ONCAT Final Report – June 30, 2017

Project Name: Technological Education Pathway Development Project: A Multilateral
                     Articulation Agreement between Brock University and Ontario's Colleges

Project Number: 2015-19

Lead College: Fanshawe College

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List of Participants and Partner Institutions

Partner Institutions

1. Fanshawe College (lead)
2. Niagara College
3. Conestoga College
4. Mohawk College
5. Canadore College
6. Fleming College
7. College Boreal
8. Brock University
9. Ontario Council for Technology Education (OCTE)

Participants

11. Tracy Gedies, Director, Centre for Academic Excellence, Fanshawe College
12. Mary Harrison, Faculty, Centre for Academic Excellence, Fanshawe College (*on leave*)
13. Gabriela Kongkham-Fernandez, Pathways Coordinator, Fanshawe College (*on leave*)
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17. Wayne Ostermaier, Associate Dean, Skilled Trades and Apprenticeship, Mohawk College
18. Mark Lamontagne, Dean, Trades, Technology, Law and Justice and Part-Time Studies, Canadore College
19. Charlotte Primeau, Director of Continuing Education, Collège Boréal
20. David Baker, Pathways Coordinator, Fleming College
21. Tony DiPetta, Associate Professor Teacher Education, Faculty of Education, Brock University
22. Dave Lewis, President, Ontario Council for Technology Education (OCTE)

Additional Partners

1. Ministry of Education
2. Ontario College of Teachers (OCT)
3. Thompson Rivers University (TRU)
4. Institute of Technology Sligo

Executive Summary

The Technological Education Pathway Development (TEPD) Project was a collaborative initiative funded by the Ontario Council on Articulation and Transfer (ONCAT). Participants included: Fanshawe College, Niagara College, Conestoga College, Mohawk College, Fleming College, Canadore College, Collège Boréal and Brock University, and the Ontario Council for Technology Education (OCTE).

TEPD originated as a college to university transfer initiative with the intention to provide skilled tradespeople with an incentive to pursue a credential in Technological Education, and to address existing structural inequities affecting Technological Educators' professional and educational trajectories. Technological Education teachers have been underserved with limited access to professional development and/or career advancement opportunities within the K-12 education system. Supported by research, best practice, and consultations with sector leaders, TEPD explored the development of a multilateral pathway to provide degree completion opportunities for Technological Education teachers and teacher candidates (see Pathway Model, p. 19).

The originally proposed pathway was developed to allow candidates with a diploma the opportunity to earn a Bachelor of Education upon successful completion of the revised four semester Technological Teacher Education program at Brock University. After stakeholder consultation, and due to different constraints, the focus of the project shifted to explore out-of-province degree completion opportunities with the Institute of Technology Sligo and Thompson Rivers University (TRU) (see Appendix 1, Spec Sheet, p. 23). Ultimately, because of insurmountable obstacles beyond TEPD's control the project discontinued its ONCAT funding as the change in scope fell outside ONCAT's mandate to support Ontario pathway development.

Due to substantial learning, the project team plans to seek alternate funding to:

- facilitate degree completion opportunities for Technological Educators through IT Sligo and TRU.
- develop and deliver Additional Qualification (AQ) Schedule F courses amongst the participating Colleges and Additional Basic Qualification (ABQ) courses in collaboration with Brock University and the Ontario College of Teachers (OCT).
- support a longitudinal research study on the degree completion pathway candidates.
- build relationships between college and high-school educators in the technological education fields.

This project provides smoother pathways for Technological Education teachers toward leadership opportunities. The TEPD team feels that having leaders in Ontario's secondary system who understand and have a background in technological education will strengthen ties between secondary and post-secondary technological and vocational programming options. Not only will this benefit Technological Education teachers, the colleges, and the students who pursue college studies, but TEPD believes it would ultimately benefit the forecast of the trades in Ontario and assist in enhancing equity and collegiality across all levels of education in Ontario. TEPD believes that we in Ontario can learn from our out-of-province and international colleagues and continue advocating for a more efficient and articulated system of higher education.

Project Purpose and Goals

The original objective of the TEPD project was to work with Brock University to develop a multilateral articulation agreement from Ontario College Diploma and Advanced Diploma programs which align with the 10 broad-based technology areas covered by Ontario Technological Education curriculum to a Bachelor of Education degree awarded by Brock University. Historically, Technological Education teacher candidates without a first degree who complete teachers college graduate with a Certificate or Diploma of Education, while their degreed counterparts receive the Bachelor of Education degree, having completed the exact same curriculum. TEPD coincided with the launch of Ontario's new 2-year teacher education curriculum; now that the B.Ed. would be two years, it seemed an opportune time to explore pathways to the B.Ed. Since the original ONCAT proposal, the project's scope and goals have shifted, yet its spirit of recognizing learning outcomes, encouraging lifelong learning, and promoting equity within the education system have remained constant.

Project Challenges

- *Including Apprenticeship:* TEPD consulted with the Executive and a group of approximately 50 Board Leads of the Ontario Council for Technology Education (OCTE) about the project. OCTE made it clear that prioritizing the degree completion of Technological Education teachers with a Diploma/Advanced Diploma would further segregate an already divided group of professionals. OCTE articulated this divide as 'teachers with a degree' versus 'teachers without a degree'; they do not further distinguish between those with a diploma versus an apprenticeship. OCTE recommended a new direction to TEPD: either the pathway agreement needed to include Technological Education teachers with an apprenticeship background, or the project should not move forward. It became clear that to pursue the original project goal would not be in the best interest of Technological Education teacher candidates, nor the profession. Therefore, in accordance with TEPD's research-informed Best Practices (see Best Practices and Lessons Learned, p 10), the group agreed to expand the scope of the project to include degree completion opportunities for those with an apprenticeship background. OCTE was also concerned that teachers who had completed their teaching credential under the 1-year model be granted the opportunity to apply their learning and experience toward a degree completion.

- *Brock University unable to Support Pathway Agreement:* The project team encountered a major obstacle from Brock University, the primary university partner in the project. In early May 2016, members of TEPD met with various members of Brock's administration, including representatives from the Registrar's Office. During that meeting, it became clear that Brock University would not develop a pathway agreement pertaining to the Bachelor of Education degree because it is a professional program of study; this concern had not been raised before this meeting, and was therefore new information for the TEPD team.

