

Research Study Proposal: The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates?

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Research Study Proposal: The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates?

Teacher-preparation programs in Canada and the United States have traditionally been delivered through a combination of on-campus instruction and placement in K-12 schools for practicum experience (Becker et al., 2015). This delivery model is typically mandated by local government departments that regulate the programs and oversee the K-12 education system. In recent years new delivery models have emerged in response to various needs. For instance, with the authorization of the Nova Scotia Department of Education, the Bachelor of Education program at Cape Breton University temporarily switched to online delivery of its Bachelor of Education courses in response to the COVID-19 pandemic (Power & Kay, 2022; Power et al., 2024 *in press*). Due to the duration of pandemic restrictions, CBU now has the distinction of being the only university in Canada to have graduated a cohort of teacher-candidates who completed all of their coursework through online modalities. In 2023, CBU and the Province of Nova Scotia announced a new accelerated alternative pathway online B.Ed. program (Cape Breton University, 2023a; Pottie, 2023). This intensive 8-month program will build upon the expertise and resources developed during the COVID-19 pandemic to offer a combination of synchronous and asynchronous course delivery with interspersed on-site practicum placements in Nova Scotia schools. The 8-month pilot program aims to rapidly prepare a cohort of teacher-candidates to enter the school system in time for the start of the 2024-25 school year, and will be followed-up with an accelerated 12-month on-campus B.Ed. program that will begin in May 2024. The introduction of these alternative pathways to teacher certification mirrors the rationale for the introduction of the Intensive Pedagogical Training Institute (IPTI) and the Alternative Resident Educator Institute (AREI) initiatives at Ohio State University (OSU) (Ohio State University, n.d.) in the United States in 2007, when OSU received a grant from the US Department of Education's Transition to Teaching Program to "recruit, train, and retain nontraditional teachers, as well as to expand nontraditional pathways to teaching in high-need and hard to staff school systems" (Ohio State University, 2007).

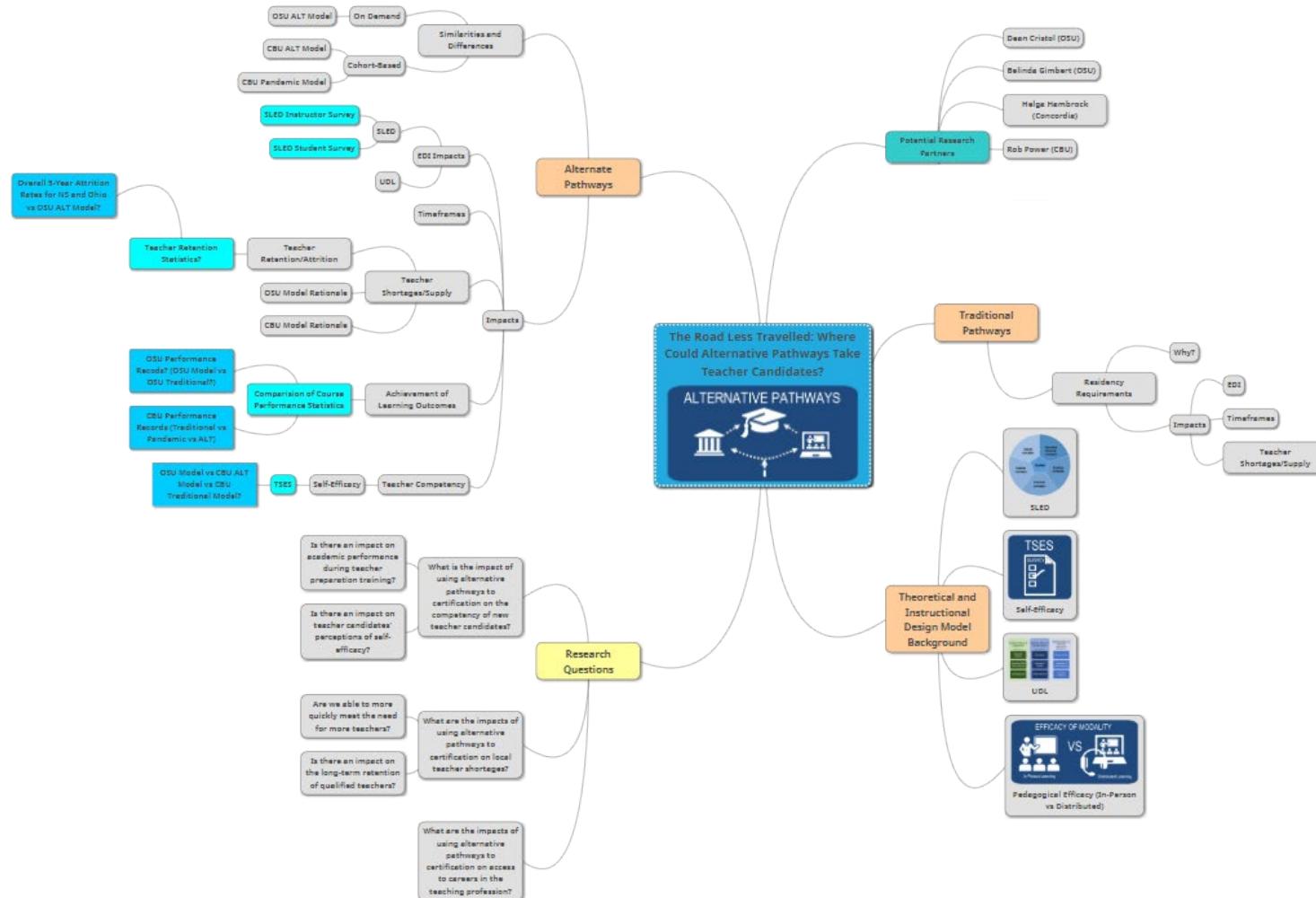
Traditional on-campus residency requirements for teacher-preparation programs have typically been mandated by regulators due to perceptions of quality control needs, and the need to be in-person to receive adequate training in background knowledge and pedagogical skills (Becker et al., 2015). Power and Kay (2022) illustrated how faculty at two Canadian universities, including CBU, were supported to leverage online teaching technologies during the COVID-19 pandemic. Power et al. (2024, *in press*) discuss how those supports, and faculties' experiences during the pandemic, resulted in the adoption of innovative pedagogical approaches to create robust and engaging learning experiences that met – or exceeded – the needs of students as they completed their programs of study. These changes to teaching and learning approaches included fostering the development of Communities of Inquiry (Garrison et al., 2001), and the leveraging of the principles of Universal Design for Learning (UDL) (CAST, 2022a, b) in ways that made education accessible and rewarding despite the absence of on-campus residency.

