce shared programs through university and college collaboration. Share locations and resources to assist each other.

- Collaborate with all stakeholders involved to achieve performance and cost objectives.
- Engage and collaborate with other professors and instructors on new methods of teaching by using instructor' blogs. Share creative ideas and implementation strategies to achieve a higher quality of teaching.
- Involve investors to assist the university through private funds.
- Work with high-school students to assist them with career advice through **PSE** student mentorship programs.
- Help students to collaborate by introducing university/college hub spaces.

4. Balance Teaching and Research

Reevaluate and balance teaching and research in order of priority for primary users. Involve students in research projects.

- Assist students to use their final innovative products for commerce and share the funds.

55. Cortese, Anthony D. "The critical role of higher education in creating a sustainable future." *Planning for higher education* 31, no. 3 (2003): 15-22

Service Oriented Model

Transition from a complex, inert, rigid, ineffective system with poor planning and lack of support to students and faculty of Horizon 1 to a transparent, clear, flexible, efficient PSE system with better planning including foresight and enhanced support to students and faculty in Horizon 3.

1. Instant Access to Course Materials

With the use of technology and benefits of open sources, efficient improvements can be made to PSE systems and facilities:

- Allow instant access to course materials online so that students can view or listen any time they want to reduce the faculties' time for questions.
- Simplify the complex procedures for registration, source information, resources, and finding contacts to reduce time and administrative costs.

2. Efficiency

Find efficiencies in the use of PSE facilities by moving some content online. Universities or colleges will compensate the need for classrooms and lecture hall physical facilities, reduce the cost of infrastructure, maintenance fees, transportation expenses and help to decrease the city's traffic congestion.

3. Increased Support

By implementing self-directed administration and increasing online resources, universities or colleges will be able to increase support for students and faculty.

- There are many possibilities to design and implement supportive technology that can administrate registering, course selection, scheduling, and organization in effective ways to orchestrate conversations better in virtual environments.
- Procedures and protocols need to be in place in educational institutions for the development and implementation process of new technological pilot projects including web sites as well as technological applications that would take into consideration the time of the process before it is turned over to users. Users' feedback is important to make further improvements. Therefore, remember to test and assess these new digital technological tools by the users.

Figure 44. Clarity and Transparency

4. Clarity and Transparency

A university should achieve clarity and transparency in the post-secondary system of academics, researchers and practitioners as well as reevaluating some of the assumptions being made over the years. Create transparency in student progress, such as assessment systems. When communicating with students, speak in plain language and do not use academic verbiage or acronyms.

5. Better Planning

Consider segmented gradual implementation of new strategies in the post-secondary educational system. To achieve an overall goal make plans to meet smaller targets. Facilitate temporary measures until final implementation takes place, for example:

- Involve software developers with the design of web-based platforms for education online with virtual spaces, online advising, access to professional development courses, apps to assist with organization, time management, services, and university/college information.
- Developer can also work on mobile applications to assist students in navigating through the university system.
- The basis for business, entrepreneurship and finance knowledge so desired by students can be supplementary to their subject-based courses and greatly assist them in their future career. Implement informal learning, suggested by Attwell, G. in his paper *Personal Learning Environments-the future of eLearning.*[56]
- Promote innovation and assist students with marketing and promotion.
- Promote the university/college brand with the use of free online course promotions and advertisements through the use of media.
- Involve stakeholders in the process of change and decision-making.
- Work with other experts to realize the extent of goals undertaken

56. Attwell, Graham. "Personal Learning Environments-the future of eLearning?." *Elearning papers* 2, no. 1 (2007): 1-8

6. Reward

Students and faculty require supportive and rewarding mechanisms to embrace the newly redeveloped educational system. Reward students with reduced or free tuition fees for the last semester, which would also improve students' retention.

7. Foresight

Implement foresight courses for students to become visionaries of the future that are creative and imaginative individuals.

8. Teacher - Training

Coordinate teacher-training programs to achieve a high quality of teaching. Apply a series of measurement and accountability in teaching.

9. Research and Development

Create a Research and Development Department within universities or colleges that will focus on research and testing of innovative teaching methods


business
models

CHAPTER 6 BUSINESS MODEL

A CALL FOR RADICAL APPROACH

HOW TO MAKE THIS HAPPEN?

Breaking the thick, established fortress of the existing PSE ivory tower is an enormous task and unlikely achievable within the existing traditional system. Thus, to transform towards a desired future, disruption of the current system needs to occur from outside by a smaller unconventional educational model. This foresight project offers an inspiration for change. It establishes recognized value through the process of research and gives initial groundwork. A smaller group of people who are passionate about the quality of education, committed towards changes in the current system and aspire toward PSE success in the future will be able to use this initial foresight work and bring PSE to a desired future. A new group of individuals, uninfluenced by the dogma of PSE bureaucracy of the existing system and free from establishments for many years, would be able to roll out a new educational service much easier than established PSE institutions. This small group of people will be able to develop an unconventional, student-centered educational model into advanced projects and business processes independent of the current PSE model. A number of advanced features may be incorporated into a new system including a significant custom-oriented approach to students' education with a focus on opportunities and life-long learning, integrated tactic of work with industries and communities, blended online and in-person learning, transparency and clarity of service delivery. A simple model may be established with great flexibility for making changes in order to always stay current and fresh. To create a desired new model, the innovative business model can be used to illustrate the current and proposed structure of the PSE system, reinforce by the value proposition, and design a new educational model.

Basic Operating Parameters of Current PSE Business Model

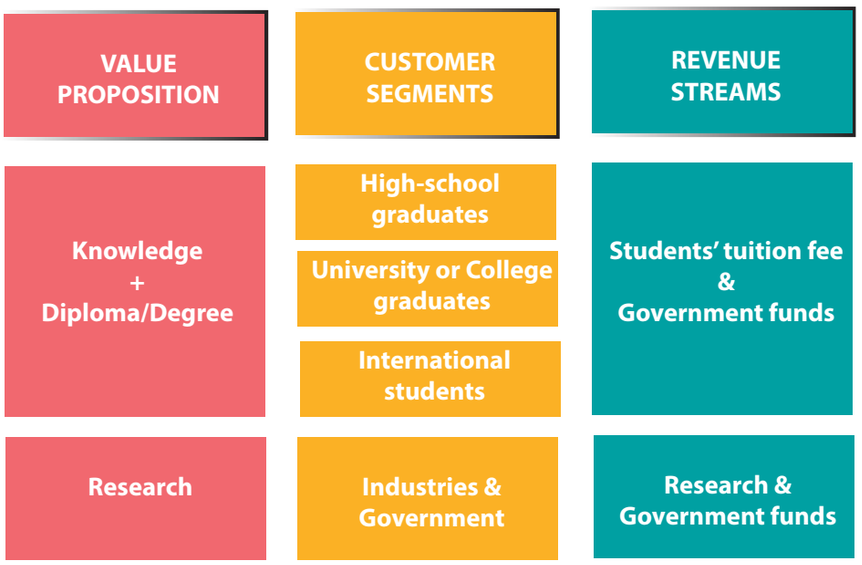


Figure 45. Current PSE Business Model

- The centre of the Business Model is the Value Proposition. In the current model, value propositions are knowledge delivery, research and the end product of diploma/degree distribution to the PSE graduates. There is no distinction from one institution to another.
- PSE has been offering these dated value propositions for many years to their main stakeholders/various customer segments including: high-school graduates; university or college graduates, professionals who decide to continue their learning, and international students.
- PSE provides value proposition to their customers through a very linear process of customer relationships such as: recruiting new students first, supporting them with their learning through their educational at a PSE institution, assisting them with

financial services if required and, finally, graduating them. This process repeats again and again with new students like an industrial chain process.

- To inform new students about the value proposition, universities and colleges promote their brand mainly through websites, magazines and brochures.
- PSE's main Revenue Stream comes from students' tuition fees. Other streams include Government and research funds.
- There are many key resources used for this business model including: the university or college campus, buildings, infrastructure, professors/instructors, administrative and support staff, custodial, maintenance staff, library, legal, IT, as well as food and transportation services. It is a big bureaucratic machine to operate and a lot of resources are required.
- The key activities include passing on knowledge and performing research. Other activities include: advising, workshops and holding events for students, faculty and staff.
- The main key partners interested in success of PSE businesses are Governments and banks which are making their revenues from PSE customers. Consultants from other organizations often provide resources or services to PSE institutions.
- The main costs to operate this big PSE machine include: land tax, costs for key resources, key activities and cost associated with consultants.

The Value Proposition – PSE Student

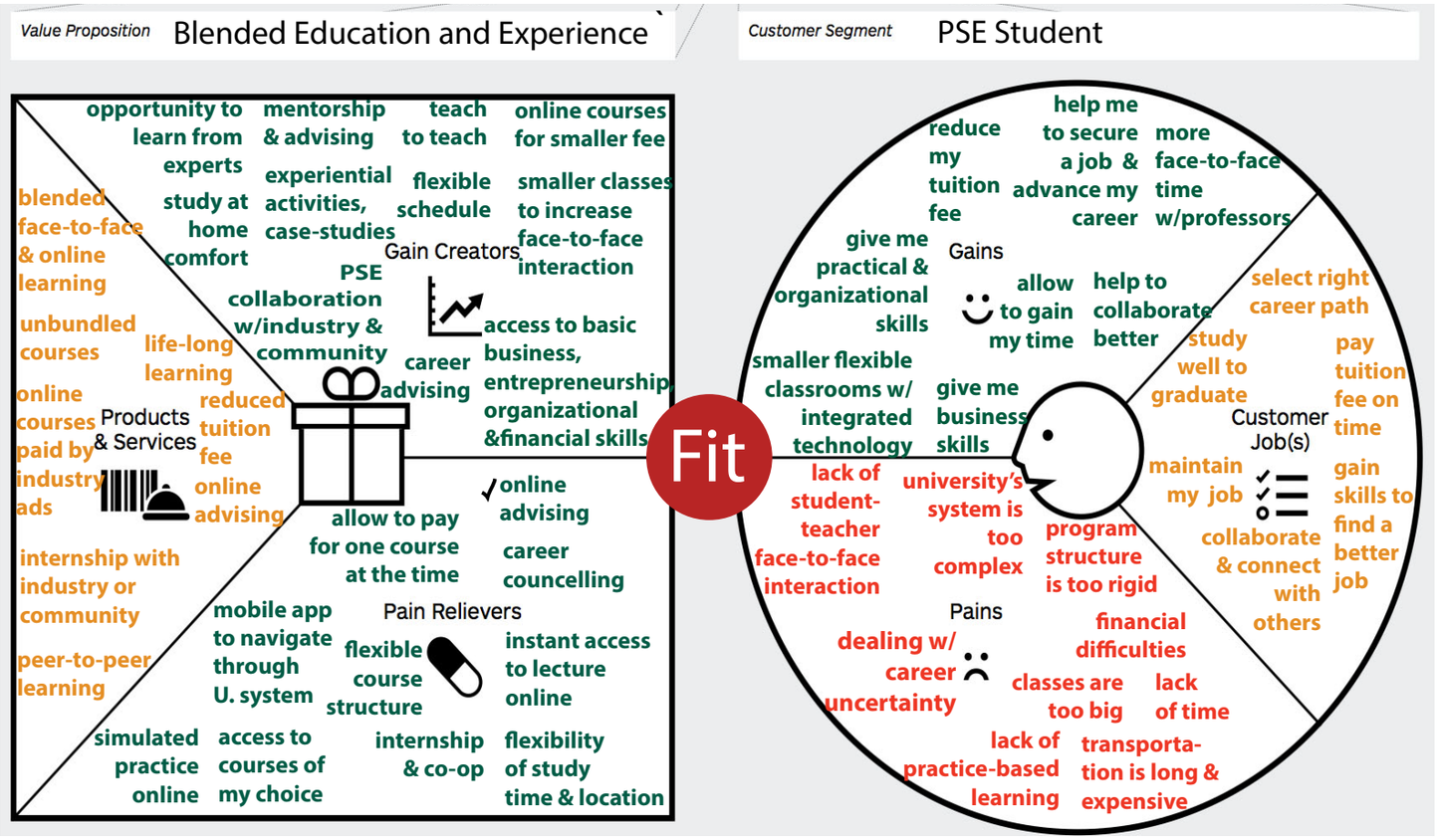


Figure 46. The Value Proposition Model – PSE Student

Looking at a PSE student customer profile helped to uncover specific customer segments in the PSE business model and mapped out a value proposition whose segments will fit with customer profile segments.

Customer Profile of PSE Student

Pains

PSE students are dissatisfied with many outcomes:

- University/college system is too complex and hard to navigate;
- They experience financial difficulties;
- Dealing with career uncertainty;
- Lacking practice-based learning;
- Lacking time to study as they need to work;
- Classes are too big and they experience a lack of student-teacher face-to-face interaction.