- *Regulatory Body Limitations:* TEPD had been in close consultation with the regulatory body, the Ontario College of Teachers (OCT), since the beginning of the project. Early in the project, members of the OCT were optimistic that if a university partner would recognize a pathway to the B.Ed. for Technological Education teachers, then the OCT

could recognize that degree as an "acceptable post-secondary degree" for the purposes of interpreting its regulations (for instance, several professional development opportunities which ultimately lead to leadership opportunities require the candidate to hold an "acceptable post-secondary degree.") However, upon further discussion and consultation, it came to light that the OCT would not recognize the B.Ed. as an "acceptable post-secondary degree." The OCT clarified the work that teacher candidates complete during their two years at teachers college cannot be "double counted"; that is to say, it cannot "count" as teacher training and also "count" toward the completion of a related degree program. The original pathways model that TEPD developed proposed to draw upon prior post-secondary education and/or vocational work experience in conjunction with 2 years of teachers college to produce a 90 credit Ontario degree. Although, according to the OCT's regulations, an "acceptable post-secondary degree" must consist of at least 90 Ontario credits (i.e. at least a 3-year Ontario degree), the original pathways model would not be acceptable because it relied on the "double counting" of the 2 years of teachers college. It was now clear that this strategy would be unacceptable to both our university partner and the regulatory body. In an earlier report, TEPD had indicated to ONCAT that if Brock University would not recognize the pathway, a contingency plan could be to work with Queen's University, whose Technological Education program is also running. Given this new information from the Ontario College of Teachers, it no longer made sense to pursue the original pathway model with any Ontario university partner.

Next Steps for TEPD

- *OCT Recommendations:* Given these major considerations which necessarily shifted the project's scope, the TEPD team regrouped to re-examine its objectives. Ultimately, the team determined that the project's goal was to facilitate degree completion for Technological Education teachers in order that they may pursue professional development opportunities, including pathways to leadership. Further, the degree completion needed to recognize the richness of Technological Education teachers' knowledge and backgrounds, both vocational and pedagogical. The OCT confirmed that it would find as an "acceptable post-secondary degree" a degree that was granted in part through advanced standing, as long as the transcript indicated that the degree was 90 or more Ontario equivalent credits and as long as the teacher training itself wasn't a component of that advanced standing. OCT confirmed that IT Sligo and TRU were acceptable degree completion options. OCTE has given a strong endorsement of the new model (see Pathway Model, p. 19).

- *Brock Partnership – AQ and ABQ Courses:* TEPD has a further opportunity to collaborate with Brock University and other Ontario Faculties of Education. The partner colleges involved in TEPD have become interested in continuing to be a part of the landscape of Technological Teacher Education in Ontario, and are interested in offering Additional Qualification (AQ) Schedule F courses and perhaps eventually Additional Basic Qualification (ABQ) courses at our institutions. Moreover, this college alliance with teacher education in Ontario would highlight the contribution Ontario's Colleges of Applied Arts and Technology make to higher education in the province. While TEPD predicts these benefits to the colleges, we also foresee benefits to Technological Education teachers, including the professional development inherent to the AQs and the opportunity to return to the college system where candidates may have completed their apprenticeship and/or post-secondary training and, therefore, where they know what to

anticipate in terms of the college's community, currency, infrastructure, and high quality of educational content and delivery. Moreover, reconnecting with the College environment will assist Technological Education secondary school teachers in advising their students about the range of quality vocational education available in Ontario's colleges. This will enhance the awareness of Ontario's young people regarding their post-secondary options, and may particularly enhance their understanding of apprenticeship programming, an area of focus for the Ministry of Advanced Education and Skills Development. Because the TEPD partnering colleges have grown to include Canadore, Conestoga, Fanshawe, Fleming, Mohawk, Boréal and Niagara, the regional and bilingual availability of Technological Education AQs would also be enhanced; historically, these AQs have not run. The OCT is enthusiastic about the colleges' interest in offering AQs, and has advised regarding the process we would follow in order to be accredited to do so. At this time, only Ontario Faculties of Education can offer ABQs, so the college partners are interested in further discussions with Brock and others in order to potentially offer ABQs as "satellite" locations of the university Faculty.

Pathway Development

a) Methodology

How do Ontario's colleges serve the needs of Technological Education in Ontario?

- We cross-referenced Ontario Diploma/Advanced Diploma college programs with the descriptions of the technological teachable subjects in Ontario's Technological Education curriculum to determine that each of the 10 technological teachable subjects has 1 or more Ontario College Diploma/Advanced Diploma or apprenticeship program counterparts accountable to MTCU published program standards (including General Education and Essential Employability Skills components) (Ministry of Education, 2009a; 2009b; MTCU, n.d.).
- Ontario's colleges demonstrate accountability to quality assurance: each college has completed the Program Quality Assurance Process Audit administered by the Ontario College Quality Assurance Service (OCQAS), a non-governmental body.

Is there a demand for Technological Education in Ontario?

- Ontario College of Teachers (OCT) reports that technological educators have a stronger rate of employment than general educators in Ontario (OCT, 2013).
- According to OCT, approximately 50% of technological educators were eligible to retire in 2010 (York University, n.d.).
- Our university co-applicant and a representative from the Ontario Secondary School Teachers' Federation (OSSTF) report that it has historically been a challenge to recruit and retain students for the 2 term model of Technological Education. Due to the work experience required of prospective technological educators, teacher education usually represents a career change, often requiring candidates to leave an existing job, resulting in personal and financial stress. Given this context, we anticipate that recruitment and retention of candidates to a 4 term model will pose even greater challenges.
- OCT lists 17 institutions providing teacher education in Ontario. Of those, 7 institutions have recently offered Technological Education programs. As a result of the new 4 term model of teacher education, the majority of those Technological Education programs have been cancelled or are on hold. Brock University has recently convened the Technological Education Consortium of Ontario (TECO), and is presently developing a revised 4 term model which will include flexible delivery options to meet the needs of Technological Education in Ontario. Brock launched their program January, 2017. In the next year, only York University and Queen's University will offer Technological Education in Ontario; we anticipate that fewer training opportunities will result in less competition, further increasing employment opportunities for technological educators. York University offers both a Consecutive BEd, open to individuals who have a degree in a related technology field that aligns with the Technological Education curriculum, and a Concurrent BEd, open to York University students who are pursuing a degree in a related technology field who are currently in the third year of their program. Queen's University's model will admit candidates holding a Diploma/Advanced Diploma or apprenticeship, but although diploma-holding and degree-holding candidates within the Technological Education stream complete the same curriculum, the former group is awarded a Diploma in

Education while the latter group is awarded a Bachelor of Education (OCT, n.d.; Queen's University, 2014-2015; n.d.; York University, n.d.).