Statement of the Problem

The underlying question to be explored by this research is one of how alternative pathways to teacher preparation would impact the readiness of candidates to take on roles as teachers in K12 schools. This research aims to examine the impacts of the use of alternative pathways to teacher-preparation on the experiences of teacher candidates, as well as on the perceived needs of the local regulatory agencies that oversee teacher training programs. This will include exploring the accessibility, equity and

seamlessness of the learning experiences, through the lenses of UDL (CAST, 2022*a, b*) and the Seamless Learning Education Design framework (Hambrock et al., 2020, 2022). It will also examine the impacts of the alternative pathway formats on the performances of candidates in achieving core program learning outcomes, on meeting local teacher supply demands, and on retention of qualified teachers within the K12 system. It will also examine the impacts of the alternative pathway formats on graduating candidates' perceptions of self-efficacy as teaching professionals (Tschanen-Moran & Woolfolk Hoy, 2001*a, b*). The foundations of this research are highlighted in the Conceptual Framework presented in Figure 1.

Figure 1
Conceptual Framework



View larger version online at <https://drive.google.com/file/d/1OcRQ7ce1I1HBe0oJDRMezhYdEc3mFZtz/view?usp=sharing>

Research Questions

1. What is the impact of using alternative pathways to certification on the competency of new teacher candidates?
 - a. Is there an impact on academic performance during teacher preparation training?
 - b. Is there an impact on teacher candidates' perceptions of self-efficacy?
2. What are the impacts of using alternative pathways to certification on local teacher shortages?
 - a. Are we able to more quickly meet the need for more teachers?
 - b. Is there an impact on the long-term retention of qualified teachers?
3. What are the impacts of using alternative pathways to certification on access to careers in the teaching profession?

Significance of the Research

This research aims to examine the viability of alternative pathways to teacher preparation on meeting perceived needs for qualified teachers for K12 schools. It aims to answer questions about the ability of such programs to graduate competent teachers, as well as to meet the needs of potential teacher candidates who might not be able to pursue traditional, residency-based programs of study.

Proposed Methodology

This research will employ a mixed-methodological approach, designed to capture both quantitative and qualitative data.

Examining Teacher Candidate Competency

The competency of teacher candidates will be explored through two methods. First, the performances of candidates in CBU's online pandemic-era program and its new accelerated online B.Ed. program will be compared to that of candidates in recent (15-month) residency-based cohorts. This will determine if there are significant differences in performance in candidates' required coursework. Similarly, the coursework performances of candidates in OSU's IPTI and AREI programs will be compared to those of candidates in recent residency-based teacher preparation programs at OSU. The examination of academic performance trends will involve the secondary use of existing data sources (Cape Breton University, 2023b; Government of Canada, 2023) from Cape Breton University and Ohio State University.