Gains

Students are seeking to gain help:

- Practical, business and entrepreneurship skills;
- Learn how to collaborate better;
- Participate in smaller classrooms with integrated technology;
- Have more face-to-face time with the professor;
- To secure a job and advance their career;
- Gain time-management skills;
- Gain more time to study;
- Need flexibility in course selection, time and location;
- Have a reduced tuition fee

Customer Jobs

PSE students are trying to get a number of jobs done through their study, work and lives such as:

- Selecting the right career path;
- Studying well in PSE institutions to graduate;
- Work to pay for tuition fees on time;
- Gain skills to find a better job;
- Keep their connections with friends, family and collaborate with students through group work

Value Proposition of Blended Education and Experience

Pain Relievers

PSE may alleviate customer pains by:

- Introducing mobile apps to students to navigate through the university/college system;
- Allow paying for one course at a time;
- Offering career counseling;
- Implementing internship and co-op + simulating practice online;
- Providing instant access to lectures online, offering a more flexible choice in course selection and schedule;
- Providing online advising;
- Provide a flexibility of study and learning in course selection, time, location and methods of learning

Gain Creators

PSE should offer products and services that will help full-time students to gain their desired outcomes:

- Offer courses to learn basics in business, entrepreneurship, time management and finance;
- Provide mentorship and advising to assist students;
- Connect students with industry experts to teach students how to collaborate better and teach students to teach;
- Creating smaller classes to increase face-to-face interaction with teachers;
- Provide online content to allow students to study some material at home;
- Offer career advising and co-op opportunities by connecting with industries and communities;
- Providing some online courses for a smaller fee to help students financially

Products and Services

The following products and services PSE institution should consider providing to build around value proposition:

- Blended face-to-face and online learning;
- Online courses paid by industry ads;
- Online advising
- Peer-to-peer learning;
- Internship with industry of community;
- Reduced tuition fee;
- Unbundled courses;
- Life-long learning

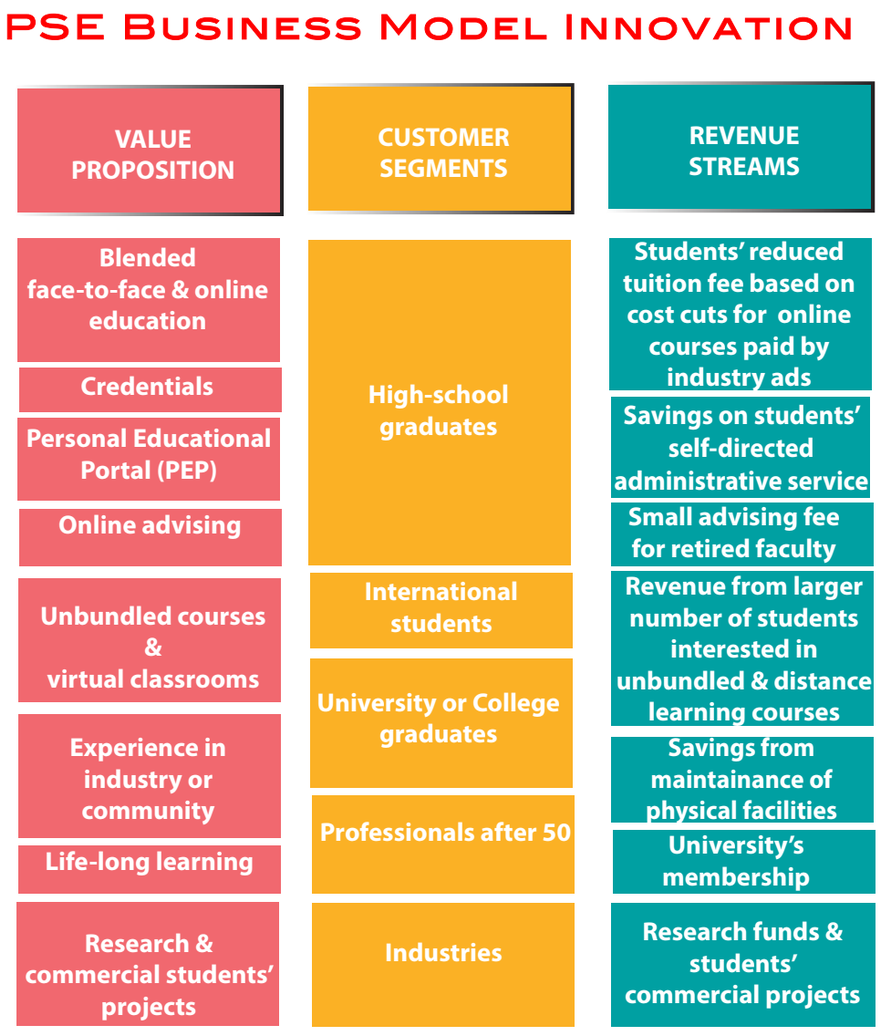


Figure 47. PSE Business Model Innovation

- Value propositions of the Business Model Innovation are uncovered through the review process of student customer profile and value proposition offerings through products and services that would fit with PSE customers' pains and gains. Offering choices, flexibility and support are the main goals to be achieved with Business Model Innovation. Value propositions of the PSE Innovative Model are: blended face-to-face and online education, experience in industry and community, unbundled courses, virtual classrooms, personal educational portal, life-long learning, student participation in research and commercialization of innovative projects.

- PSE institutions may offer these value propositions to many stakeholders/various customer segments including: high-school graduates; university or college graduates, international students and professionals after fifty.
- PSE institutions may provide value propositions to their customers through the continuous learning process of the customer relationship such as: recruiting new students, supporting and advising them with their learning and career advancements, assisting them with financial services, providing continuous education, offering peer-to-peer learning, collaboration, industry connections and practice-based opportunities.
- To inform students about the innovative value proposition, the university may promote its brand through websites, magazines, brochures, offerings of online courses and ads through media.
- PSE institutions' main revenue streams of students' tuition fees and research funds are not sufficient. PSE should seek additional funds through innovative technological resources. By putting some content online and implementing distance learning courses, the university may be able to reduce student's tuition fees and their own cost structures in the long run. The university will gain customers by unbundling programs and offering more choices to students. The university may enable students' self-administration and reduce its own administrative costs by implementing personal students portals (mobile digital devices). While students are gaining experience by taking internships in industry facilities, the university may save the cost on its own facility's maintenance. For a smaller fee through the university's membership, students may continue their learning through their lifetime and the university will realize a constant revenue stream. The university may save in implementing online advising services by involving retired faculty.
- The key resources used for this business model should add technology and technology supports. Other remaining resources should seek efficiencies; these include: university or college campuses, buildings, infrastructure, professors/instructors, administrative and support staff, custodial, maintenance staff, library, legal, IT, food and transportation services.
- Key activities should no longer be based on providing knowledge and performing research but rather on providing holistic education and experience. Other activities should focus more on customer support and services which include: advising, workshops, requirements, sponsorship and holding events for students, faculty and staff. New activities should include connection of students with industry professionals and community members to gain more real-life experiences and assist with careers.
- Some key PSE partners, including banks, will remain. Software developers should be added to the list of PSE main consultants to provide more online resources. Other important partnerships must be developed with industries, communities, and other PSE institutions.
- There is an opportunity for PSE institutions to reduce the operating costs of the main structures including: costs for administrative resources and maintenance of physical facilities. Costs may be reduced if efficiencies considered innovative methods, online technology and economic procedures.

Conclusion

This project was an exploration of the future of the PSE environment. Through Foresight methodologies, environmental scanning and stakeholder assessment, this project reveals the current challenges and a vision for the future of the PSE environment. The goal was to re-imagine a future towards a preferred scenario and initiate strategies to express how it could become a reality.

Environmental scanning exposed PSE current trends and drives that affect that environment. Experts interviewed, acknowledged the effects and changes on the PSE system and demonstrated an openness for PSE transformation. Students' survey results hint at a desire for more flexibility in PSE course offerings plus program structures, internship opportunities, more in-person support from faculty and more integrative models of on-line and in-person learning.

Future scenarios provided an opportunity to consider futures plus derive implications for the PSE. To shape the preferred future of the PSE environment this project created a preferred scenario based on the information gathered. From the preferred scenario a future horizon was developed that established new strategies proposed for the vision of a re-imagined PSE system realization. Using Andrew Curry and Anthony Hodgson's Three Horizons model as a rational framework, this project attempted to show what the transformation might be from PSE institutions' status quo to stakeholders' preferred vision. That preferred vision is a student-centered holistic system with an individualized approach and integrated tactics towards education and experience, and a blended on-line and in-person learning with enhanced support for students.

Annotated Bibliography

*Alexander, B., Birch, D., Frewen, C., King, K., Robinson, S., Tibbs, H., Schultz and Lum. *The Future of Education*. APF Compas (2014).

The 2014 Compass issue combines the opinions of different authors on the future of education. This issue collects papers from Hardin Tibbs's view about "the end of the industrial university and the rise of new models of learning" to Sara Robinson's and Bryan Alexander's observations on changes in university environments. The paper of author David Birch foresees changes in the credential system and future outlooks where social options in social media or LinkedIn become very valuable. Katie King writes that technology is becoming an integral part of students' lives. Cindy Frewen describes the vision of workshop participants in university campus environments for 2025. She states that participants see these future environments as "…flexible, creative, and collaborative, and blend virtual and real world experiences". Schultz and Lum state that even children are involved in new methods of learning such as video gaming due to emergent forms of technology.

*Attwell, Graham. "Personal Learning Environments-the future of eLearning?." *Elearning papers* 2, no. 1 (2007): 1-8.

The author reviews eLearning papers about personal learning environments (PLE) and their importance to the future of education. The paper explores how technology supports personal learning and how PLE is becoming an ongoing process. The paper also reviews a variety of new learning oportunities that are enabled by the emergence of new technologies. The author implies that "learners themselves are becoming producers" of knowledge due to progress in technology. He states that changes in technologies are directly related due to changes in education. Attwell notes that most learning is now informal; offered by a variety of providers at various times. It is initiated by one when need arises to find a solution or necessity for upgrading skills and knowledge.

Billig, Shelley. "Research on K-12 school-based service-learning: The evidence builds." *Phi Delta Kappan* (2000): 658.

In her academic paper on service learning, Shelley Billing from the University of Nebraska argues that service learning is a powerfull pedagogical tool. Service learning, according to Billing, has "allowed students to gain a greater understanding of concepts while they contribute to their communities". The key objectives in service learning are for students to become active members of the community, understand the communities' needs better, and have compassion for its members. The focus of service learning is on "civic education and positive youth development" according to Billing. This effective practice allows students to gain practical experience, advance their learning through practice, gain confidence, improve social skills, and assist in becoming responsible citizens. To achieve students' career related goals such as: "work-place skills, career pathways, or job knowledge", it is important for educational institutions to seek engagement with communities and industries.

*Clark, Robert W., Mark D. Threeton, and John C. Ewing. "The potential of experiential learning models and practices in career and technical education & career and technical teacher education." (2010).

The authors of this article are academics of Pennsylvania States University. They examine the potential of experiential learning models and give credit to "experiential learning as a true learning methodology for students to obtain occupational skills valued by employers". Authors believe that students would highly benefit from experiential learning and, therefore, the experiential learning should be implemented in pedagogy. They pointed out that experiential learning is the process of testing, experimenting and exploring new ideas that allow for direct student participation. In experiential learning, students apply their knowledge in practice and learn much faster. With this paper the authors indicate the key importance for students to obtain experiential learning for their career and technical experience. Clark, Threeton and Ewing referenced Kolb's theory about individuals' different Learning Styles including: converging, diverging, assimilating and accommodating. The authors state that institutions should use information about different learning styles to enhance students' educational experiences and use this knowledge to design richer learning environments.

*Cortese, Anthony D. "The critical role of higher education in creating a sustainable future." *Planning for higher education* 31, no. 3 (2003): 15-22.

This paper discloses the importance of the integration of education, research, and community for the overall benefit of students. Cortese states that higher education plays a critical role in our future and, therefore, needs to take a "leadership role" in creating a positive, just, and sustainable society. He believes that "shift toward a systemic perspective emphasizing collaboration and cooperation" is necessary to promote a sustainable future. It is very beneficial, in his opinion, if "…a college or university would operate as a fully integrated community". The paper is referencing how to look at problems overall and reduce issues systematically; how to live, educate and work by

keeping people's and nature's best interest in mind. Cortese advises that students will benefit by retaining 80% of knowledge by "…working on actual, real-world problems facing their campus, community, government, and industry". The importance for higher educational institutions lies in preparing graduates working on complex problems. The author's recommendations also include taking education to a practical level, incorporating environmentally sustainable education and practices, as well as expanding learning beyond university/college campuses, and reducing "economic, social, and environmental costs".

McCabe, B. So long, lecture hall. Johns Hopkins Magazine (2012). Retrieved from < http://hub.jhu.edu/magazine/2012/spring/so-long-lecture-hall>

In his article Bret McCabe indicates that with the demand for new programs in universities/colleges such as engineering, science and technology, comes new methods of teaching through means of collaboration. Lecture halls are not the most constructive environments in which these programs can be taught and, therefore, learning environments are changing to flexible classroom spaces filled with technological gadgets to support new learning styles and new teaching methods to seek students' engagement.

Mendleson, Rachil. Ontario private sector to play pivotal role in youth unemployment. The Toronto Star (2014).

Rachil Mendleson reports that the private sector in partnership with the province is going to start creating conditions to get youth employed. These actions, which include the creation of mentorship initiatives, work-place training and internships, initialize "centralized job recruiting platforms" and using technology to ease job searches for youth. " $375,000 in provincial funding" will be available to put these actions into place, according to Mendleson.

*Moore, Janet. "Is higher education ready for transformative learning? A question explored in the study of sustainability." *Journal of transformative education* 3, no. 1 (2005): 76-91.