Who would benefit from the articulation agreement?

- Technological Education in Ontario's secondary schools: Due to health and safety considerations, there is a need for Ontario to recruit and retain qualified, and, where relevant, certified, technological educators to teach the 10 subjects (CODE, 2013).
- Technological Industries in Ontario: Offering the technological subjects in secondary schools is an investment in the future of Ontario's economy and its technological industries. An article in Canadian Business indicates that it has been estimated by Skills Canada, a group that promotes careers in skilled trades and technologies to Canadian youth, that by 2020 one million skilled trade workers will be needed (Clancy, 2014).
- Ontario's Colleges: Offering excellent secondary school curriculum in the 10 technological subjects will affect recruitment of students to Ontario's Colleges.
- Brock University: With a projected shortage of technological educators in Ontario and a significantly reduced supply of Technological Education programs, this articulation agreement was intended to position Brock to fill a distinct need in Ontario's market. The agreement would allow technological educators the flexibility to pursue general studies teachables and/or the opportunity to pursue leadership roles within secondary schools and/or school boards.

Considerations/Action Items for the articulation agreement:

- Consult with the Technological Education Consortium of Ontario (TECO) regarding logistics of proposed articulation agreement.
- Consult Ontario Regulation 347/02, section 9 & Ontario Regulation 176/10, sections 1.3 and 1.4 for teacher certification requirements and admission requirements for teacher education.
- Consult with the Ontario Universities Council of Quality Assurance, the Ontario Qualifications Framework, and the Undergraduate Level Degree Expectations.
- Discuss the implications for this articulation agreement of universities adopting learning outcomes (Woolcott & Robinson, 2012).
- Explore the history of the work experience requirement for technological educators and its relation to the skilled trades certifying bodies.
- Investigate impact of flexible delivery options on recruitment/retention of technological educators in 4 term model.
- Consult with OCT, OSSTF, the Ontario English Catholic Teachers Association (OECTA), and the Qualifications Evaluation Council of Ontario (QECO) to investigate the proposed articulation agreement's effect on professional standing and development (e.g. pay scale; eligibility for Additional Qualifications).
- Consider including university general education elective(s) for bridging college and university curriculum.
- Note opportunities for future exploration: e.g., building PLAR for technological educators eligible to train as teachers who hold neither a Diploma nor a Degree.

b) Program Comparison and Analysis:

Best Practices and Lessons Learned

Due to the nature of the outcomes of this project, the Best Practices and Lessons Learned has become the focus of our program analysis.

<u>Best Practices</u>
The TEPD operates through the following set of Best Practices rooted in research on the principles which guide transfer and articulation in the sector, province, and country. TEPD makes a commitment to:

1. Act in the best interest of students and the profession of Technological Education by ensuring that students have the appropriate knowledge and experience for success in Technological Education without being required to duplicate prior learning, and that they are awarded a credential reflective of their professional preparation.
   a. Establish the proposed pathway(s) alongside the development of the traditional routes to accreditation as a Technological Educator so that students have options for pursuing the path most appropriate to their professional goals.

2. Communicate the opportunities, terms, and expectations of the pathway agreement(s) clearly, consistently, and transparently to students and other internal and external stakeholders.
   a. Promote the pathway(s) to students and provide resources for advising and support as needed (see Appendix 1, Spec Sheet, Case Studies, p. 23).
   b. Ensure consistency in the application of the pathway so that students to whom the pathway does not apply will understand and recognize why.

3. Research, collect, and share data to ensure the demand for, and the viability and potential risks of, the proposed pathway(s) and to evaluate the pathway(s) following implementation.
   a. Determine how the pathway will be evaluated, e.g.: the number of students who use the pathway; the academic and/or professional success of students; the number of colleges and universities included in the pathway; how or whether the pathway impacts provincial or regulatory decisions or policies; how or whether the pathway affects the supply of skilled and qualified Technological Educators in all regions of Ontario, etc.
   b. Provide students with opportunities to give feedback about the pathway(s) both pre- and post-implementation.
   c. Conduct due diligence to assess any potential risks associated with the pathway(s), and balance potential risks against anticipated gains/benefits.

4. Align the terms of the pathway agreement(s) to the policies, practices, and regulations of relevant governmental, institutional, and accrediting bodies including,

but not limited to, the TEPD institutional partners, the MTCU, the MOE, ONCAT, OCT, and OCOT.

    a. Ensure the terms of the pathway agreement(s) will result in a student's professional compliance with all relevant regulatory and accrediting bodies.

    b. Report regularly to ONCAT on the progress of the pathway development and agree to the fair distribution of ONCAT related funds among the TEPD institutional partners.

    c. Promote pathway agreement(s) through relevant institutions and governmental and accrediting bodies.

5. Agree upon the methods for developing the pathway(s), reviewing academic rigour, and terminating agreement(s), e.g.: include input from a variety of players, including subject matter experts, quality assurance and curriculum development professionals, and higher education administrators; identify the crucial factors for negotiation in the design and development of pathway(s) (e.g. learning outcomes; credential frameworks; institutional transfer practices); explore opportunities for the pathway(s) to be assessed and reviewed by peers who are subject matter, institutional, and/or procedural experts; generate factors for stakeholders to consider when rendering decisions about the pathway(s); provide a list of potential decisions and prompt a rationale regarding a given decision.

    a. Protect student best interest and prioritize fairness by proactively determining a grandfathering procedure in the event that the partners or functions of the pathway(s) change.

    b. Agree on a process to follow in the event that one or more institutional partners decides to terminate their role in the pathway(s), or to stipulate only certain partners within the multilateral agreement (e.g. if a sending or receiving institution declines to work with one institutional partner but agrees to continue working with other institutional partners).

6. Set and adhere to reasonable timeframe expectations for developing, reviewing, maintaining, and updating the pathway agreement(s).

    a. Determine a mechanism for ensuring the pathway agreement(s) remain(s) up-to-date, and assign roles and responsibilities among the TEPD team for this maintenance procedure.

    b. Provide a rationale when proposing changes to the pathway(s).

    c. Develop an instrument for reporting major modifications to any element of the pathway(s) among all TEPD partners and relevant stakeholders.