Second, a survey based on the Ohio State Teacher's Sense of Efficacy Scale (TSES) (Tschanen-Moran & Woolfolk Hoy, 2001a, b) will be used to measure participants' perceptions of self-efficacy as teaching professionals along the domains of student engagement, instructional strategies, and classroom management. Candidates in CBU's current residency-based B.Ed. cohort, as well as its new accelerated online program, will be invited to complete a copy of the survey that will be administered using the Microsoft Forms (Microsoft, 2023) platform hosted by Cape Breton University. Results between the two cohorts will be compared to identify any differences in candidates' perceptions of self-efficacy as teaching professionals. Candidates in OSU's IPTI and AREI programs, and OSU's residency-based B.Ed. program, will be invited to complete a copy of the survey to be administered using the Microsoft Forms platform hosted by Ohio State University. Again, results between these cohorts will be compared to identify any differences in candidates' perceptions of self-efficacy as teaching professionals. To avoid any concerns around data transfer and local privacy protection regulations, raw data from the two survey administrations will not be exchanged between researchers from CBU and OSU. However, aggregated results of the data analyses will be compared to identify differences in perceptions of self-efficacy as teaching professionals between participants from the various cohorts.

Examining Impacts on Teacher Shortages

To determine the impact of the use of alternative pathways to teacher preparation on perceived local teacher supply needs, data will be collected from regulatory agencies in Nova Scotia and Ohio related to historical shortfalls in teacher supply before and after the introduction of the alternative pathway programs. In the context of OSU's alternative pathway programs, data will be examined on the number of graduates entering the K12 teaching sector, and on those who remained in the teaching profession beyond the first five years of employment. This will be compared to historical data on average teacher retention rates beyond the first five years of employment. The examination of graduation, employment, and retention trends will involve the secondary use of existing data sources (Cape Breton University, 2023b; Government of Canada, 2023) from Cape Breton University, Ohio State University, the Province of Nova Scotia, and the agencies responsible for teacher certification and hiring within the various states serviced by OSU's IPTI and AREI programs.

Examining Impacts on Student Experience and Access to the Teaching Profession

To explore the impacts of the use of alternative pathways to teacher preparation on student experiences and access to teaching career opportunities, a mixed-methods approach will be employed. First, faculty and program administrators at CBU and OSU will be asked to complete a survey based on the domains of the Seamless Learning Education Design (SLED) framework (Hambrock et al., 2020, 2022). Second, teacher candidates participating in CBU's new accelerated online program, and candidates participating in OSU's IPTI and AREI programs will be invited to complete a survey on the SLED domains (Hambrock et al., 2020, 2022) and UDL (CAST, 2022a, b) aspects of their programs. This survey will contain both fixed-response and open-response questions, designed to solicit qualitative feedback on their program experiences. Copies of both surveys will be administered to target participants affiliated with CBU using the Microsoft Forms (Microsoft, 2023) platform hosted by Cape Breton University. Copies of both surveys will be administered to target participants affiliated with OSU using the Microsoft Forms (Microsoft, 2023) platform hosted by OSU. To avoid any concerns around data transfer and local privacy protection regulations, raw data from the survey administrations will not be exchanged between researchers from CBU and OSU. However, aggregated results of the data analyses will be compared to identify differences between participants affiliated with the various cohorts.

Participants in both sets of programs will also be invited to participate in one of two focus group sessions facilitated via Zoom (2023), which will explore their reasons for choosing the alternative pathway programs, and the perceived benefits of such programs on their access to teacher preparation training and careers in the teaching profession. A question will be included at the end of the student survey to ask if participants are interested in being contacted about potential participation in an upcoming focus group session. Participants who indicate "Yes" in response to this question will be directed to a second survey, hosted via Microsoft Forms, that will collect their name and email contact information. It will not be possible to link responses from the contact information survey to previous survey responses. To avoid any concerns around data transfer and local privacy protection regulations, raw data from the survey administrations will not be exchanged between researchers from CBU and OSU. The researcher from CBU will coordinate and facilitate a focus group session for participants affiliated with the CBU alternative pathway program. Researchers from OSU will coordinate and facilitate a focus group session for participants affiliated with OSU's IPTI and AREI programs. Researchers from each institution will also be responsible for the transcription, verification of the transcription, and anonymization of the transcripts of their locally facilitated focus group sessions. Researchers from CBU and OSU will then use qualitative analysis procedures to independently analyze and code the session transcripts according to themes that emerge. The resulting analyses will be compared to calculate coefficients of inter-rater reliability.