This academic paper suggests the implementation of transformative learning practices for higher education based on the example of the sustainability study. Janet Moore, graduate and students' instructor at the University of British Columbia, describes her self-reflection on many transformative learning practices including interdisciplinary and trandisciplinary experiences. New educational models promote student collaboration, teamwork and experiential practices. She argues that universities have an important role to play in society and can contribute more to communities, cities and globally than they do presently. Moore states, "…consumerism, globalization, and our lack of connection with the natural world are troubling academics". These concerns lead to the implementation of new integrated methods such as: interface with communities, interdisciplinary programs and collaborations. The author states that with the means of collaborative methods we are able to focus the arguments into learning opportunities for students. Students create socially-constructed knowledge. In transformative methods, not only social but individual knowledge is constructed. Moore claims that we, as individuals, may transform our point of view and change our habits through critical reflections during the learning process. The key to transformative learning is to "…empower individuals to change their perspectives". Not many students or instructors are ready for transformative learning approaches, which are considered necessary to change some of the long-standing and undesirable methods. Students and faculty require supportive mechanisms and rewards to embrace these new educational practices.

Parsons, J.. Envisioning Education in the Year 2050. The Alberta Teachers' Association (2010).

This is a foresight paper on Parsons's written essay about the future of 2050 and its outcomes in education. He writes about the effects of digitization on the curriculum and the demand for different skills. By 2050, according to Parsons, students will be "empowered to learn on their own with coaching from teachers" and "classrooms will become iterative spaces". He believes that educational resources will be free as we already use some of the free information resources such as Wikipedia and Google. The author predicts that one thing will not change which is that "students actively engage in projects they care about".

Robinson, VIVIANE MJ. "Putting education back into educational leadership." *Leading and Managing* 12, no. 1 (2006): 62.

The book of Vivian Robinson explores the topic of effective teaching as effective leadership that has a direct and positive impact on scholars. Physical facilities and school policies are supportive systems that let effective teaching take place. The author references research information conducted about leadership and students' learning outcomes ;one of them is giving students various oportunities to learn. There

is a shift happening in the educational system from generic education to "educational leadership". The authour compares teaching to business leadership where the business leader creates a common vision and motivates others to follow it. The teacher's role as a good leader is to establish good communication with students, promote collaboration amongst students, and monitor students' learning processes. In conclusion, the author offers a series of recommendations to teachers for effective leadership.

Sterling, Stephen. *Sustainable Education: Re-Visioning Learning and Change. Schumacher Briefings*. Schumacher UK, CREATE Environment Centre, Seaton Road, Bristol, BS1 6XN, England (6 pounds), 2001.

This book discusses the introduction of managerial methods in education resulting from increased world complexities in economy, society, culture, environment and politics. The author argues that transformative learning is required to be able to deal with the world's rapid changes. Visions for an educational paradigm need to be created and realized soon in order to "…ensure a secured future". The author suggests implementing transformative educational practices in order to sustain social, economic and environmental well-being. He proposes that sustainability should be part of the curriculum in the educational system in order to "sustain people, communities and ecosystems". The author believes that we need to live sustainably and for that we must create a shift in social values and behaviour that the author calls us to re-examine in our culture, consciousness and education.

Swain, S. (2015). Surplus teaching graduates in NSW forcing teachers to find work overseas in places like UK. The Hills (2015). Retrieved from < http://www.dailytelegraph.com.au/newslocal /the-hills/surplus-teaching-graduates-in-nsw-forcing-teachers-to-find-work-overseas-in-places-like-uk/story-fngr8i1f-1227190422890

This article is a testament to the current situation for many university graduates who cannot find a job related to their occupation locally after graduation and are forced to look for employment elsewhere. Swain demonstrates the example of Alison Diffey, a young lady from Australia who is working at two jobs to save money and move to the UK to find employment for her chosen occupation as a teacher there.

*Szatmary, D.. Breakthrough Models For College Completion. The next generation of models for higher education (2014).

This paper explores future generation models that meet students' demands on quality of education with affordability in mind. Knowledge of the variety of student learning styles could lead to new breakthrough approaches in educational methods according to the author. The paper consists of a series of case studies based on different universities and colleges that implement diverse models of education. Examples include employees' and communities' support in raising educated, skillful future employees and implementing forms of coaching. Other examples include: New Charter University that is achieving education affordability through the implementation of blended models with the introduction of 80% online course delivery; Student support and mentorship models introduced by Northern Arizona University; introducing workforce learning through public and private partnership in Rio Salado College. Other models include one-on-one or face-to-face learning and the flexibility of earning degrees anywhere and anytime.

Re: * Indicates key text

Bibliography

At University, Who is doing the teaching? The Globe and Mail (2015).

Babbage, Maria. Cost of university to rise 13 per cent over 4 years: report. CBC News Canada. The Canadian Press (2014).

Bates, T. "Innovate or die: A message for higher education institutions." *E-Learning and Distance Education Resources by Tony Bates* (2010).

Battista, Allison. How Can Mentors Help? UCONN University of Connecticut (2014).

Bejerano, Arleen. "Face-to-face or online instruction? Face-to-face is better." *Communication Currents* 3, no. 3 (2008).

Bilingue, M. Learning a Trade. (2014). Retrieved from < http://mercadobilingue.com/learning-a-trade/

Canadian Occupational Projection System 2013 Projections. Employment and Social Development Canada. Retrieved from < http://occupations.esdc.gc.ca/sppc-cops/l.3bd.2t.1.3lshtml@-eng.jsp?preview=1&fid=1&lid=25&preview=1>

Charbonneau, L. Five ideas for improving Canadian postsecondary education. University Affairs (2012).

Curry, Andrew, and Anthony Hodgson. "Seeing in multiple horizons: connecting futures to strategy." *Journal of Futures Studies* 13, no. 1 (2008): 1-20.

Economist reports on global shift toward mixed-model PSE funding. Academica Group (2015). Retrieved from < http://academica.ca/top-ten/economist-reports-global-shift-toward-mixed-model-pse-funding>

Factors influencing post-secondary enrolment increases and decreases. Systematic Review. Canadian Council on Learning.

Five Ways Online Learning is Enabling Change in Post-Secondary Education. Ontario Online Learning Portal for Faculty and Instructors. Contact North. Retrieved from < http://contactnorth.ca/trends-directions/evolving-pedagogy/5-ways-online-learning-enabling-change-post-secondary-education>

Grant, T. Rising college costs push students to technical schools. Pittsburgh Post-Gazette (2014).

Harris, Margaret. "The STEM shortage paradox." *Physics World* 27, no. 10 (2014): 56-59.

Hilliard, L. Space for Commuter Students. UBC (2009). Retrieved from < http://eduvation.ca/ideas/space-commuter-students/>

Hopper, Tristin. Critics complain of qualification inflation as more Canadians hold university degrees — and low-paying jobs. National Post Canada (2014).

International Global Education. University of Alberta Retrieved from < http://www.globaled.ualberta.ca/CertificateinInternationalLearning.aspx>

Jensen, Cory. Calling Cross Disciplinary Innovators: The Green Guy Wants You! AICHE (2012). Retrieved from < http://www.aiche.org/chenected/2012/12/calling-cross-disciplinary-innovators-green-guy-wants-you>

Kavilanz, P. Manufacturing boom: Trade school enrollment soars. CNN Money (2012).

Kerr, Angelika. *Teaching and learning in large classes at Ontario universities: An exploratory study*. Higher Education Quality Council of Ontario, 2011.

Khandelwal, Ankit. Great Real Life Example of Self-Directed Learning Using Technology. ED Tech Review (2014). Retrieved from < http://edtechreview.in/e-learning/1496-great-real-life-example-of-self-directed-learning-using-technology>

Kirby, Dale. "Globalization and post-secondary education policy in Canada: A review of trends." *Comparative and International Education/Éducation Comparée et Internationale* 37, no. 2 (2008): 1-17.

Kolm, Josh. "Why are so many of Canada's young people out of work?." *CBC News* (2013).

Kyriakos, A. What will postsecondary education look like by the time my kids get there? Higher Education Quality Council of Ontario. (2015).

Leung, Marlene. Ontario's youth unemployment among worst in Canada. CBC News (2013).

Lozano, C. Commuter Center for new Aztec Student Union. The Daily Aztec (2013). Retrieved from < http://www.thedailyaztec.com/43067/news/commuter-resource-center-to-be-established-in-new-aztec-student-union/>

Maiony, A. Canada's universities need to connect themselves to their students and the world. The Globe and Mail (2015).

Mansour, Tamim. Ontario Budget criticized for privatization of higher education. Funding remains stagnant amidst OSAP indexation, consultations for new funding model. The Varsaty (2015).

McCabe, B. So long, lecture hall. Johns Hopkins Magazine (2012). Retrieved from < http://hub.jhu.edu/magazine/2012/spring/so-long-lecture-hall>

Meier, P. (2013). Crisis Mapping, Neogeography and the Delusion of Democratization. iRevolutions. From Innovation to Revolutions. Retrieved from < http://irevolution.net/2013/03/17/neogeography-and-democratization>

Mendleson, Rachil. Ontario private sector to play pivotal role in youth unemployment. The Toronto Star (2014).

Morrison, Debbie. Three Trends That Will Influence Learning and Teaching in 2015. Online Learning Insights 2014. Retrieved from < https://onlinelearninginsights.wordpress.com/tag/social-learning/>

New Media Consortium. "NMC Horizon Report 2014 Higher Education Edition." (2014).

Osterwalder, Alexander, and Yves Pigneur. *Business model generation: a handbook for visionaries, game changers, and challengers*. John Wiley & Sons, 2010.

Osterwalder, Alex, Yves Pigneur, Greg Bernarda, Allan Smith, Trish Papadakos, Jan Kyhnau, and Christian Nielsen. "Value Proposition Design." *Journal of Business* 3, no. 1 (2015): 81-89.

Parsons, Jim. Envisioning Education in the Year 2050. The Alberta Teachers' Association. ATA Magazine (2010). Volume 90-2009-10.

Post-Secondary Education Trends. Brandon University (2014).
Reducing Costs through Online Learning. *Five Proven Strategies from the US, Canada, the UK and Australia 2013*. Contract North (2013). Retrieved from HYPERLINK http://contactnorth.ca/sites/default/files/reducing_costs_through_online_learning.pdf

Roy, Stacey. A Battle We Can't Afford to Lose: Getting Young Canadians from education to Employment. The Canadian Chamber of Commerce (2014).

Stanford Product Realization Lab: Transformation. (2013). Video retrieved from < https://vimeo.com/66198276>

Shihavon, P., Maharaj, U., Vink, J. "The Future of Specialized Healthcare Providers." OCAD University, Foresight Project (2011).

Swain, Sarah. Surplus teaching graduates in NSW forcing teachers to find work overseas in places like UK. The Hills (2015).

The Changing Environment for Post-Secondary Education. Global Shift in Education and Research. University of Victoria. Retrieved from < https://www.uvic.ca/strategicplan/home/context/changing.php>

The George Washington University. Cross-Disciplinary Collaboration. Retrieved from https://provost.gwu.edu/cross-disciplinary-collaboration

Top Ten. AB to reduce public spending on PSE. Academica Group (2015). Retrieved from http://academica.ca/topten/20150330

Trend in Higher Education. The Association of Universities and Colleges Canada (AUCC). Published in 2011. (Volume 1 Enrolment).

Varghese, N. V., and Vitus Püttmann. "Trends in diversification of post-secondary education." *París: International Institute for Educational Planning* (2011).

APPENDIX A: STUDENT SURVEY

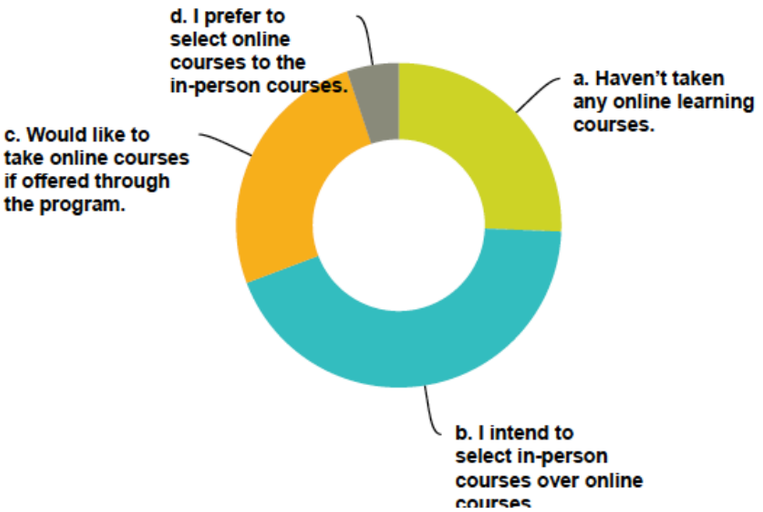
The student survey was done using the SurveyMonkey website to collect information through multiple-choice questions. All participants who provided information through the survey were undergraduates or post-graduate students of various colleges and universities including students from: Seneca College, York, Ryerson and OCAD universities. The total of 39 student participants completed the survey.

SURVEY QUESTIONS

(Multiple choice):

1. **What is your experience with online learning courses?**

    a. Haven't taken any online learning courses.
    b. I intend to select in-person courses over online courses.
    c. Would like to take online courses if offered through the program.
    d. I prefer to select online courses to the in-person courses.