Lessons Learned

1. Clearly identify the project scope, risks and constraints

Although the TEPD project has evolved, its original direction and scope allows the team to remain focused and thoroughly consider deviations from the original intent.

    a. Developing guiding principles aligned to the project scope helped set the tone for the future direction of TEPD and provided a point of reference while the project developed.

b. In the same way, being mindful of the project's constraints and risks enabled a proactive approach to look for alternative solutions when things went in different directions. For example, the team anticipated that institutional frameworks might pose a constraint to advance the proposed pathway; this prompted us to identify additional potential pathway partners earlier in the project.

2. **Maintain a collaborative approach and foster trust both among team members and among stakeholders**

A key for successful pathways is fostering trust among all "key players about the quality, standard and outcomes of qualifications," and trust between institutions (Wheelahan, 2015). The latter is built on confidence in the institution's people and processes (ibid).

a. Identifying the potential benefits for the different team members and stakeholders ensured a collaborative approach from the inception of the project. TEPD has touched different levels of education; identifying and highlighting the benefits of the project for the Ontario education system has allowed the team to explore pathways beyond traditional education pathways and it has also helped maintain communication and collaboration with our different stakeholders:
   - Ontario Colleges and Brock University: TEPD is committed to student success and mobility; fills a distinct need in Ontario's market; can affect student recruitment and retention and also support graduates' success.
   - Ontario's secondary schools: TEPD helps preserve programming; addresses health & safety concerns; combines vocational and pedagogical knowledge to inspire student interest
   - Technological industries in Ontario: TEPD responds to Ontario's skilled trades' shortage; reflects relationship between education and labour market
   - Teaching profession: TEPD advocates for the best interest of the profession; strives to not further segregate the different cohorts of teacher candidates

b. Capitalizing on the different team members' perspectives, skill sets and networks allowed TEPD to look at situations from different angles and find collaborative solutions. The TEPD team has participation from the college and university sectors, whose different contributions and links to external stakeholders have complemented each other; members with a background in the trades, for instance, have been crucial to help advocate for the best interest of the profession, while curriculum specialists helped provide a structured approach, data management and strong research skills.

c. Identifying key external stakeholders and capitalizing on their perspectives and networks advanced the project and allowed us to maintain a spirit of cooperation. Key stakeholders for TEPD have been the Technological Education Consortium of Ontario (TECO), the Ontario Council for Technology Education (OCTE), the

Ontario College of Teachers (OCT), the Ontario Secondary School Teachers' Federation (OSSTF), the Ministry of Education (MOE), the Ministry of Advanced Education and Skills Development (MAESD), and the potential partner universities for degree completion, each of them with different perspectives, mandates and input. We can't highlight enough the importance of recognizing and listening to all the players, as well as understanding their norms and concerns.

3. **Manage stakeholder expectations**

TEPD's direction, its goals, and ultimately the evolving iterations of the pathways model have been influenced by the challenges of working with and managing different stakeholders, including an accrediting body, at a time of change and increased complexity. As a result of this, being able to manage stakeholders' expectations is a valuable asset to increase buy-in and to navigate different institutional frameworks.

a. Awareness of the political context, the different stakeholders' agendas, their governance structures and regulations helped TEPD to navigate different institutional protocols and practices. As part of this and with the intention of educating each other, team members were constantly encouraged to learn from and about each other's contexts, as well as the environment surrounding external stakeholders.

b. Being prepared to ask the difficult questions and challenge entrenched regulations has allowed TEPD to navigate the system, find alternatives to traditional solutions and evolve.

c. Avoid silo conversations which could exist even within the same institution. For TEPD particularly, tracking all the threads in the conversation, ensuring clear and transparent communication, sharing information, keeping records and triangulating versions of events have proved valuable when dealing with different stakeholders' agendas and governance frameworks.

d. Viewing feedback and critique as "productive conflict"; they are both an opportunity to strengthen the project and move it forward. At several points during the project, stakeholders' expectations seemed beyond the scope of the project, 'undoable', or conflicting. TEPD has been an incredibly resilient team, ready to look for alternatives, find middle ground and make things work.

e. Use provincial conferences, stakeholders' meetings and other platforms to showcase and advance the project. The team has presented at conferences such us the Ontario Council of Articulation and Transfer (ONCAT), the Pan Canadian Consortium on Admission and Transfer, (PCCAT), the Curriculum Developers' Affinity Group (CDAG), the Society for Teaching and Learning in Higher Education (STLHE), and the Ontario Council for Technology Education

(OCTE). These have been enlightening experiences to better understand the field, promote the project and acquire new resources and contacts.

4. **Research, collect and manage data for better decision making**

   Striving to find data and understanding how data interrelate increases the team's ability to look at the overall picture of what is happening both within the field and around it; it also allows the team to link that information and strategize more effectively while de-mythologizing information that has been operating. The inconsistency and lack of data available has been a constant roadblock for TEPD.

   a. Critically question different data sets, especially in contexts where data drives decisions. For instance, TEPD has noted the ways in which data may be used to tell conflicting stories about the state of things, depending on which stakeholders present it.

   b. Advocate for data tracking, sharing and transparency to inform the current project and other related projects and activities. For example, although there are precedents for other pathways projects involving apprenticeship programs in the province, information on the evolution and results of such projects has not always been forthcoming. Tracking and sharing data would allow for more consistency with previous projects and provide the opportunity to build upon them or learn from them, reducing the need for a piecemeal approach. The TEPD project has also reiterated the need for consistent and detailed data gathering and tracking at the institutional level, and has highlighted the usefulness of such data to the building of programming and pathways.