Participant Selection

Participants for this research study will come from two primary groups – students in alternative pathway teacher preparation programs affiliated with CBU and OSU, and faculty and program administrators affiliated with the same

programs. Student participants will be recruited through an email invitation (Appendix 5) to participate in a survey (Appendix 1), which will be distributed to all students enrolled in the 2024 8-month accelerated B.Ed. program at CBU and to all students currently enrolled as candidates in the IPTI and AREI programs at OSU. Survey invitations will also be forwarded to all students currently enrolled in the 2023-24 15-month on-campus B.Ed. program at CBU (to provide comparative data to that collected from candidates in alternative pathways programs). The student survey will include a question whereby participants can indicate their interest in potential participation in an upcoming focus group session (a positive response will launch a second survey, where participants can provide their contact information for the purposes of focus group scheduling). Faculty and program administrator participants will be recruited through an email invitation (Appendix 7) to participate in a survey (Appendix 2), which will be distributed to all faculty and program administrators affiliated with teacher preparation programs at CBU and OSU. To avoid any concerns around data transfer and local privacy protection regulations, separate copies of each survey will be administered using Microsoft Forms (Microsoft, 2023) platforms hosted at CBU and OSU. Raw data from the survey administrations will not be exchanged between researchers from CBU and OSU. However, aggregated results of the data analyses will be compared to identify differences between participants affiliated with the various cohorts.

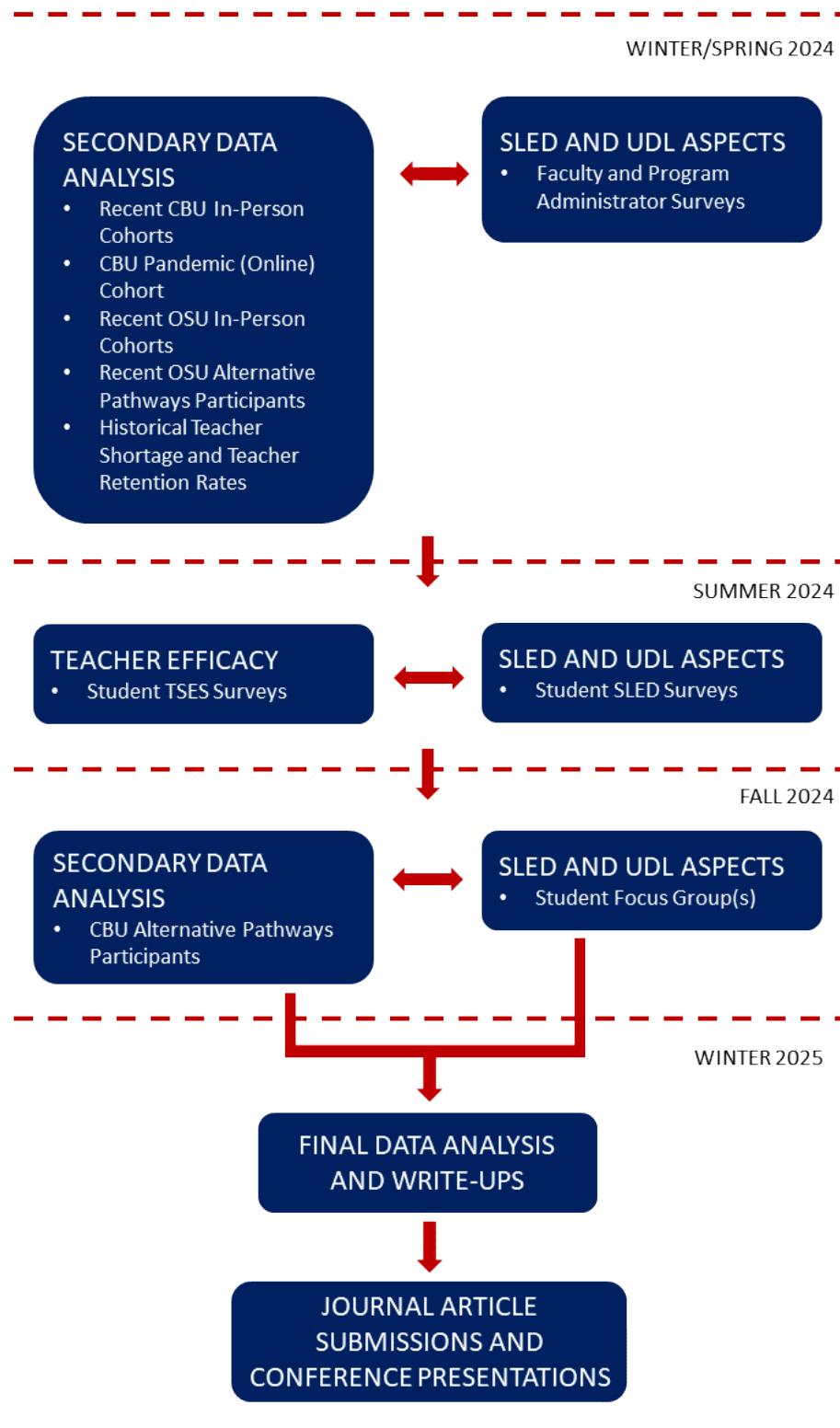
Dissemination of Results

The results of the research study will be prepared for publication as one or more journal articles, and potentially as submissions for conference presentations (anticipated Winter 2025).