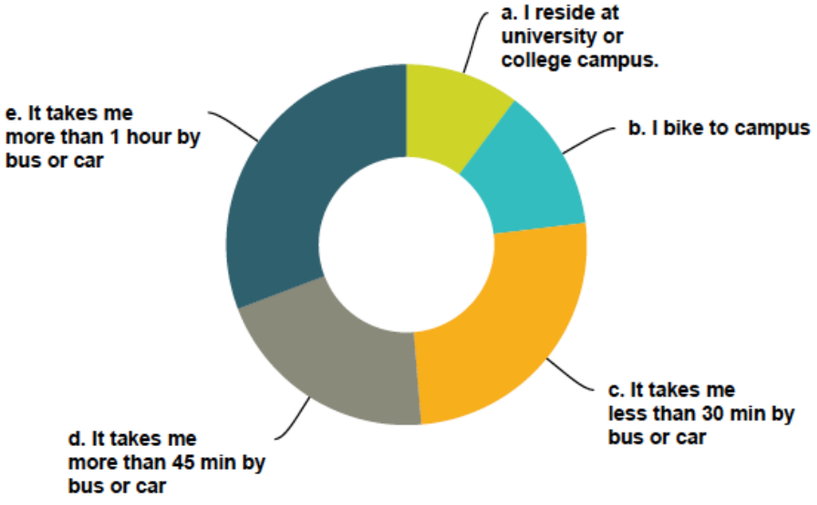
Summary: 17 out of 39 students intend to select in-person courses over online courses. 10 students never took online courses. 10 students would select online courses if offered by the program. Only 2 students would prefer to select online courses over in-person courses

2. **How much time do you spend commuting to and from university/college each day?**

a. I reside at university or college campus.
b. I bike to campus
c. It takes me less than 30 min by bus or car
d. It takes me more than 45 min by bus or car
e. It takes me more than 1 hour by bus or car

Summary:

12 out of 39 students travel to school by bus or car and it takes them more than an hour. For 10 out of 39 students commuting to school takes ½ an hour or less. For 8 of them it takes 45 minutes. Only 4 students reside at the university or college campus. 5 of the students bike to school.

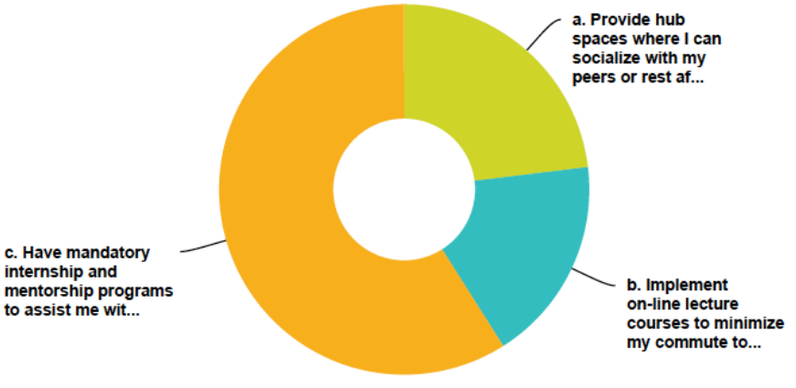


3. **What spaces or services should universities/colleges consider providing to benefit you and maximize your experience during your years of study?**

a. Provide hub spaces where I can socialize with my peers or rest after a long commute.
b. Implement on-line lecture courses to minimize my commute to university/college.
c. Have mandatory internship and mentorship programs to assist me with my career choice and job placement or entrepreneurship.

Summary:

23 out of 39 students would prefer for the university or college where they study to offer mandatory internship and mentorship programs to assist them with their career choice, job placement or entrepreneurship. 9 students prefer to have hub spaces where they can socialize with their peers or rest after a long commute. And 7 would prefer to have on-line lecture courses to minimize their commute to university/college.

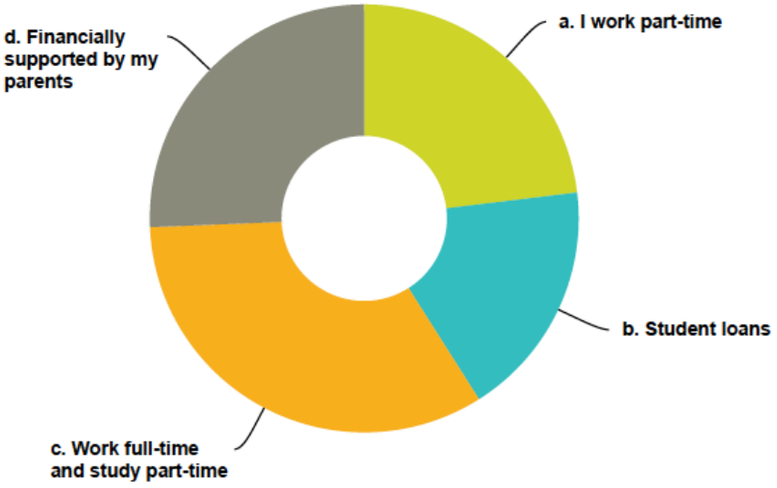


4. **How do you financially support yourself through the time that you are in school?**

a. I work part-time
b. Student loans
c. Work full-time and study part-time
d. Financially supported by my parents

Summary:

13 out of 39 students (the majority) ?work full time to support themselves financially through their part-time studies in school. 10 students are financially supported by their parents. 9 students work part-time to study full time. 7 students took student loans to support themselves through school.

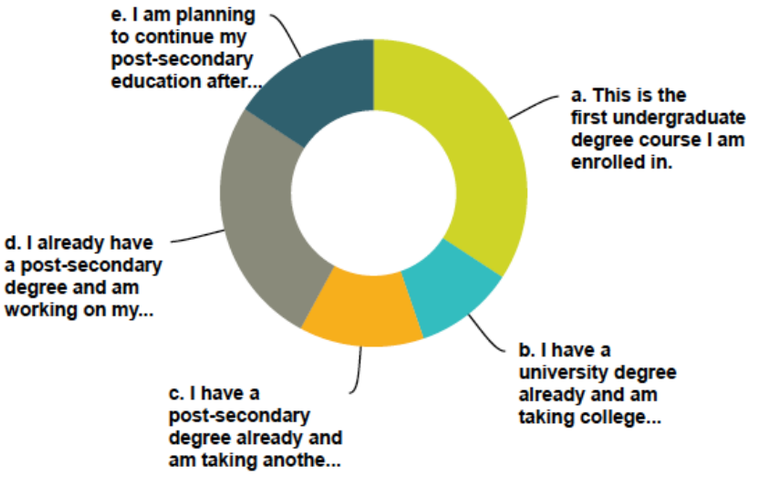


5. **What is the history of your post-secondary education?**

a. This is the first undergraduate degree course I am enrolled in.
b. I have a university degree already and am taking college courses to obtain practice-based skills.
c. I have a post-secondary degree already and am taking another one to change or support my career.
d. I already have a post-secondary degree and am working on my Masters or PhD.
e. I am planning to continue my post-secondary education after graduating from the current program.

Summary:

For 13 out of 38 students this is their first experience at a university/college as this is the first undergraduate degree they working towards. The other 10 students are working on their Masters or PhDs. 6 students have plans to continue their post-secondary education. 5 students are going to take their post-secondary education again to change their careers and 4 are taking post-secondary education again to obtain practice-based skills.

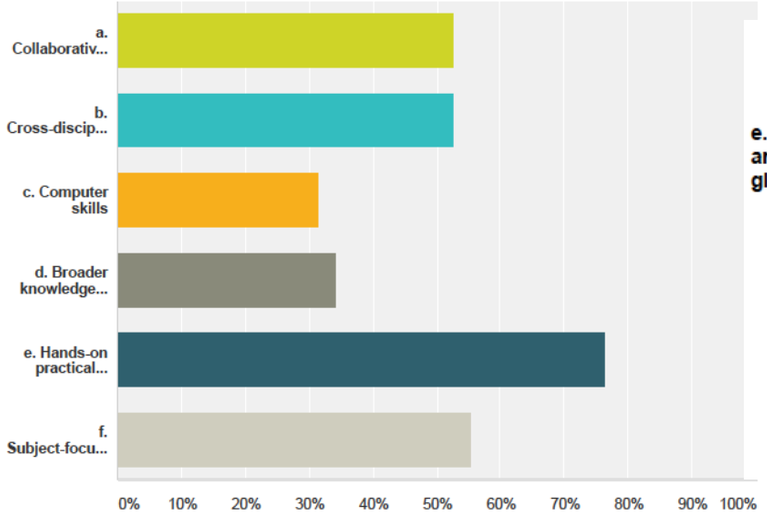


6. **What skills do you think are important for you to obtain after graduating from current university/college programs to successfully enter your career?** (Select the most important three)

a. Collaborative skills
b. Cross-disciplinary skills
c. Computer skills
d. Broader knowledge skills
e. Hands-on practical skills
f. Subject-focused specific skills

Summary:

The majority of the students (29 answers) feel that they need to obtain hands-on practical skills from current university/college programs to successfully enter their careers. The next category of importance was subject-focused skills (21 answers). 20 answers were given for cross-disciplinary and collaborative skills. 12 for computer skills and 13 for broader knowledge skills.

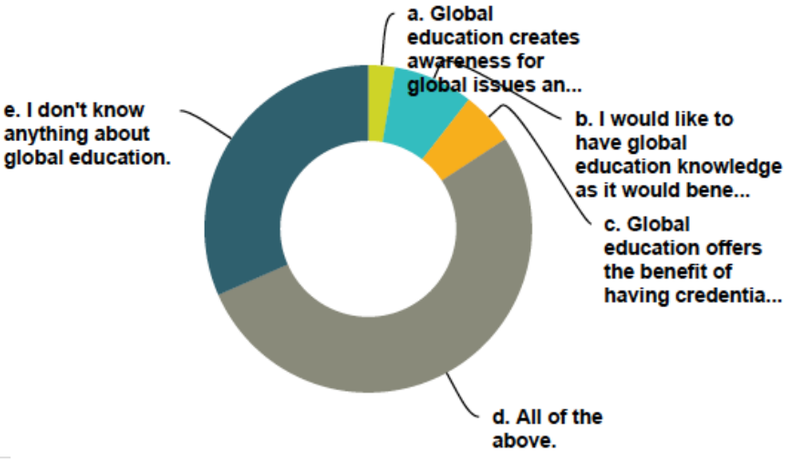


7. **What do you know about global education?**

a. Global education creates awareness for global issues and empathy for others; multiculturalism.
b. Global education knowledge would benefit society and myself.
c. Global education offers the benefit of having credentials recognized in many other parts of the world to allow graduates to work abroad.
d. All of the above.
e. I don't know anything about global education.

Summary:

The majority of students (20 out of 38) selected answer D that combined all previous answers A,B & C about global education. That would include selecting global education that creates awareness for global issues, empathy for others, multiculturalism, societal benefits, offers international credit recognition to allow graduates to work abroad. 12 out of 38 students did not know anything about global education.

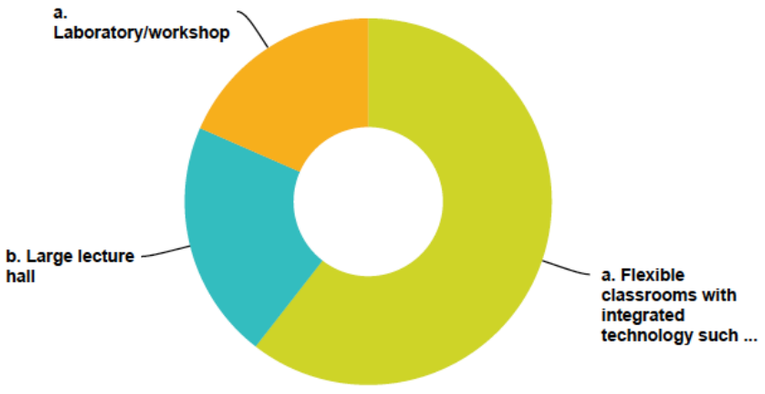


8. **What are the classroom environments your courses mostly take place in?**

a. Flexible classrooms with integrated technology such as: LCD screens, projectors, and computers.
b. Large lecture hall
c. Laboratory/workshop

Summary:

23 students confirmed that their classes were already held in a flexible classroom environment with integrated technology. 8 students indicated that their classes were held in large lecture halls. 7 students indicated that they work in laboratories and workshops

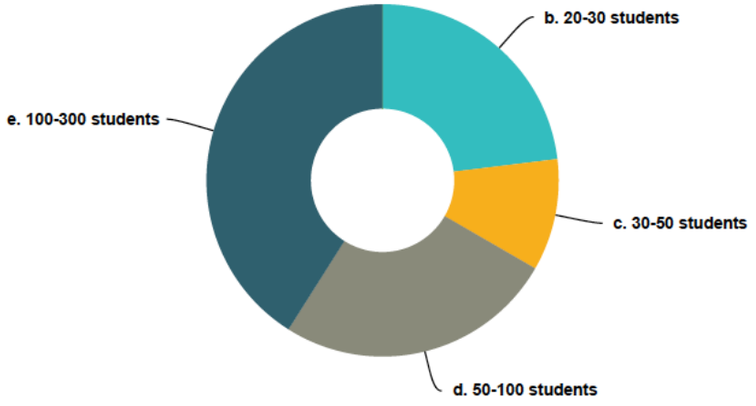


9. **What is the largest class size you participated in?**

a. 15-20 students
b. 20-30 students
c. 30-50 students
d. 50-100 students
e. 100-300 students

Summary:

The majority of students (16 out of 39) answered that the largest class size they participated in to consist of 100-300 students. 9 students indicated that their class sizes consisted of 20-30 students. 10 students answered that their class sizes were 50-100 students. 4 students answered that they were in a class of 30-50 students.