5. **Advocate for the project's core principles when managing constraints, risks and expectations**

   The three constraints of a project (scope, resources and time) might many times compete with each other. For instance, if a team decides to enlarge the scope of a project, this might affect the other constraints. Furthermore, working with different stakeholders, agendas, and timelines along the way may pull the project in different directions. Advocating for the project's core principles has helped manage constraints, risks and expectations, while maintaining a balance between project scope and flexibility.

   a. Act in the best interest of students and the profession. This core principle became one of TEPD's lessons learned and has also encouraged the team to think outside the box and look for alternatives. An early version of the pathway model which suggested the project would only affect those Technological Education teachers with a diploma background, rather than also including those with an apprenticeship background. The team received the clear message that this avenue would further divide this group of teachers and therefore negatively affect the profession. Now the team has established opportunities for degree completion for future and current teachers of diverse educational backgrounds and advocating for the potential pathways to be inclusive.

b. Advocate for the value of the skilled trades at every level; from the field of Technological Education, specifically (including secondary school technological education, apprenticeship preparation, diplomas and advanced diplomas aligned to the 10 broad-based technological teaching subjects, and technological teacher education), to the over-arching context of applied, technical skills to society at large (including the daily lives of individuals, industries and the global community).

c. Value and recognize prior learning. TEPD has faced varied and inconsistent responses when dealing with different stakeholders and their diverse approaches to prior learning assessment and recognition (See Appendix 1, Spec Sheet, p.). This reality has sparked the creation of a separate project to research literature and processes in PLAR and develop a set of best practices in the province.

d. Conduct due diligence and consider the reputation of partner institutions when exploring pathways and articulation agreements. This aligns with the need to act in the best interest of students and is especially important when working with an accrediting body.

6. **A square peg does not fit in a round hole**

Technological Education is a unique field within Education and Ontario Secondary Schools, with its own challenges and opportunities. Technological education reflects a way of learning that is more often experiential, tactile, and activity based. Yet Technological Teacher Education is often subject to the norms and contexts structuring General Studies Teacher Education which tend to take a different approach to pedagogy.

a. Look for ways to truly understand the project's landscape. It has taken some digging and looking beyond the obvious and the apparent.

b. Think outside the box. When considering and designing pathways, advocating for the best interest of the profession and promoting pathways between different sectors of education, the team has gone beyond traditional approaches to explore alternative pathways and solutions. We have found that some current practices and regulations have been designed to account for general studies teachers, and the Technological Education teachers are expected to adapt to the system that is built around their general studies colleagues. While we continue to advocate for more streamlined pathways and regulations in the province, the current lack of provincial opportunities to accommodate the needs of these particular candidates has prompted the team to look at out-of-province and international partnerships and opportunities.

c. Remain flexible and adaptable as the project grows and evolves, while still adhering to best practice and the project goals. The flexibility and evolution of our project is reflected throughout the adaptation of the 19 different versions of our

pathways model. ONCAT's understanding of this evolution and their support of necessary adjustments has been key to continue to delve into alternatives to meet the project goals.

7. Review previous projects in the field and their lessons learned

There is no need to reinvent the wheel. Consulting with other projects in the field can inform the project, build upon the success of others or help the team learn from their mistakes.

a. Learning from other models of collaboration between the college and university sectors within and outside the province, such as TECO, the Guelph-Humber experience, the Bachelor of Early Childhood Education (BECE) model between Brock University and Niagara College, the Irish Qualification Framework, or the Bologna process, have provided insight on how to build upon institutional strengths, work within institutional policies and constraints, and recognize and advocate for the value of prior learning.

c) Implementation Process and Timelines

Process Description and Timeline	Complete	Rationale if Incomplete
January 2015: The TEPD team consulted with TECO members and with representatives from OCT, OSSTF, OECTA, and QECO.	✓	N/A
March – June 2015: The Team met monthly to complete mapping and organize consultation meetings.	✓	N/A
March 2015: The Team met with the Faculty of Education, Brock University to discuss articulation agreement.	✓	N/A
April 2015: The Team met with TECO, OCT, OSSTF, OECTA, and QECO to discuss implications of proposed articulation agreement.	✓	N/A
May 2015: The Team met with the Faculty of Education, Brock University to discuss the Memorandum of Understanding (commitment to develop the formal multilateral articulation agreement). TEPD invited to attend OCTE conference and provide project update to OCTE Board Leads and OCTE executive. OCTE provide feedback to include apprenticeship in the model or discontinue the project.	✓	N/A

Technological Education Pathway Development Project:
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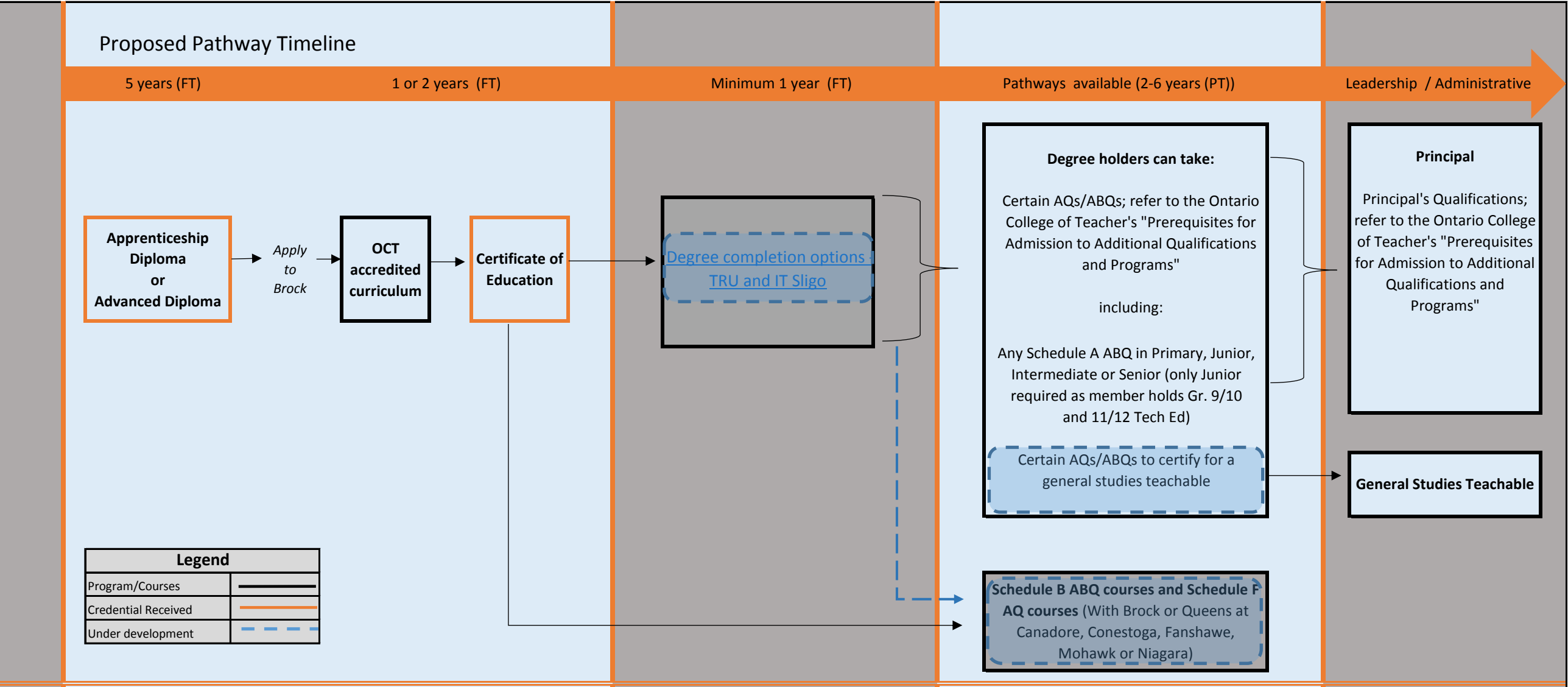| Process Description and Timeline	Complete	Rationale if Incomplete
June 2015: The Team to present proposed articulation agreement to CCVPA.	X	Because project was modified after presentation to OCTE in May, TEPD did not present to CCVPA. During this time, the Team continued to work with OCTE and OCT to explore degree completion pathways.
September – December 2015: The Team met monthly to discuss articulation details. September 2015: The Team met with TECO, OCT, OSSTF, OECTA, and QECO to discuss implications of proposed articulation agreement.	✓	N/A
October 2015: TEPD invited to provide project update to OCTE Board Leads. Introduced Pathways Best Practices and revised TEPD model to include Apprenticeship.	✓	N/A
November 2015: Pathways Project Team to meet with Brock.	✓	N/A
November 2015: The Team to discuss implementation of articulation agreement with CCVPA.	X	TEPD did not present to CCVPA as the Team continued to work with OCTE and OCT to determine degree completion pathways.
December 2015: Submit articulation agreement to Brock Senate for approval.	X	
June 2016: Promote articulation agreement.	X	
January 2017: Launch articulation agreement to coordinate with the launch of Brock's 4 term Technological Education program.	X	
May-June 2016: TEPD met with Brock University to confirm proposed TEPD degree completion model would not meet Registrar requirements. TEPD began to explore alternative "out of province" degree completion options with established articulation partners. TEPD contacted ONCAT to conclude funded project and prepare Final Report.	✓	N/A