Proposed Research Timelines

The phases and components of the proposed research study are presented in Figure 2.

Figure 2
Proposed Research Timelines



References

- Becker, S., Gereluk, D., Dressler, R. & Eaton, S. E. (2015). *Online Bachelor of Education Programs Offered in Colleges and Universities Throughout Canada, the United States, and Australia*. University of Calgary.
<http://hdl.handle.net/1880/50986>
- Cape Breton University (2023a, November 30). *Province of Nova Scotia Announces New Programs to Educate More Teachers at Cape Breton University*. <https://www.cbu.ca/newsroom/releases/province-of-nova-scotia-announces-new-programs-to-educate-more-teachers-at-cape-breton-university/>
- Cape Breton University (2023b). *Research Ethics Protocol Submissions*. <https://www.cbu.ca/research/research-ethics-animal-care/research-ethics-protocol-submissions/>
- CAST (2022a). *About universal design for learning*. <https://www.cast.org/impact/universal-design-for-learning-udl>
- CAST (2022b). *UDL Guidelines*. <https://udlguidelines.cast.org/>
- Garrison, D. R., Anderson, T., & Archer, W. (2000). Critical inquiry in a text-based environment: Computer conferencing in higher education model. *The Internet and Higher Education*, 2(2-3), 87-105.
http://cde.athabascau.ca/coi_site/documents/Garrison_Arden_Archer_Critical_Inquiry_model.pdf
- Government of Canada (2023). TCPS 2 (2022) – Chapter 5: Privacy and Confidentiality. *Panel on Research Ethics*.
https://ethics.gc.ca/eng/tcps2-eptc2_2022_chapter5-chapitre5.html#d
- Hambrock, H., de Villiers, F., Rusman, E., MacCallum, K., and Arrifin, S. A., (2020). *Seamless Learning in Higher Education: Perspectives of International Educators on its Curriculum and Implementation Potential* (Rob Power, Editor). [eBook]. International Association for Mobile Learning. ISBN: 978-1-7751408-1-8. <https://seamlesslearning.pressbooks.com/>
- Hambrock, H., de Villiers, F., Power, R., Koole, M., Ahmed, M., Ellis, W., Abd Karim, R., Kurubacak, G., El-Hussein, M., Ossiannilsson, E., Sharma, R., José Sousa, M., & Wollin, U. (2022). *Seamless Learning in Higher Education 2: Comparisons from International Educators of Changes During a Global Pandemic* (H. Hambrock, F. de Villiers, R. Power, and M. Koole, Eds). International Association for Mobile Learning and Power Learning Solutions. ISBN 978-1-9993825-6-8. <https://pressbooks.pub/seamlesslearning2/>
- Microsoft (2023). *Microsoft Forms*. <https://www.microsoft.com/en-ca/microsoft-365/online-surveys-polls-quizzes>
- Ohio State University (n.d.). *The Ohio State University Center on Education and Training for Employment*.
<https://ipti.osu.edu/>
- Ohio State University (2007, August 6). \$6.8 million project to help ensure high-quality alternate teacher licensure in 4 states. *Ohio State News*. <https://news.osu.edu/68-million-project-to-help-ensure-high-quality-alternate-teacher-licensure-in-4-states/>
- Power, R. & Kay, R. (2023). Higher Education Faculty Supports for the Transition to Online Teaching during the COVID-19 Pandemic. *Journal of Educational Informatics*, 4(1), 49-72.
<https://journalofeducationalinformatics.ca/index.php/JEI/article/view/191>
- Power, R., Kay, R., & Craig, C. (in review). Exploring the Effects of the Covid-19 Transition to Online Teaching on Higher Education Teaching Practices A Case-Study of Short and Long-Term Impacts. *International Journal of E-Learning & Distance Education*.

Pottie, R. (2023, December 1). Nova Scotia to offer new fast-tracked teacher training from Cape Breton University. *CBC News*. <https://www.cbc.ca/news/canada/nova-scotia/nova-scotia-to-offer-new-fast-tracked-teacher-training-from-cape-breton-university-1.7046820>

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001a). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education*, 17(7), 783-805.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001b). *Teacher's sense of efficacy scale*. Retrieved from <http://people.ehe.osu.edu/ahoy/files/2009/02/tses.pdf>

Webb, S., van Oostveen, R., Barber, W., Percival, J. & Childs, E. (2019). Co-creation of the digital space: Examining the use of web-based tools in Fully Online Learning Community (FOLC) environments. In J. Theo Bastiaens (Ed.), *Proceedings of EdMedia + Innovate Learning* (pp. 1237-1242). Amsterdam, Netherlands: Association for the Advancement of Computing in Education (AACE). <https://www.learntechlib.org/primary/p/210135/>