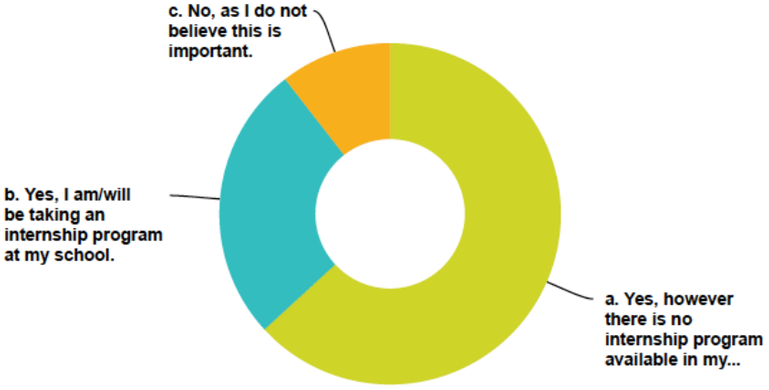


10. **Would you consider taking part in internship opportunities and mentorship programs?**

a. Yes, however there are no internship programs available in my school.
b. Yes, I am/will be taking an internship program at my school.
c. No, as I do not believe this is important.

Summary:

Many students (24 out of 38) would love to take part in internship opportunities and mentorship programs but these programs are not available in schools they are attending. 10 students answered that they have an internship opportunity. Only 4 students answered that this is not important for them.

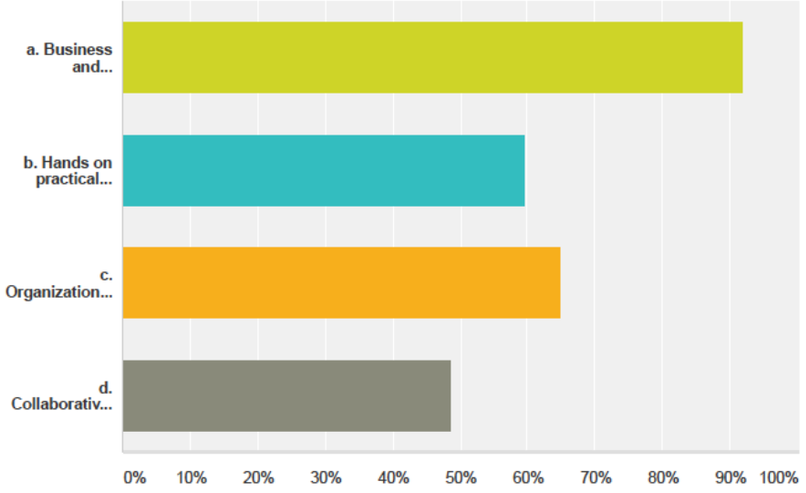


11. **What skills would you require in case you decide to start your own business after graduation?** (Select three priorities)

a. Business and entrepreneurship skills.
b. Hands on practical skills
c. Organizational skills
d. Collaborative and cross-disciplinary skills

Summary:

34 out of 37 students selected business and entrepreneurship skills as their desired requirements if they were to start their own business after graduation. Organizational skills were a second priority for 24 students. The third priority for 22 students was having practical skills. 18 students out of 37 selected collaborative and cross-disciplinary skills as their fourth priority.

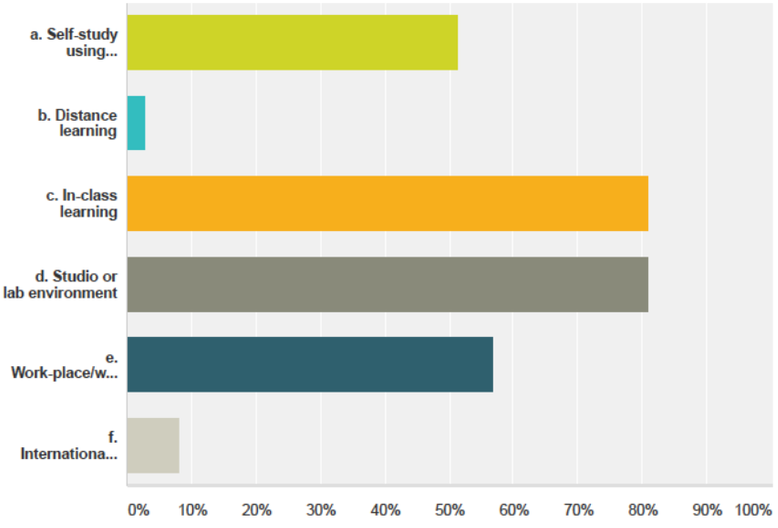


12. **Which are the most important courses in your program? (Select three)**

a. Self-study using technology.
b. Distance learning
c. In-class learning.
d. Studio or lab environment
e. Work-place/work-integrated learning environment
f. International student exchange program

Summary:

30 out of 37 students selected in-class learning and studio or lab environments as the most important aspects of their programs. A work-place learning environment was high on the priority list for 21 students. 19 students selected self-study using technology as a priority. 3 students selected international exchange programs as a priority and only one selected distance learning.

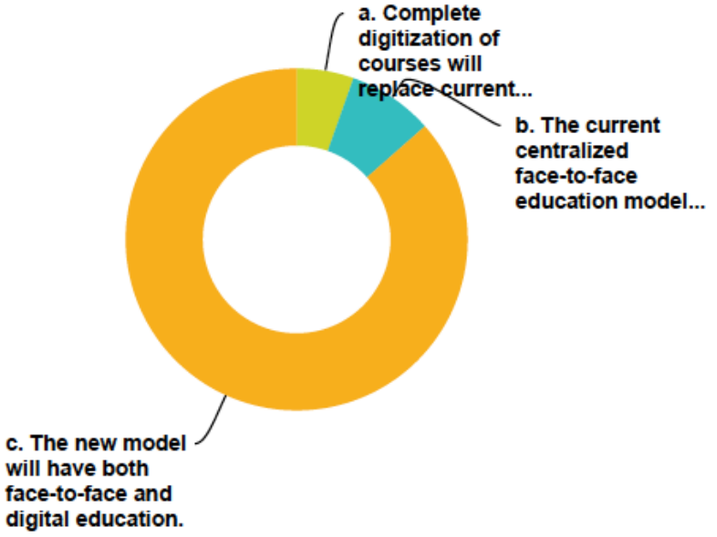


13. **How do you imagine the post-secondary environment in the future?**

a. Complete digitization of courses will replace current face-to-face educational models.
b. The current centralized face-to-face education model will remain as is.
c. The new model will have both face-to-face and digital education.

Summary:

Most students (32 out of 37) imagine a new model integrating both face-to-face and digital education for post-secondary environments in the future. Only 2 think that digitization will replace the current face-to-face educational model. The other 3 believe that the current model will remain as is.

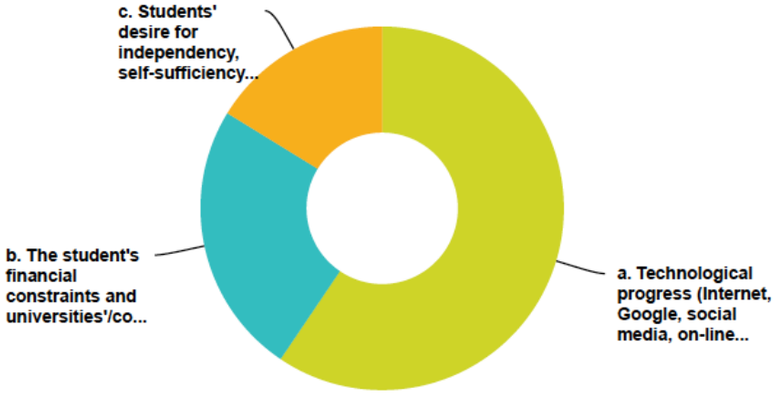


14. There is a current trend towards self-directed learning using technology. **What do you believe some of the causes of this trend are?**

a. Technological progress (Internet, Google, social media, on-line learning) that opens up many opportunities to access knowledge for free or for a fraction of the cost.
b. The student's financial constraints and universities'/colleges' higher tuition fees have an effect on choosing self-directed learning.
c. Students' desire for independency, self-sufficiency, self-regulation, freedom of subject selection as opposed to a traditional university/college structured environment.

Summary:

22 out of 37 students believe that technological progress opens up many opportunities to access knowledge for free or for a fraction of the cost and lead to self-directed learning. 9 students believe that student's financial constraints and higher tuition fees have an effect on choosing self-directed learning. Only 6 students answered that self-directed learning is the result of students' desire for independency, self-regulation and freedom of subject selection.

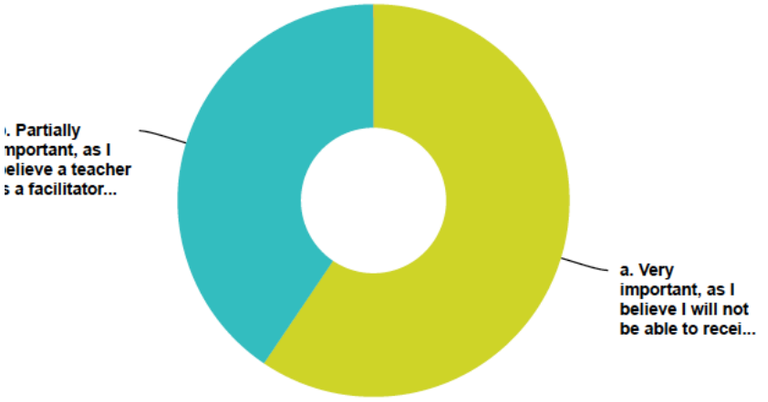


15. **How important is student-teacher face-to-face interaction?**

a. Very important, as I believe I will not be able to receive a proper education without face-to-face interaction with my educators.
b. Partially important, as I believe a teacher is a facilitator who supports me in my pursuit for knowledge.
c. Not necessarily, as I am a self-directed learner.

Summary:

Most students (22 out of 37) indicated that student-teacher face-to-face interaction is very important and necessary for them. The other 15 students indicated that it is partially important where the teacher takes the role of facilitator and supports students in their pursuit for knowledge. Not one student indicated that student-teacher face-to-face interaction is not necessary.



Appendix B: Expert Interviews

Stakeholder research was conducted through interviews with faculty and administration staff and through a student survey. Stakeholders who are involved in post-secondary education as educators, learners and professionals who facilitate administrative supportive tasks, were consulted. At the beginning of each interview, the investigator described the purpose of research and offered details in the information letter and consent form. Copies of the consent form were signed by each participant and a digital copy was sent to them for their record. A digital audio recording was done to record the interviews with participants' permission. All participants gave their written consent to use their interview comments in quotes for the MRP document. After the interview, the audio file was transcribed into the interview notes and the notes to be used as quotes were highlighted. Copies of all transcribed notes were sent to participants for their information with the opportunity to make any changes or refusals of the use of these notes. From the audio recordings of interview sessions, notes and relevant data were extracted notes for analysis. Interviews with experts were conducted based on the following interview questions/guide. Each individual was asked questions one by one.

Interview Questions, Analysis & Summary

The interview summary includes questions and analysis of information gathered.

Education Learning Style Changes due to Technology Progress and Digitization

1. The popularity of online/distance learning courses is growing. Do you incorporate online learning courses in your practice? If yes, what is your experience with online learning courses? If not, explain why.

The idea was to find out whether or not the faculty is implementing online learning in their courses and whether or not it benefits their practice. In addition, the goal was to find out what benefits and barriers the faculty sees implementing in digital technology. Where is it useful, where do we need to make further improvements and where it might not make sense to implement?

> "We have gone entirely online. Our program runs with English and six other languages: Arabic, French, Mandarin, Portuguese, Russian and Spanish. What we might do is simulate a conference; pretend that we are at the security counselor of the United Nation".
>
> -Andrew Clifford

> "The course that I am teaching is designed for middle managers; for adults who are already self-directed. This type of learning, in some ways, is very well suited to the ways they learn".
>
> -Sylvia Link

"We use flipped classrooms and blended learning. Ryerson has this group called the 'Digital Medial Project' where the faculty helps with online modules. Online and flipped learning should be seen as support. These are tools the faculty should adopt to help and improve the classroom".

-Vincent Hui

"Librarians are implementing online methods. One occasion where we use online support is when we were brought up by the faculty to hold workshops. Another pattern is for courses in which there are in-person presentations in labs or lecture halls. We would prepare online guides that can be accessed before, during, or after the session. The other intersection for us with eLearning is the integration of content into online courses".

-Mark Robertson

"The present studio method allows more observation, interaction and immediate response that are not as feasible online. So far we have not found an online method that could replace the studio method".

-Nabil Harfoush

"I don't think the post-secondary education greatest contribution is disseminating knowledge. I think its greatest benefit is creating enquiring minds, capable of discovering and learning what they want, need and feel compelled about. My biggest concern is that we will loose this kind of ability to enquire and question".

-Peter Thompson

"In today's collaborative environment that we are trying to implement, especially in design industry, it is difficult to get immediate feedback in an online scenario".

-Patrick Saavedra

Summary: The interview results are divided into two categories of those who had experience with online teaching and are comfortable with it and those who have no experience. Those who are experienced see benefits, prospects and opportunities for further improvements of technology as a resource or implementation of it into teaching. Those who have not yet experienced it rely on other methods that they find successful or do not see the benefits of online teaching. Further user-tested developments of the software or websites are required, designed specifically for students of post-secondary educational environments.

2. Do you think digitization in post-secondary education will replace the existing face-to-face educational model in the future?

Learning online or digitally "…might be the preference of the new generations coming up such as GenY, GenZ, and the Alpha generation who are called the iPod generation who learn the iPod before they learn how to walk. It is something for institutions to be aware of as I think it will definitely be a growing trend".