Process Description and Timeline	Complete	Rationale if Incomplete
September 2016: OCT confirmed requirements for an 'acceptable postsecondary degree' as defined by Ontario's Teachers' Qualifications Regulation. TEPD developed pathway "Spec sheet" based on Pathway Best Practices. IT Sligo and TRU selected as pathway partners based on fulfillment of "Spec sheet" requirements.	✓	N/A
Fall 2016: TEPD worked extensively with OCT, IT Sligo, TRU and OCTE to affirm degree completion options would meet OCT regulations and provide pathways to leadership and general studies teachables.	✓	N/A
January 2017: Resubmitted ONCAT RFP for renewal of funding. TEPD team met, including Brock, to discuss next steps for promoting degree completion, OCTE Conference in May 2017, and delivering AQ – Schedule F courses at consortium colleges. Representatives from IT Sligo and TRU presented degree completion details to TEPD team. Provided Q and A.	✓	N/A
February 2017: Presented degree completion opportunities at the Tech. Educators Board Leads meeting.	✓	N/A
March 2017: Received notification from ONCAT regarding project focus being outside ONCAT mandate. ONCAT sends letter of support.	✓	N/A

Summary of Pathways Created: TEPD Pathway Model (Version 20)

Proposed Pathway Timeline

| 5 years (FT) | 1 or 2 years (FT) | Minimum 1 year (FT) | Pathways available (2-6 years (PT)) | Leadership / Administrative |

Apprenticeship Diploma or Advanced Diploma → *Apply to Brock* → **OCT accredited curriculum** → **Certificate of Education** → Degree completion options - TRU and IT Sligo →

Degree holders can take:

Certain AQs/ABQs; refer to the Ontario College of Teacher's "Prerequisites for Admission to Additional Qualifications and Programs"

including:

Any Schedule A ABQ in Primary, Junior, Intermediate or Senior (only Junior required as member holds Gr. 9/10 and 11/12 Tech Ed)

Certain AQs/ABQs to certify for a general studies teachable

→ **General Studies Teachable**

Principal

Principal's Qualifications; refer to the Ontario College of Teacher's "Prerequisites for Admission to Additional Qualifications and Programs"

Schedule B ABQ courses and Schedule F AQ courses (With Brock or Queens at Canadore, Conestoga, Fanshawe, Mohawk or Niagara)

Legend

Legend	
Program/Courses	———
Credential Received	———
Under development	– – –

Without the proposed pathway, it would take candidates a minimum of 10 years to be eligible for any Schedule A ABQ (5 years work/PSE + 2 years teacher ed + 3 years to earn Bachelor's Degree) to qualify for Principal's Qualification Courses. With the proposed pathway, candidates could be eligible for Schedule A ABQs in 8 years.

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Appendix 1 – Additional Activities

When TEPD realized Brock University was unable to support the development of the proposed pathway agreement and OCT confirmed there were regulatory limitations, TEPD concluded the ONCAT funded portion of the project. However, Appendix 1 outlines additional TEPD pathway project activities that have continued beyond the funded activity, and future project plans.

Addressing Critical Issues

Based on expansive consultation with partners, it has been determined that there is need for this project to continue. It has become clear that this project addresses two critical issues:

1. Technological Education teachers and College professors with a diploma or apprenticeship background have been disadvantaged and underserved with limited access to professional development and/or advancement opportunities due to a lack of transparent, clearly communicated, pathway opportunities that act in the best interest of students and the profession of Technological Education.

2. Technological Education is facing a crisis-level teacher shortage within the next 5-10 years which has the potential to negatively impact technological education delivery in the high school system, thereby limiting potential applicant interest for Technological Education related programs including apprenticeship in the college system. By providing pathway opportunities to this group, this project has the potential to enhance equity and collegiality across all levels of education in Ontario, benefit technological education through degree pathways and professional development, and positively impact the trades holistically.