Zoom Video Communications (2023). *Zoom*. <https://zoom.us/>

Appendix 1

Teacher's Sense of Efficacy Scale Survey Questions

Include Informed Consent Statement (Appendix 4)

1. Do you consent to participate in this research survey? [Yes/No]

Demographic Questions

1. In which teacher preparation program are you participating? [Multiple-choice or drop-down]
 - Cape Breton University On-Campus (15-month) Program
 - Cape Breton University Online (8-month) Program
 - Intensive Pedagogical Training Institute (IPTI) Program
 - Alternative Resident Educator Institute (AREI) Program

TSES Questions

Teacher Beliefs	How much can you do?									
Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.										
	Nothing	Very Little	Some Influence	Quite A Bit	A Great Deal					
1. How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
2. How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
3. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
4. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
5. To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
6. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
7. How well can you respond to difficult questions from your students ?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
8. How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
9. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
10. How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
11. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
12. How much can you do to foster student creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
13. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
14. How much can you do to improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
15. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
16. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	

17. How much can you do to adjust your lessons to the proper level for individual students?	(1) (2) (3) (4) (5) (6) (7) (8) (9)
18. How much can you use a vARElty of assessment strategies?	(1) (2) (3) (4) (5) (6) (7) (8) (9)
19. How well can you keep a few problem students from ruining an entire lesson?	(1) (2) (3) (4) (5) (6) (7) (8) (9)
20. To what extent can you provide an alternative explanation or example when students are confused?	(1) (2) (3) (4) (5) (6) (7) (8) (9)
21. How well can you respond to defiant students?	(1) (2) (3) (4) (5) (6) (7) (8) (9)
22. How much can you assist families in helping their children do well in school?	(1) (2) (3) (4) (5) (6) (7) (8) (9)
23. How well can you implement alternative strategies in your classroom?	(1) (2) (3) (4) (5) (6) (7) (8) (9)
24. How well can you provide appropriate challenges for very capable students?	(1) (2) (3) (4) (5) (6) (7) (8) (9)

Directions for Scoring the Teachers' Sense of Efficacy Scale

Developers:

Megan Tschanne-Moran, College of William and Mary Anita Woolfolk Hoy, the Ohio State University.

Construct Validity

For information the construct validity of the Teachers' Sense of Teacher efficacy Scale, see:

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education*, 17, 783-805.

Factor Analysis

It is important to conduct a factor analysis to determine how your participants respond to the questions. We have consistently found three moderately correlated factors: *Efficacy in Student Engagement*, *Efficacy in Instructional Practices*, and *Efficacy in Classroom Management*, but at times the make up of the scales vAREls slightly. With preservice teachers we recommend that the full 24-item scale (or 12-item short form) be used, because the factor structure often is less distinct for these respondents.

Subscale Scores

To determine the *Efficacy in Student Engagement*, *Efficacy in Instructional Practices*, and *Efficacy in Classroom Management* subscale scores, we compute unweighted means of the items that load on each factor. Generally these groupings are:

Long Form

Efficacy in Student Engagement:

Items 1, 2, 4, 6, 9, 12, 14, 22

Efficacy in Instructional Strategies:

Items 7, 10, 11, 17, 18, 20, 23, 24

Efficacy in Classroom Management:

Items 3, 5, 8, 13, 15, 16, 19, 21

Reliabilities

In Tschanen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing and elusive construct. *Teaching and Teacher Education, 17*, 783-805, the following were found:

	Long Form			Short Form		
	Mean	SD	alpha	Mean	SD	alpha
OSTES	7.1	.94	.94	7.1	.98	.90
Engagement	7.3	1.1	.87	7.2	1.2	.81
Instruction	7.3	1.1	.91	7.3	1.2	.86
Management	6.7	1.1	.90	6.7	1.2	.86

SLED Questions

1. Why did you choose to apply to the teacher preparation program in which you are participating? [Open Response]
2. How has the format of your teacher preparation program benefited your access to your studies? [Open Response]
3. How has the format of your teacher preparation program benefited your access to a career in teaching? [Open Response]
4. What did you like most about the format of your teacher preparation program? [Open Response]
5. What challenges have you experienced while participating in your teacher preparation program? [Open Response]

Focus Group Sign-Up

1. Would you like to be contacted regarding potential participation in an upcoming focus group session? [Yes/No]

Follow-up Survey: Focus Group

Note – Secondary Survey hosted via Microsoft Forms. Data will not be linked to previous survey responses.