- Sylvia Link

All interviewed, though, do not believe that digitization will replace the existing face-to-face educational model in post-secondary education in the future.

"No, that would be a horrific future if that happened. I think people like to be engaged and talk to each other".

-Vincent Hui

They see digital technology as more of a blended and complementary element of future education.

"If anything, it is another mode of training and another mode of learning but not the entire process that supersede face-to-face learning".

-Patrick Saavedra

Those interviewed see digitization as an effective way to reduce the cost of education and an opportunity for professors to have a more interactive time with students.

> "You can take this whole portion of the system and package it and then leave yourselves with these tremendous resources called 'teachers' available to do what they are to do".
>
> -Peter Thompson

The Faculty sees an opportunity for online learning being implemented for certification courses.

> "…catching the other side of it for mature learners who continue needing to learn and need additional certification, training, and credentials for their profession. Post secondary institutions can participate in that side of it as well so it is not just young adults fresh out of high school but others who need educational support in their professions".
>
> - Sylvia Link

Faculties continue to give students moral support, mentorship and encouragement but found that "Online teaching does not allow the opportunity for full support of a student".

-Nabil Harfoush

Summary: As a result, we learn technology is great as a supportive tool but we are not ready for it and it is not developed enough to replace the face-to-face educational model. Digital technology is our opportunity to reduce the cost of education and allow students and faculty the opportunity for desired face-to-face interactions. There are opportunities to implement online learning for certain applications and courses such as certificate programs for continuing studies or lecture type presentations or modules for learning software. The key is that technology is here to stay and needs to be used, designed and incorporated to advance post-secondary education for stakeholders' interest.

3. What are the key factors that are driving students' self-directed learning?

Searching through the Internet is second nature to young students. This is how they find information; they are not necessarily going to the library and looking through the literature or asking professors questions; they check online first.

> "They have gone from a digital mode to self-directed learning because they could do that on their own. Students are finding courses out of date, they are not engaged and not everyone is outgoing and forward thinking, so a digital mode is a way for them to learn quickly".
>
> -Patrick Saavedra

> "I think there is a shift in culture and a shift in expectations. Students are so immersed in technology that this is one of the touchstones, the ways they operate, so there is an expectation that much of it will be accessible through technological modes".
>
> -Mark Robertson

Students are no longer satisfied with the given information as they are looking to have freedom of choice. The world around them is changing quickly and they expect educational institutions to keep up with current trends. Freedom of information has driven students' higher expectations towards the faculty and educational institutions. Digital technology has given us many opportunities that we should not just consider but must implement to benefit all students, faculty and institutions.

> Digital technology "… provides flexibility and also allows for educational institutions to reduce the cost of delivering the program. So, it is most profitable".

-Peter Thompson

By way of the virtual classroom, students and faculty could have a multi-layered dialog by chat, text and video. Virtual classrooms are a new mode of integration where guest speakers consisting of trained professionals from different parts of the world that can provide their own contribution to students' education.

> "On the teaching side of the equation, teaching online is fantastic for our students. I can have the best people from multiple markets with a range of different professional experiences. That would be impossible if we were only onsite".
>
> -Andrew Clifford

Technology assists in assessing students' participation.

> "The instructor gets these incredibly detailed stats on how often students participate online, how long, what time of day".
>
> - Sylvia Link

Much support to students and faculty as well as improvements in digital technology are still needed. These are the new possibilities for innovation and development that could take us to a new level in education.

> "I think there needs to be a certain comfort level with technology, a certain level of technical expertise, time management, and the ability to make connections in a virtual space because through the comments and online discussions we need to imagine who those people are and create personas to connect with them".
>
> - Sylvia Link

Summary: Information and learning democratization are the key factors that are driving students' self-directed learning. These key factors are driving the emergence of the Internet and personal digital technological devices: computers, laptops, cell phones, tablets etc. The outcomes are: a.) A Cultural shift when students' and parents' expectations towards educators and educational institutions are higher about quality of education, customer service, support and digital technology implementation.
b.) Rising expectations of students in terms of freedom of choice in subjects, programs, methods of teaching, and flexibility / choice of time that drive high competition between educational institutions.

4. There is a demand in post-secondary institutions to educate self-sufficient, independent, and innovative individuals. What are the key aspects that help students become creators, innovators and entrepreneurs?

From the interview process I have recorded many suggestions that will help students to formulate new demands and become somewhat closer to being self-sufficient, independent and innovative individuals. Each interviewed individual helped to identify many key aspects that educational institutions can implement that will help students to become creators, innovators and entrepreneurs.

> "The first step is to give students some control over their learning; give them choice of what they would want to learn".
>
> - Nabil Harfoush
>
> "Asking questions when we are doing research will naturally lead us to innovation rather than accepting what we read, study or the instructor presents to us".
>
> -Sylvia Link
>
> "Embrace challenges from students, embracing them being challenged".

-Peter Thompson

"The world has equated knowledge with a job. We are in a knowledge-base society now. The more knowledge one has the further ahead one gets. I think institutions have to provide students with tools; the kind of parts where students can easily go into a toolbox and find the right tool to assist them in solving the problem".

-Patrick Saavedra

"I think it requires a certain self-starter mentality to succeed at that, especially with fully online courses. There is an entire area of skill, motivation and competency that is required to succeed in that environment and they don't necessarily have that. There is an entire community and resources that support them here at university. If eLearning is going to succeed we would need to find ways to provide this support to students somehow. The best way for those skills to be addressed is within the course".

-Mark Robertson

"We also recognized that we have some work to do when students leave us so that the story doesn't end when students graduate. So we now have to teach students how to find a business for themselves and how to grow their business into a larger structure".

-Andrew Clifford

Summary: There certainly has to be a way for educators to encourage students to ask questions that might at first seem silly but might lead to discoveries and innovations. As humans we need to be challenged; we like to set goals and achieve them. Students need to be challenged or they lose interest with conformity. Students themselves also like to challenge and question their peers and educators. Out of these debates and discussions information that is innate transforms into new innovation. Encouraging students to debate and question is something educators should find a way to do more. Arming students with tools to be able to solve problems on their own once they graduate is highly important as the job market demands those who are able to solve problems in the complex world we leave in.

5. Many students are returning back to university for additional degrees. Do you think this is due to the highly competitive demands in the current job market?

Literature has shown that many students are returning back to school for additional degrees. With this research, I am seeking the opinion of post-educational professionals to find out what drives this new trend and whether this was just to address the highly competitive job market.

"… what is driving PSE is not only the commodification of the bachelor degree but also onslaught the demand for professionalism".

-Vincent Hui

"…the world has evolved and advancement has been so quick in some areas of our industries that unless you are progressing through learning or complementary learning it is hard for you to compete with others that are applying for the same job. I think people need to upgrade their skills according to the competitive market changes with something that complements their skills from another discipline".

-Patrick Saavedra

"It is an expression of the need for continuous learning but we do not have a system that supports continuous learning easily. Continuous education is still at the lower level. The way people are attempting to academically 'upgrade' themselves is to go for another degree. It is still quantified as it is still in blocks/'containers'. We need to open up the 'containers' so people can choose".

- Nabil Harfoush

"Education alone might not be a complete answer. It might be education, plus co-op, plus volunteering, plus taking another language and that might be discouraging for young people to hear. So what may be offered in the way of career counseling at the post-secondary level? I worry that post-secondary institutions are just happy to take tuition and not offer these counseling services".

- Sylvia Link

"We have seen a down turn in the number of applications in the last two years. I definitely hear from potential students that financial worries are top priority".

- Andrew Clifford

Summary: What we have are students returning back to upgrade their skills even if they financially cannot afford it with the hope that it will pay off once they obtain new knowledge and skills. What universities offer them is another degree which may or not be exactly what they want or can afford. They take the risk of paying for another degree that may or may not help them to advance or compete in the current job market. The Faculty suggests that a university should advance their continued educational programs in the form of degrees or certificates, expand their carrier counseling support, and offer more opportunities in the form of co-op programs as a form of learning and advancement. Another suggestion made by N. Harfoush is that universities should unbundle some of the degree programs to allow those with degrees to upgrade their skills and knowledge for a reasonable fee by taking specific courses that would help them to advance in their career and give them an opportunities for life-long learning courses.

6. What should universities/colleges offer for life-long learning for those of various ages and experiences?

People are seeking opportunities to upgrade their skills and knowledge but are finding that offered university degree programs are unattainable as they would take a lot of their time and put a financial burden on them, especially in the current economy.

"We did put on a professional development series at one point and it was fairly popular".

-Andrew Clifford

"The financial barrier, though, has gone up dramatically and seems less attainable for some. I think this is the biggest accessibility issue".

- Sylvia Link

"I think that universities should offer programs that are complementary to the professional programs from a practical perspective. Colleges are designed to provide applied experience and applied education and they need to complement that training with more critical thinking and a theoretical perspective. What the Ontario Government is trying to do in a number of years is have colleges and universities collaborate in a few select programs. Universities should make programs that are more accessible to the general public and not so prestigious where they are unattainable".

-Patrick Saavedra

"We did put on a professional development series at one point and it was fairly popular".

-Andrew Clifford

"I think it is good business for universities to offer courses that people are interested to take for those who are coming back to study. I think that is an opportunity to do a lot of social good".

-Peter Thompson

Summary: Experts are suggesting that it would be an undeniably good business tactic for universities and colleges to work hand-in-hand to unbundle some of their degree programs to offer courses for professionals to choose from for a fraction of the fee they pay for an entire degree program. More people will signup for these courses if they also have a part-time option. Running these courses at a reduced fee for those who are at the age of 50 or over would be very popular, allowing citizens to upgrade their skills and benefit

cities' businesses and industries in the larger competitive market. These will increase the number of students in continued educational programs of universities and colleges.

7. Empathy for others, multiculturalism and awareness of global issues are a new trend in global education. What is your opinion about global education?

Global education is an important topic and is a high priority for many educational institutions. Importance lies in diversity and the support of internalization, supporting students in being a player in the global environment.

> "It is the nature of what we do; it is in the very heart. It is a very rich cultural and globalized environment that we teach in".
>
> - Andrew Clifford
>
> "We live in an increasingly global environment. A lot of our industries work abroad or outside of our boarders so being culturally in tune with other parts of the world is very important".
>
> - Patrick Saavedra
>
> "Education should be global, the more educated the rest of the world is the better and the more educated I am about the rest of the world. You don't have a sense of understanding someone's position unless you have seen and are a part of it, understood it or developed empathy for others".
>
> - Peter Thompson
>
> "Unfortunately, in other parts of the world institutions do not have the resources that Canada has and they are not able to raise the bar in their education and training in the same way that we do".
>
> - Patrick Saavedra
>
> "Online courses are opening up opportunities for engagement globally. There is much more fluidity in the world and you need to be inversing in the much broader scale of what is happening".
>
> -Mark Robertson
>
> "This is a great example of how technology, without being expensive, can support this venture".
>
> -Sylvia Link

Summary: Many universities understand the benefits, support the diverse cultural environments, and see how it assists them in training students to have empathy for others and become problem solvers. There is a concern, however, about the inequity in the quality of education in other countries. This is the main stumbling block in achieving global education. It is also the main barrier for specialists from other countries who are coming to Canada to prove their qualification in order to continue work in their chosen career. By continuing working with others we can help to achieve a desired standardization. It is with the help of technology that this is possible.

8. What are the key elements in providing global education? Does your university plan to offer global education?

Universities are already players in the global environment. Some are teaching abroad and are opening university campuses in other countries. In addition, others continue to promote their services to international students to find new markets and some who collaborate with other universities and industries in doing research.

> "One is interconnectivity; networking with other universities and companies. Those network opportunities are critical. Beyond information networking, there is also interpersonal networking and corporation networking. Universities' professors not only teach people but also given them opportunities. One of the opportunities that is critical is the research by funding".
>
> - Vincent Hui

"Education has three main components: content (or knowledge), transmission of knowledge (to learners) and validation of learning (the degree). The disruption is already there; the problem is people do not want to recognize it. The content is already out there; tutoring is becoming more and more available to a number of students. Accreditation is now based more on experience".

- Nabil Harfoush

Summary: With information globalization, universities are competing for students to stay in business. Through the process of interview it has become clear that for universities, global education denotes the promotion of their brand internationally to other markets in competition with other universities for students to stay profitable.

Experiences of Learning Environments

9. We have seen a reversal from the traditional educational model into the flipped-classroom where the content or knowledge acquisition is moved outside of the classroom to online while social and discussion activities are done in the classroom. What factors led to the emergence of flipped-classroom?

With the emergence of the Internet and widespread use of digital technological devices, educational methods-changed to the flipped-classroom where content moved online to allow more time for students and faculties to discuss and collaborate in the classroom. I wanted to find out if perhaps any other factors led to the emergence of the flipped classroom in education.

"Technology is made for this to happen but there is a larger cultural decision to transition from memorizing to logical thinking in education. Online learning has allowed us to think critically. If that information is all there, why stop it? Let them go and find this information on their own. Let them have the Internet".

-Vincent Hui

"The factors that led to it are that educators have figured out that you can get content anywhere".

-Peter Thompson

"I think that the flipped-classroom is not just being out of the walls of school. I would like to think it is also our understanding that students and educators are co-learners, co-teachers and we are co-constructing knowledge together. Students are teaching as much as instructors are teaching. We are creating new knowledge that would not exist if we did not have this experience".