Evolution of the TEPD Project

From the beginning of the TEPD project to its current state, the focus has evolved to include:

1. *Out of Province Degree Completion Pathways*

   TEPD has pursued degree completion pathway opportunities for non-degreed Technological Educators and College professors with established pathway partners outside of Ontario specifically Thompson Rivers University in British Columbia and IT Sligo in Ireland. These pathways were developed to align with the TEPD Best Practices and provide a mixture of credit transfer and Prior Learning Recognition and Assessment (PLAR) for relevant teaching experience, field experience, and/or education/course work including apprenticeship.

2. *Development and Delivery of Schedule F AQ Courses*

   In Spring 2017, the consortium received initial support from OCT regarding its governance framework submission. The project team plans to develop and implement AQ courses in 2017/18. TEPD has expanded to include seven Ontario Colleges, including Collège Boréal. The participating Ontario Colleges represent a diverse geographical area and will include English and French offerings.

3. *Development of Additional Resources*

- *Spec Sheet:* TEPD has developed a comprehensive 'Spec Sheet' for Technological Educators to compare and contrast degree completion pathway options at IT Sligo and Thompson Rivers University based on their background and skills. Both options provide a vocation focus as well as a General Studies focus so candidates will have a choice in their pathway (See Pathways Model, p. 19). This document was developed by TEPD in consultation with OCTE, OCT, IT Sligo, and TRU.

TEPD Spec Sheet

Item #	Variables	IT Sligo	Thompson Rivers University		
	Official Institutional Recognition	✓	✓		
	Credential granted	Different Degree Options (Vocational/Business)*	Bachelor of General Studies	Bachelor of Technology	Bachelor of Technology, Trades and Technology Leadership
1	Type of credential	BB, BSc or BEng (3 years) BB (Hon), BSc (Hon) BEng (Hon) (4 years)	Hons BA (4 Years)	Hons BA (4 Years)	Hons BA (4 Years)
2	Length of time to complete full time	1 Year	Diploma 2 Years Advanced Diploma 1 Year	Diploma 2 Years Advanced Diploma 1 Year	Diploma 2 Years Advanced Diploma 1 Year
3	Length of time to complete part time	1 Year Business 2 Years Vocational	TBD	TBD	TBD
	Recognition and Credit Transfer for one or more of the following				
4	Vocational work experience	✓	✓	✓	✓
5	Teaching experience	✓	✓	✓	✓
6	Teaching certificate	✗	✗	✗	✗
7	Trade Qualification	✓	✓	✓	✓
8	Ontario College Certificate	✓	✓	✗	✗
9	Ontario College Diploma	✓	✓	✓	✓
10	Ontario College Adv.Diploma	✓	✓	✓	✓
	Process				
11	Interview	✓	✗	✗	✗
12	PLAR assessment	✓	✓	✓	✓
13	Bridging	Might be required	✗	✗	✗
14	Intake	Fall	Continuous	Continuous	Continuous
	Second Teachable				
15	Available options	See Credentials Below (Item 20)	Business, Fine and Performing Arts	Business	Business
	Fees & Course Delivery				
16	Full Time Fees	CAN $11,400 / year; or €7,500 / year. **Note:** Preferential tuition pricing as per Colleges Ontario agreement.	CAN $7500 / year*	CAN $7500 / year*	CAN $7500 / year*
17	Full Time Course Delivery	Typically 60 Credits / 1 year; or 30 Credits / semester; or Maximum 6 modules (courses) / semester.	120 credit degree; or 30 credits / year; or Fulltime 3-5 courses / semester.**	120 credit degree; or 30 credits / year; or Courses are 3.0 credits; or 5 courses / semester.**	120 credit degree; or 30 credits / year; or Courses are 3.0 credits; or 5 courses / semester.**
18	Part Time Fees	CAN $3,400 to $6,750 / year; or €2,250 to €4,450 / year. **Note:** Per current on-line distance learning program pricing.	CAN $750 / course*+	CAN $750 / course*+	CAN $1000 / course*+
19	Part Time Course Delivery	Typically 30 Credits / 1 year; or 15 Credits / semester; or Maximum 3 modules (courses) / semester **Note:** Exception for BB in Management Applications (60 ECTS credits in 1 year)	120 credit degree Enrolment is course by course. Student determines program pace.	120 credit degree Enrolment is course by course. Student determines program pace.	120 credit degree Enrolment is course by course. Student determines program pace.
	Other Considerations				
20	Additional Information	BSc (Hon) in Construction Project Management BSc in Environmental Management BSc (Hon) in Environmental Management Bachelor of Business in Management Applications BSc in Manufacturing Management BSc (Hon) in Quality Management & Technology BEng in Mechatronics BEng (Hon) in Mechatronics	*Average fees depend on the type and number of courses taken within a program. This number is based on taking 10 courses/30 credits per year. **To remain active in a program it is suggested that students take 1 course every two years. There is no formal Full-time or Part-time status other than what is required for student loan stipulations, e.g., 3 courses continuously. *+This is an approximate/average cost (tuition + materials). Course tuition varies by individual course. Check individual courses for specific fees.		
	Contact Information				
21	Websites	www.itsligo.ie/onlinelearning	http://www.tru.ca/distance/programs/general-studies/bachelor.html	www.tru.ca/distance/programs/technology/bachelor-of-technology.html	www.tru.ca/distance/programs/technology/bachelor-technology-leadership.html
22	Email Contacts	Patrick Lynch, International Manager, IT Sligo (Lynch.Patrick@itsligo.ie)	Donald Poirier, Senior Director, Strategic Partnerships, Thompson Rivers University (Dpoirier@tru.ca)		
22	Important Notes	**Prior Learning Assessment and Recognition Note:** Admission requirements for graduate studies are at the discretion of each institution. It is the responsibility of applicants to be aware of recognition of prior learning policies as it relates to credit transfer and prior learning. **Tuition Note:** Tuition and fees are subject to change.			

- *Candidate Case Studies:* The TEPD project team developed case studies showcasing different backgrounds and skills of degree completion candidates. IT Sligo and Thompson Rivers University assessed these case studies, and provided an estimate of the amount of credit transfer and recognition each would receive. The case studies were distributed to OCTE members at the 2017 OCTE Conference.