1. Your Name [Open Response]
2. Your Email Address [Open Response]

Appendix 2

Seamless Learning Education Design (SLED) Faculty and Program Administrator Questions

Include Informed Consent Statement (Appendix 6)

1. Do you consent to participate in this research survey? [Yes/No]

Demographic Questions

In which teacher preparation program are you working? [Multiple-choice or drop-down]

- Cape Breton University On-Campus (15-month) Program
- Cape Breton University Online (8-month) Program
- Intensive Pedagogical Training Institute (IPTI) Program
- Alternative Resident Educator Institute (AREI) Program

SLED Survey Questions

In relation to one course with which you are involved in the teacher preparation program, please indicate whether each aspect is present or absent from your course.

Seamless learning design criteria	Present	Absent
1. Core Concepts		
1.1 Alternative teaching and learning method		
1.2 Challenges and concerns		
1.3 Expert engagement		
1.4 Innovation		
1.5 Measurement of success		
1.6 Network with other students		
1.7 Scholarship		
2. Positive Concepts		
2.1 Student-centered approach		
2.2 Globalization		
2.3 Practical experience		
2.4 Preparation for future		
2.5 Real-time interaction		
2.6 Remote access		
2.7 Research opportunities		
3. Practical Concepts		
3.1 Data		
3.2 Devices and hardware		
3.3 Funding and cost		
3.4 Infrastructure		

3.5 Wi-Fi		
3.6 Policies		
3.7 Software		
3.8 Support		
3.9 Technology		
4. Human Concepts		
4.1 Skills set		
4.2 Time consuming		
4.3 Training		
4.4 Differences in norms and convictions		
4.5 Equality/ inclusivity		
4.6 Mindset		
4.7 Positive outlook		
5. Design Concepts		
5.1 Application of knowledge		
5.2 Assessment		
5.3 Curriculum and design		
5.4 Feasibility		
5.5 Implementation		
5.6 Learning strategies		

Appendix 3

Focus Group Questions

1. Why did you choose to apply to the teacher preparation program in which you are participating? [Open Response]
2. How has the format of your teacher preparation program benefited your access to your studies? [Open Response]
3. How has the format of your teacher preparation program benefited your access to a career in teaching? [Open Response]
4. What did you like most about the format of your teacher preparation program? [Open Response]
5. What challenges have you experienced while participating in your teacher preparation program? [Open Response]

Appendix 4

Informed Consent (Student Survey)

INFORMED CONSENT

The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates?

Research Purpose

The underlying question to be explored by this research is one of how alternative pathways to teacher preparation would impact the readiness of candidates to take on roles as teachers in K12 schools. This research aims to examine the impacts of the use of alternative pathways to teacher-preparation on the experiences of teacher candidates, as well as on the perceived needs of the local regulatory agencies that oversee teacher training programs. This will include exploring the accessibility, equity and seamlessness of the learning experiences, through the lenses of Universal Design for Learning (UDL) and the Seamless Learning Education Design (SLED) framework. It will also examine the impacts of the alternative pathway formats on the performances of candidates in achieving core program learning outcomes, on meeting local teacher supply demands, and on retention of qualified teachers within the K12 system. It will also examine the impacts of the alternative pathway formats on graduating candidates' perceptions of self-efficacy as teaching professionals.

Researchers

- Dr. Rob Power (Assistant Professor, Education, Cape Breton University).
- Dr. Dean Cristol (Associate Professor, Ohio State University)
- Dr. Belinda Gimbert (Associate Professor, Ohio State University)
- Dr. Helga Hambrock (Adjunct Professor/Educational Technology and Instructional Design Specialist, Concordia University, Chicago).

This study has been reviewed by the Cape Breton University Research Ethics Board [File # to be added] on [insert date].

RESEARCH DESCRIPTION

Eligibility Criteria

To participate in this study, you must be enrolled in studies in a teacher preparation program at either Cape Breton University, Ohio State University, or with the IPTI or AREI programs administered by Ohio State University.

What you will be asked to do as part of this research:

You will be asked to complete an online survey. At the end of the survey, you will be asked if you would like to be contacted for potential participation in an upcoming focus group session.

Notification of Research Results:

Final results of this research study will be submitted for publication as one or more journal articles and may also be submitted for presentation at educational technology-themed academic conferences.

Risks and Discomforts:

We do not foresee any risks associated with participation in the study. Your participation in this research study will not impact your participation in your teacher preparation program, or your grades on any course assignments.

Benefits of the Research and Benefits to You:

This research aims to examine the viability of alternative pathways to teacher preparation on meeting perceived needs for qualified teachers for K12 schools. It aims to answer questions about the ability of such programs to graduate competent teachers, as well as to meet the needs of potential teacher candidates who might not be able to pursue traditional, residency-based programs of study.

Voluntary Participation:

Your participation in the study is completely voluntary and you may choose to cease your participation in this research at any time before or during the data collection phases. To withdraw your participation from a survey as part of this research study, simply close your browser before completing the survey and your responses will not be recorded. Once a survey has been submitted, your responses cannot be withdrawn.