-Sylvia Link

"There are avenues that have opened up to be able to move content online that you could not do before. Content is one of them but another is putting a renewed emphasis on the skills and ways in which students are able to engage in terms of their learning. The reason there is such an emphasis on engagement is that there is a lot of evidence in research that there is a correlation between students' engagement and learning".

-Mark Robertson

"I think it is just the marketability of those graduates. Do they really have the appropriate tools that help them to advance in an environment that is competitive and requires people to think critically? I think universities and colleges are finding that students are having a hard time finding jobs so they had to find ways to adjust their curriculums so the students have the right skills sets when they graduate".

- Patrick Saavedra

"The flipped class is giving you the option to maximize interaction. By moving the lecture outside the class I can use the valuable time for an intense interaction such as teamwork".

- Nabil Harfoush

Summary: By introducing the flipped-classroom as a method, educators uncover another benefit of this method. Not only does it give ample opportunity to have more time for students' practical learning and skills but it also allows discovery of new knowledge for both students and educators in the process of collaboration and discussions.

10. What is the right percentage of lecture vs. classroom activities?

With interview inquiries, I wanted to find out if lectures were still in demand and how many educators still prefer this method in their teaching compared to studio or lab activities.

> "The right balance depends on the course, educator and audience".
>
> -Vincent Hui
>
> "I would say that it is not the percentage that you want to prescribe. It actually depends on the faculty, program and what you would like to achieve".
>
> -Mark Robertson
>
> "We have a minimum number of lectures in our program. Rather than introducing a topic, teaching a lesson and giving them an exercise, we flip it around by giving them the chance to experience and struggle with it. This makes it meaningful for them where they are motivated on a personal/emotional level and then we sit down and finding a way out of this situation".
>
> -Andrew Clifford
>
> "If it is strictly just lectures - they could have done it online".
>
> -Patrick Saavedra
>
> "What we know is the brain can only focus for 7 or 10 minutes and then there has to be a break of some kind or change of activity such as a video clip, audience interaction / participation or questioning for the audience".
>
> - Sylvia Link

Summary: As discovered there isn't a recommended number of how much lecture verses studio activities are a good balance, as it depends on the course, subject, educator and learners. However, many educators agree that the lecture method is no longer the best way to present content. Information is available online and students are looking to be engaged, challenged and expecting educators to give them more emphasis on examples / case studies that they can learn from, or experiential activities in which they participate for better understanding and memorization.

11. What type of spaces will support effective learning styles?

When we talk about post-secondary educational spaces we often think about physical space of the classroom, lab or a lecture hall. Well, not in this day and age. With the spread of mobile devises and personal computers, learning can take place anywhere within the university environment and beyond its walls. The benefit of this is that learning can also take place virtually, with minimal investment of physical facilities.

> "… classrooms that are the most amenable to the audience and to the material you dispense are how they should be structured".
>
> -Vincent Hui
>
> "The environment has to adapt to the situation; has to be variable and adaptable. The optimum space for learning could be outside".
>
> -Nabil Harfoush

Faculty talked about the significance of the space for learning.

> "The teacher is the first teacher, the curriculum is the second teacher, and the space is the third teacher. Spaces that encourage standing and moving are good for our health as well as spaces that transition from indoor to outdoor".
>
> -Sylvial Link

> Spaces that would "Allow for the change of activities".
>
> -Peter Thompson

> "In terms of classroom, it should be a space that would allow more fluidity. It is more designed for engagement than content delivery. New collaborative spaces are within the classroom".
>
> -Mark Robertson

Experts advised us not to forget about the importance of the quality of spaces. This includes spaces for smaller groups that would allow students to be more engaged and participate more in discussions.

> "Students need to feel uplifted and engaged through their environments, through access to daylight or appealing views. I think those kinds of environments help them to learn. A quality environment definitely contributes to good quality learning in my view. I think that more seminar style/group learning is the best in this day and age. The other thing is smaller groups".
>
> -Patrick Saavedra

Of course we should not forget about virtual spaces.

> "We engage with the students through Adobe Connect and face-to-face real time synchronous classes. The university wants us to use Moodle as an MLS. We don't like Moodle; I find it is extremely cumbersome to use. It takes 12 or 15 clicks to upload the document. For our public we use Word Press which I find is fantastic, effortless and preferable to use. However, with something like Word Press, our IT group at the university is not ready to support us".
>
> -Andrew Clifford

Summary: Experts remind me that it is not only about fluidity of the space, which is important in support of this new venture of student group collaboration and engagement, but also that the environment of spaces support and adapt to the learning and teaching that takes place. If we would like to create a dialog among students we need to make smaller groups or take that dialog into a virtual space, for example. Experts highlighted the importance and benefits of the exterior spaces, green spaces, and daylight that add a positive atmosphere for students to boost learning. We need to have a variety of spaces that could support different learning and activities that would also allow for a change of activities.

12. How do we make learning more effective and engaging?

I was seeking an answer from experts on how we could make students interested in education by making learning more effective and engaging. Experts talked about many aspects of quality of education starting from overall quality of educators and about the importance of students' passion and interest, to the suggestive examples on how to enhance the quality of presented materials.

> "Have better teachers. The quality of a professor's teaching is of secondary importance compared to his / her research. The way to resolve it is to do a cultural shift and strike the value of teaching".
>
> -Peter Thompson

> "You teach the way you wish to be taught. Not only is this good for students, but you, as an educator, will feel more at ease dispensing your material. Incorporating visual and practical examples would make it exiting, engaging and, most importantly, memorable".

-Vincent Hui

"The topic that you teaching, let the student pick their areas of interest rather than the prescribed assignment. That is so much more effective".

-Sylvia Link

"Some of the main strategies are experiential education, pedagogically sound use of technology in online learning, the flipped classroom, thoughtful and creative approaches to assessment that needs to be rethought".

- Mark Robertson

"I believe that photographs, imagery and visual learning say a lot more than words. The case study is another engaging learning method. They are excellent examples of real-life applications. Furthermore, having professionals attend presentations and critiques enhances student learning; adding to student's depth of knowledge with real-life experience. Tours are great for students where applicable".

-Patrick Saavedra

"The thing that can be hard to do online is establishing a personal connection. Teaching the virtual classroom is like being a radio host where there has to be lots of movement and a dynamic, non-interruptive discussion".

-Andrew Clifford

Summary: Many experts suggest that our quality of teaching in universities has been lowered due to the primary focus being placed on the research. If we would like to make learning more effective and engaging for our students we should shift gears and put significant effort towards teaching. We should have a system in place for teaching professors how to teach. If we are asking experts of elementary and high school to have a teaching degree why don't we have the same requirement for university or college teachers? If you are an expert in the field this does not automatically make you a good teacher. There are certain skills, attitudes and experiences one needs to obtain to be a good educator. Let students make a choice regarding what they would like to learn about, which means students would need support in subject selection in the first place. Also, practical exercises should have a variety of topics, or faculties should be more flexible to let students pick a topic of their interest and use different media and technology that students are comfortable with to do their projects and presentations. Giving students examples, visuals and case studies that are supportive of the topic presented and discussed in class will heighten students' memory.

13. How many hours of student-teacher face-to–face interaction is necessary for successful educational progress and results?

As social human beings we are seeking human interaction and feedback from our mentors about our learning or practice. This natural notion gets blocked with limited to no time for interaction with educators as universities are making large classes even larger to keep their finances in balance. I wanted to find out how much of student-teacher face-to-face interaction is important to keep.

"Infinity. If you are a trusted mentor you are a trusted educator and you can communicate knowledge much easier".

-Nabil Harfoush

"This depends on the student. I think that for large classes, with 200 students, these interactions are ineffective in education".

-Vincent Hui

"It is one of those big variables that plays a part in retention. We have a retention issue. It depends on the program".

-Mark Robertson

"As long as you can keep the ratio to the instructor down, there will be room for more engagement with students in terms of contact. I always imagine instructors/professors a bit like animators, like a conductor for symphony. They are there to get discussions happening, to get people interested in the conversation; and, if you are not that kind of individual, the student will lose focus and not engage".

-Patrick Saavedra

"This should be based on the hours students have in design school; one of every three hours of scheduled class time. Having smaller classes, 10-20, in order to enable personal interaction with students. Having jury presentations is also beneficial".

-Peter Thompson

"There are certain things we can do very successfully only online and there are certain things that we don't think we can do online. Once the skill sets are in place, a lot of what happens next is psychological".

-Andrew Clifford

"There are certain things we can do very successfully only online and there are certain things that we don't think we can do online. Once the skill sets are in place, a lot of what happens next is psychological".

-Andrew Clifford

Summary: Large groups of students are missing face-to-face interaction with their mentors. Some? are suggesting that good examples of effective interaction with students are design schools where students are working in smaller groups of 15-20 people. In design schools students get constant feedback from their mentors/educators who are actively involved by engaging students in project activities. Face-to-face interaction is necessary even in programs that are set up to run exclusively online to support students mentally and give them necessary feedback to move forward.

14. There is a current trend of more practice-based learning. Do you support this venture?

From the trend analysis and literature review, I found that students are looking to gain more practice-based learning to help prepare them for the post gradation jobs. -I was seeking to find out if universities' representatives are in support of this venture.

It allows "You very quickly optimize your knowledge into practice. We, in SFI, are strong believers of that. Even in research we think that when you implement your research in projects you have deep experience in how it really is rather than how it's supposed to be".

-Nabil Harfoush

"Practice-based learning, in my view, mimics the methods of design schools. Design professions are practice-based; that is what we do and this is how we learn. A surgeon can only be good if they have done hundreds of surgeries of particular type".

-Patrick Saavedra

"Practitioners can show how the house was built realistically with online modules. My job is to show how the house can be built in the future. This is a good balance".

-Vince Hui

Summary: Most experts suggested that it is necessary for universities and colleges to provide practice-based education, especially in professional programs. This is not only due to the high demand from students and parents but has also proven to be an effective approach in terms of understanding and learning. Universities should collaborate with colleges on how to implement this method approach in their practice. The practice-based approach should not only be based on how things are done currently, but how these can evolve and are designed based on experiments. Therefore, foresight should be implemented in professional programs to teach students how to research and look ahead to new prospects.

15. Societal implications lead to broader knowledge in education. What are some alternative educational models that can support broader education?

The world has changed and with the emergence of the Internet; we have become so much closer and interconnected in the world. Industries, cities and countries are integrated by the free market, political motives, and social media. Industry professionals could be working for different countries and are required to collaborate with professionals in different fields. These factors are leading us to demand broader knowledge in education. With my research, I wanted to inquire about some of the learning methods universities and colleges should implement in support of this new notion of broader education.

> "It would be great if there would be global cooperative education".
>
> -Vincent Hui
>
> "Some alternative models would be collaboration with industries; for example, bringing industries to the classroom; ensuring that students have access to internship during their education phase that compliment their education".
>
> -Patrick Saavedra
>
> "One new model is badging where the badge recognizes and acknowledges your experience. The problem I have with it is that there should be a reflection on that experience".
>
> -Mark Robertson
>
> "Make students teach people from outside of the university. This would help universities because it would get people to come to university for a small fee. It would help students enormously because they would have to prepare lessons, they would learn what they going to teach about, and they would become much more socially adapted with people because they would be dealing with a broader range of people coming to see them".
>
> -Peter Thompson

Summary: Badging, peer-to-peer learning, and industry-community collaboration with post-secondary institutions are the methods that are starting to take place in post-secondary institutions. Experts have suggested that there are some great benefits in applying some of these approaches, however, for some further investigation, planning and testing is required before they can be implemented.

16. What new skills should university/college programs offer to their students to help them in the current competitive job market?

With the unstable economy, students are facing high competition for jobs. In the competitive job market, students are looking to obtain skills that are current to employees' demands or would make them stand out from the crowd. Not being a part of the industry yet, students do not always know what skills are in demand. My intention was to get experts' opinions on what skills university/college programs should offer to students to assist them in the current competitive job market.

> "Three things: interpersonal skills, personal finance – something that a lot students need to know, teaching them the value of earning a living and playing a role in society. The last one is social responsibility – a general understanding that we are players in a larger society; we should be good citizens".
>
> -Vincent Hui
>
> "Skills such as: entrepreneurship, notion of business, marketing skills, and technical skills. The work that we do is moving online and it is less expensive to do a videoconference over the Internet than flying an interpreter from another country".
>
> -Andrew Clifford
>
> "Some new skills they should offer are: collaborative group skills, more diverse media skills, and technology skills. I think, getting back to motivation, people need to have these skills/dispositions to manage their time and be able to be self-starters".
>
> -Mark Robertson
>
> "They should definitely research the job market that they interested in, what educational qualifications are needed, resume writing, networking, and way to make connections with employers; knowing how to go and at least try to approach employers".

-Sylvia Link

"I wonder if there is a way that universities and colleges can prepare students for the work force. It is not enough that universities have the resources to provide support, but I think it is important that it comes directly form the faculty".

-Patrick Saavedra

Summary: Many skills were recommended for students. Technical skills came up many times, not surprisingly, as we live in a digital age surrounded by technology and employees who expect graduates that are technologically savvy. Financial, business, and marketing skills came up that are new demands not only for graduates in these fields but for all to have an understanding of. Students will need to have an understanding of these as they move into professional industries as they will feel the pressure of obtaining this knowledge. Students need to learn how to manage time and become self-starters and entrepreneurs to be able to become business owners. Collaborative, networking, and research skills are also necessary to find a job and being able to stay in the job where collaboration is highly encouraged. Experts are confident that students will be able to learn and obtain all of the above mentioned skills if they "learn how to learn" (N. Harfoush). On the other hand, the assistance of the faculty and administration is necessary to support students and guide them in the right direction to become individuals with strong character, a positive attitude, and have developed the necessary knowledge and skills that are current and in demand within industries.