Case Study 1 – Auto Service Technician	
Experience	**Details**
Secondary Education	- OSSD
Post-secondary Education	- Automotive Service Technician apprenticeship and certification of qualification (MTCU) - Truck and Coach Apprenticeship and certificate of qualification (MTCU) - University courses (Marketing, Communications, geography, economics)
Additional Formal Education (incl ABQs, AQs, etc)	- Several automotive updates AQ's - Small powered Equipment ABQ - Construction ABQ - Co-op part 1 AQ - Religion part 1and 2 AQ - Religion Specialist AQ
Trade Qualifications	- Automotive Service Technician and Truck and Coach Technician
Trade-related Training/Certification	- Too many to list

Education Work Experience	- Teaching related experience 25 years
	   - Supply teacher (1 year)
	   - Transportation Technology Co-op Teacher (10 years)
	   - School Board roles: OYAP, SHSM, SCWI, Co-op, and Technology Leader (16 years)

Trade Work Experience	- Car dealership service advisor (3 years) - Auto Service Technician (5 years)
IT Sligo Recommendation	- RPL for advanced entry into Certificate in Automation & Instrumentation (1 year) - Transfer into Bachelor of Engineering in Mechatronics (2 year)

Thompson Rivers University Recommendation	- Bachelor of Technology:
	   ○ 57 credits completed, 63 credits to complete
	- Bachelor of Technology, Trades and Technology Leadership:
	   ○ 60 credits completed, 60 to complete, 15 credits through possible PLAR

Case Study 2 – Design	
Experience	**Details**
Secondary Education	• OSSD
Post-secondary Education	• 2 Year Diploma Furniture Products from Ontario College • 2 Year Diploma Broadcast Television from Ontario College • Diploma in Education from University (technology)
Additional Formal Education (incl ABQs, AQs, etc)	• Guidance, Part 1 • Cooperative Education, Part 1, 2 • Honours Technology Specialist • Religious Education, Part 1 • Design and Technology, Part
Trade Qualifications	• N/A
Trade-related Training/Certification	• AutoCAD, Level 1, 2, 3, 4 • Advanced C.N.C. for Woodworkers • Environmental Design Sketching and Drafting
Education Work Experience	• Secondary School Teacher various schools and locations (15 years) • School Board, various roles (8 years) • Ministry, various roles (4 years)
Trade Work Experience	• Cabinet and Furniture maker, Private Company (1 year) • Cabinetmaker, Private Company (1 year) • Production Manager / Furniture Maker, Antiques (5 years)
IT Sligo Recommendation	• Direct entry into Bachelor of Business Management in Applications (1 year) OR • Direct entry into Bachelor of Construction Management (2 year)

Thompson Rivers University Recommendation	• Bachelor of Technology
	  o 57 credits completed, 63 credits to complete
	• Bachelor of Technology, Trades and Technology Leadership
	  o 60 credits completed, 60 credits to complete, 15 credits through possible PLAR

Case Study 3 – Electrician	
Experience	**Details**
Secondary Education	• OSSD
Post-secondary Education	• N/A
Additional Formal Education (incl ABQs, AQs, etc)	• N/A
Trade Qualifications	• Licensed Electrician and registered Fire Alarm Technician
Trade-related Training/Certification	• Corporate Health and Safety Training • Certificate in Management (C.I.M) (*offered through Ontario University*) • Registered Fire Alarm Technician • Health and Safety Training • Master Electrician Training • Kawasaki Robotics Training • Kuka Robotics Training • Electrical Apprenticeship Program • Advanced Programmable Logic Controllers
Education Work Experience	• Lab Operations Manager at Ontario College (5 years) • Technologist at Ontario College (2 years) • Non-FT professor for electrical apprenticeship program at Ontario College • Instructor for highs School OYAP programs • Curriculum development • Workshop facilitator for School Board
Trade Work Experience	• Construction and Maintenance Electrician, FT, Private Company (3 years) • Construction and Maintenance Electrician, PT, Private Company PT (2 years) • Construction and Maintenance Electrician, Apprenticeship to FT (10 years)
IT Sligo Recommendation	• Direct entry into Bachelor of Business Management in Applications (1 year) • Direct entry into BSc Contraction Management (2 year) • Direct entry into BSc in Quality (2 year)

Thompson Rivers University Recommendation	• Bachelor of Technology
	    o 57 credits completed, 63 to complete
	• Bachelor of Technology, Trades and Technology Leadership
	    o 60 credits completed, 60 to complete, 15 credits through possible PLAR

1. *Communicating Resources and Pathways*

   The TEPD team is working with OCTE to promote the degree completion pathways via the OCTE website. OCTE has a provincial membership of over 5000 members. Between January to March 2017, the OCTE website has been visited by 3132 users, and 51,710 webpages have been viewed. Screen shots have been provided below of the degree completion resources posted online. For full details please see www.octe.ca.

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   ## Degree Completion

   ### Background

   The Technological Education Pathway Development Project (TEPD) is a consortium of Ontario Colleges including Fanshawe College, Niagara College, Conestoga College, Fleming College, Canadore College, Mohawk College and College Boreal. TEPD has developed degree completion opportunities to technological education teachers with an apprenticeship, diploma or advanced diploma background. TEPD has partnered with Thompson Rivers University in British Columbia and IT Sligo in Ireland. The degree completion programs provide a mixture of credit transfer and Prior Learning Recognition and Assessment (PLAR), and are offered via online learning. We have included a Spec Sheet, sample candidates, and FAQs regarding the degree completion options.

   ### TEPD Spec Sheet

   The 'Spec Sheet' outlines the distance learning programs at both IT Sligo and Thompson Rivers University, and the various components that may be considered based on background and experience. The degree completion options are a mixture of credit transfer and Prior Learning Recognition and Assessment (PLAR). OCT and OCTE have been consulted during the development of these pathways.

   Download the Spec Sheet (PDF)

   ### TEPD Sample Candidates

   The TEPD project team has developed sample candidates from different backgrounds and skills. IT Sligo and Thompson Rivers University assessed these sample candidates, and provided an estimate of the amount of credit transfer each would receive. These are intended only as a case study. It is the responsibility of the student to contact the institution regarding their credit transfer and recognition of prior learning assessment. Program requirements at both institutions are subject to change.

   Auto Service Technician (PDF)

   Cook (PDF)

   Design (PDF)

   Electrician (PDF)

   Hairstylist (PDF)

2. *Relationship Building with OCTE*

   The TEPD project is working to improve communication and awareness between College faculty and secondary school teachers within the technological education community; thus enhancing working relationships and a shared understanding of technology vocations, education systems, and most importantly our students. We plan to continue fostering these relationships by applying our TEPD best practices and lessons learned to positively impact the technological education system within Ontario.