Students' Support and Services

17. Literature shows that many graduates are unemployed partially due to a surplus of graduates. Should universities/colleges provide job placements or liaisons with industries?

The number of graduates has grown as demand for post-secondary education by generations has gone up since 1970. In the current economic situation, jobs are hard to source, especially full-time professional jobs. The prices of living expenses have grown dramatically. Graduating with financial debt, students are desperate to find job placements. I hoped to get experts opinions regarding whether or not universities and colleges should step up and help their graduates with job placements/co-op programs for students to have practical experience by the time they graduate.

"They absolutely should. Industry connections are definitely an asset; co-op education is definitely mandatory. On a larger level, we teach diversify skills but we don't want to overlook basic skills. There should be an understanding that you are not starting from the top".

-Vincent Hui

"In the first year we run something called Virtual Healthcare Interpreting Practicum (VHIP). We created this online-simulated practicum. We engaged with healthcare providers and built some scripts and realistic patient - provider encounters".

-Andrew Clifford

"I don't think the university should be an agency that should find a job for students. The world is more complex now and more articulate. We have roles that we have not had before, for example behavior economist or behavior engineer or environmental designer; a lot of combinations that never existed before. It is actually more beneficial to expose a student to larger experiences then they can choose and find where they can be best employed".

-Nabil Harfoush

"I think it is the responsibility of the faculty and university to know exactly what is needed in the market place. I think it is important that universities take the first step to finding out what is lacking in the industry create links with the industry".

-Patrick Saavedra

Summary: Interviewed faculty and administrative staff agreed that students are struggling. Three issues need to be resolved by universities and colleges: one is to maintain the balance of students' enrolment and the job market demand. Second is to assist graduates with real life experiences and necessary skills needed by the time they graduate to be more marketable by offering co-op education. Third is to assist them in finding jobs by offering professional career services as well as liaisons with industries to have transparencies for job opportunities for graduates.

18. With the rising cost of post-secondary education (PSE), do you think students will seek alternative solutions to receive education; for example taking distance learning/self-study programs?

When living expenses get higher, people start looking for alternate ways to cut the costs. If the post-secondary education is in demand but the living expenses and cost for tuition are getting increasing, people will search for a lower cost education alternative or find alternate routes such as online learning to obtain it.

> "There is a significant barrier today for people in affording education. People are already seeking alternatives of every kind which is why you find that interest in online courses, and that is why you find interest in new forms of intensive or executive courses".
>
> -Nabil Harfoush
>
> "Yes, I see more people proceeding with that but I think there will be a quality of credentials that will become critical. The quality of these degrees is questionable. Universities are there to teach students to think critically".
>
> -Vincent Hui
>
> "We rely to a large extend on international students. The tuition fee rose from $12,000 to $20,000 per year for an international student. Our program is unique because it is taught online".
>
> -Andrew Clifford
>
> "I think that digital technology will change the system but not disrupt it. Again, if the educational institution is not in the middle of disruption then it is not doing its job. The disruption is there because someone is thinking and trying something new; someone is questioning something".
>
> -Peter Thompson
>
> "…colleges for undergrad degrees are a less expensive option to begin with as their tuition costs are less than half. Colleges are also getting approved to run undergraduate bachelors degrees so this is a very good option".
>
> -Sylvia Link

Summary: What do we have? Will universities seek businesses in virgin markets to educate international students or will they streamline or alter existing educational models to meet the interests of local students? It might be both as we already see universities approaching other markets for international students and implementing online learning courses for a smaller fee. The importance is to maintain the quality of education if cost for tuition is reduced, because students might figure out that attending college at first is an alternative way to start their career for a lower cost and give them time to figure out and confirm if they made the right career choice.

19. Will self-study lead to less demand for credentials and more focus on knowledge, skills and experience?

Literature shows that students have begun approaching education through self-study courses. Employees are demanding demonstration of knowledge, skills and experience. With my research I wanted to find out if self-study would lead to less demand for credentials.

"Unfortunately, I see the potential for more people in the future to be more focused on the letters after their name rather than their knowledge".

-Vincent Hui

"You are always going to need the credentials and credentials need to incorporate the experience rather than experience replacing the credentials".

-Mark Robertson

"I don't think so. I think self-study will optimize how people will learn but society will always require a certain set of skills to be demonstrated".

-Nabil Harfoush

"Self-study will be part of the overall educational experience".

-Peter Thompson

"There may be industries where credentials are not critical but expertise and experience are valuable".

-Patrick Saavedra

Summary: The overall reply was that self-study will not offset the requirement for credentials. In fact, the reaction was that there is more of a demand for credentials than less. People feel that more credentials give them status and put them in a higher competitive position in the job market. Unfortunately, competition pushes students to gain credentials for the wrong purpose as opposed to knowledge being the main purpose to want post-secondary education.

Future of PSE Model

20. Students' enrolment in PSE continues to grow. How do you explain the increase in post-secondary enrolment with the rising cost in PSE and many unemployed youth?

I wanted to find out from the people I interviewed about the current anomaly where post-secondary education is still in demand while the tuition fee, cost of living, and unemployment are going up.

"Even if they cannot afford it, students continue to take post-secondary education with the hopes that it would increase their job prospects and they enquire more debt. This is not necessarily a good model as, at some point, the debt is due and you have to pay it back. It is not any different for more mature professionals".

-Sylvia Link

"…there are many students going to universities that are taking general subjects because they don't know what they want to do. People feel that they have to go to university but having no direction is a real waste".

-Vincent Hui

"People find the competitive environment so integrated that only the brightest and best-educated individuals get further ahead".

-Patrick Saavedra

"We have done very well with that in Canada but there has got to be a ceiling / plateau and we are going to get to it. I think the demographic is certainly a huge reason for it; rising cost is another reason".

-Mark Robertson

"That is an issue of inflation due to the cost of energy going up to maintain facilities. One way to do this is to efficiently use the space that universities have. Universities are very inefficient in using their space through some studies we have done".

-Patrick Saavedra

"I have a profound belief that post-secondary education is critical for pursuing professional education and of great value, especially for new Canadians who see it as a dream. Post-secondary education is often associated with career and money but I don't think it should be. It should be associated with becoming a better human".

-Peter Thompson

Summary: The responses were not enthusiastic. Canadians continue to maintain a high regard for post-secondary education by plunging deeper into debt. The forecast by people I interviewed was that post-secondary education will eventually be less in demand due to unaffordability as other priorities, such as living expenses, will take over. The changes in demographics of the overall population will also negatively affect the enrolment numbers in post-secondary institutions.

21. Government contributions towards PSE are declining. How would this affect PSE?

The student population is growing in post-secondary institutions and government funds are declining as the overall economy is in flux. As a result, these aspects are affecting the educational environment. I asked experts how they think this will affect PSE.

"It will impact the curriculum in a negative way as well as networking with industries and other universities.

-Vincent Hui

"You have different demands and a number of conflicting priorities but only one pie of tax payment. Somewhere you have to have reduction. There is a general economic concern where there are less tax payments because of recession".

-Nabil Harfoush

"I rather pay my taxes and pay them towards education for the future generation than spend them on the military. We need people and we need them to think big. Post-secondary education is there to learn how to do that".

-Peter Thompson

"I think universities, by nature, because they more autonomous than colleges, will seek to find alternative, creative ways to find funds for their universities. Streamlining, finding efficiencies, sustainability and finding public-private partnerships are going to be a strong evolution".

-Patrick Saavedra

"We exist because we are be able to go out and get external funding".

-Andrew Clifford

"There is this pressure from the government to differentiate institutions to each work in a niche to promote what they are good at. The government would like to look at institutions as a whole system with options for all, as opposed to an institution having options for everyone. The government is trying to do an interface for a whole series of online courses. So you are not necessarily a student of one place which is posted on the website of the Ontario Online Institute".

-Mark Robertson

Summary: With the unstable economic situation and the reduced pull of funds with priority given to healthcare, faculty and administration are concerned about outcomes and affects on the educational curriculum and educational institutions' physical facilities with already older infrastructure. Experts also point out that current educational system funding is imbalanced. The focus in educational institutions has shifted and preference is given to research more than education. To help the situation, universities already started working with private investors and are continually searching for private contributions towards education and research. That work will only need to grow to seek private funds and develop public-private partnerships between universities and industries. Universities and colleges need to seek efficiencies. According to experts, one of the government recommended ideas is to remove duplicate programs and faculties where each university stays focused on a few subjects that each university is good at. Adopt

technology, modernize, restructure and offer online courses to reduce the cost where some of the physical facilities would not be needed.

22. Should universities pursue private models like the US?

I asked people I interviewed a somewhat controversial question: if post-secondary institutions are finding that government funds are not sufficient to run their businesses, should Canada pursue a private educational model like the US?

> "No. Anyone should be able to study in university".
>
> -Peter Thompson

> "…there is a risk of proliferation of fake universities like the example of the University of Phoenix".
>
> - Vince Hui

> "It has pros and cons. On the pros side, it will force universities to be more business like and to shed a lot of inefficiencies that they have and are very comfortable with".
>
> -Nabil Harfoush

> "The cons are do we want create a generation of people where there only the financial elite has access to a university education".
>
> -Andrew Clifford

> "…culturally there is a commitment to equity here and there is less of it in the US. As a general model it will not work".
>
> -Mark Robertson

> "If they went to a private model to develop institutions, you will end up with haves and have-nots. You will have the privileged and non-privileged like in US. I am a strong believer that education is a right and it should be accessible to everyone and making it private means that certain people won't be able to go to university".
>
> -Patrick Saavedra

Summary: Experts do not see that privatization of educational institutions will be a good model for a number of reasons: first, it does not represent Canada's beliefs around democracy, equality, and the rights to have education. Secondly, it will not work as a business model, as Canada is not as wealthy as the US. Thirdly, it could run the risk of reducing the quality of education with many bogus educational institutions emerging that would be uneasy to regulate.

23. Do you see opportunities for universities/colleges to expand internationally? How should universities/colleges share knowledge internationally?

Many researchers or students working on new innovations in isolation are discovering something that others in other universities of the same or different country do as well. Would we not benefit by collaborating and sharing knowledge internationally?

> "I see ample opportunities. Digital Medial Zone – an organization within Ryerson University that allows students to work with companies on projects. We have seen it become the fifth largest incubator in North America. Ryerson is offering opportunities to inspire students to commercialize their innovations".
>
> -Vince Hui

"There must be international venues at which global post-secondary institutions can come together, participate and share knowledge transformation. Not just push it out but share it in such ways that are transformative which promote co-learning and co-teaching".

-Sylvia Link

"It would make the world richer. Certainly, there are opportunities in verging markets for campuses that benefit both countries and institutions".

-Peter Thompson

"In our case there two different methods for collaboration in our programs: one is informal and another is formal. We began to have joint virtual classes. There are also formal mechanisms that are more evident in Europe. We have recently signed a memorandum of understanding with the European Parliament to cooperate and collaborate with them".

-Andrew Clifford

"There are absolutely opportunities; you see this with Schulich in India. There is more and more of a demand for education in places like China and India. We can choose either to be a part of that or not".

-Mark Robertson

"I think universities are finding that, in order to compensate for the lack of funding, they are going to expand externally, so that the tuition is double since international students would pay double what national students would pay. That would compensate for the lack of funding that you are getting from the government. Another reason is to expand your catchment area, the area from which you draw your potential applicants. Which means education and credentials become more and more critical to become more global for global professionals".

-Patrick Saavedra

Summary: Experts listed many opportunities that already exist as well as potential opportunities. From innovation and commercialization of student's projects; to virtual dialogs with other institutions; expansion of universities programs in other countries such as India and China; to unbundling universities and colleges educational programs globally for students to have many opportunities and choices.

APPENDIX C: EDUCATIONAL TERMS

PSE	Post Secondary Education
Peer-to-peer Learning	The educational method in which students are learning from their peers in the process of interaction.
Unbundled Programs	Educational unpackaged programs with each course offered to students separately and independently of the entire program package.
Life-long Learning	Ongoing learning development (formal and informal) through one's lifetime in order to stay parallel with innovative technologies.
Blended Education	Education that uses both online and in-person delivery methods. Education that includes knowledge, skills and experience.
Personalized Student Portal (PSP)	An innovative digital device that is designed to suit students' personal learning styles. With this personal mobile device students can plan their career ahead of time, starting as early as in elementary school by selecting targeted courses for future career paths as well as tracking their own progress and credits going through university and college. This portal allows one to navigate through and get direction for his or her own education and career journey including: exploring career options, planning where he or she would like to go and completing courses to reach this destination.
Global Education	Education that is based on global values such as: human rights, justice, diversity, inclusion and cooperation. Global education creates awareness and addresses global issues such as: peace, sustainability, intercultural rights and communication. Global education is student-centered and uses diverse methods including: student empowerment, collaboration and experience.
Flipped Classroom	With the emergence of the Internet and widespread use of digital technological devices, educational methods-changed to the flipped-classroom where content moved online to allow more time for students and faculties to discuss and collaborate in the classroom.
Integrated Approach	PSE institutions' collaboration with industries, community and among themselves to share best educational practices, learn and adopt new educational methods, and plan for new job market demands; an educational approach that allows students to participate and gain experience in industry and community.

Thank You

Inessa Chapira
inessa.chapira@gmail.com