CONFIDENTIALITY

All information collected is anonymous and will only be used as part of research work being carried out by a researcher at Cape Breton University. All data collected will be stored in a secure location. Access to questionnaires will only be granted to the researchers listed above or assistants working directly for them. Data, when reported, will be in aggregate form. No personally identifiable information will be given out at any time.

Collection of Demographic Information

No personally identifiable demographic information will be collected as part of the main survey for research study. If you indicate your interest in being contacted about potential participation in an upcoming focus group session, your name and email contact information will be collected through a separate survey link. It will not be possible to connect this information to your previous survey responses.

Data Storage

All data will be stored on a password-protected external digital storage device (not connected to the Internet), which will be secured in a locked storage facility for a period of five (5) years after completion of the research. All data on the digital storage device will be deleted, and the device itself will be reformatted to prevent the recovery of deleted data.

In the unlikely event of a data breach, it will not be possible for personally identifiable information to be obtained through unauthorized access to data collected through the main initial survey.

Duty to Disclose

Please note that the researchers do have a "Duty to disclose" suspected abuse or neglect of a child or adult in need of protection. Under section 23(1), Nova Scotia Children and their Family, The Protection of Children and Adoption (1990) states that "Every person who has information, whether it is confidential or privileged, indicating that a child is in need of protective services shall forthwith report that information to an agency." Agency is defined as "an agency continued by or established and

incorporated pursuant to the act..." that is, Nova Scotia Department of Community Service Child Welfare. This may vary across provinces within Canada and different regions outside of Canada.

QUESTIONS ABOUT THE RESEARCH

If you have questions about the research study in general or about your role in the study, please feel free to contact:

Rob Power, EdD

Assistant Professor, Education, Cape Breton University, Rob_Power@cbu.ca

If you have any questions about your rights as a participant in this study, complaints, or adverse events, please contact:

- Jared Walters, Cape Breton University Research Administration Officer, Facilitation and Outreach at ethics@cbu.ca or (902) 563 – 3196
- Bishakha Mazumdar, Co-Chair, Cape Breton University Research Ethics Board at Bishakha_Mazumdar@cbu.ca
- Tracey Harris, Co-Chair, Cape Breton University Research Ethics Board at Tracey_Harris@cbu.ca or (902) 563 – 1328.

INFORMED CONSENT

By selecting "**I AGREE**," I acknowledge that I have been informed of the purpose of this research and agree to participate in this survey.

Note: Should you decide not to participate at this point, select "**I DO NOT WISH TO CONTINUE**," and this survey will end without recording any responses.

Note: By selecting "**I AGREE**," this form you do not give up any of your legal rights against the investigators, sponsor or involved institutions for compensation, nor does this form relieve the investigators, sponsor or involved institutions of their legal and professional responsibilities.

Appendix 5

Student Recruitment Email

Date to be sent: To be determined.

Sender: Dr. Rob Power

Target audience: Students registered in teacher preparation programs at CBU, OSU, IPTI, and AREI

Subject line: Optional Research Study: The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates?

Header: The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates?

Body:

This message is being sent on behalf of Dr. Rob Power (Cape Breton University School of Education and Health). You are invited to participate in an optional research study **The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates**. Participation is entirely voluntary and there is no obligation nor need to participate if you do not want to do so. Please direct inquiries to Dr. Rob Power (Rob.Power@cbu.ca).

Participation in this research study will include the completion of one survey, with the option to participate in an upcoming focus group session.

If you are interested in participating in this study, please access the survey at [Link to be Added].

Note – the full research project information letter and informed consent are available through this survey link and at [Link to be Added].

If you have any questions about your rights as a participant in this study, complaints, or adverse events, please contact:

- Jared Walters, Cape Breton University Research Administration Officer, Facilitation and Outreach at ethics@cbu.ca or (902) 563 – 3196
- Bishakha Mazumdar, Co-Chair, Cape Breton University Research Ethics Board at Bishakha.Mazumdar@cbu.ca
- Tracey Harris, Co-Chair, Cape Breton University Research Ethics Board at Tracey.Harris@cbu.ca or (902) 563 – 1328.

This study has been reviewed by the Cape Breton University Research Ethics Board [REB File # to be added] on [insert date].

Sincerely,
Dr. Rob Power
Assistant Professor, Education, Cape Breton University

Appendix 6

Informed Consent (Faculty and Program Administrator Survey)

INFORMED CONSENT

The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates?

Research Purpose

The underlying question to be explored by this research is one of how alternative pathways to teacher preparation would impact the readiness of candidates to take on roles as teachers in K12 schools. This research aims to examine the impacts of the use of alternative pathways to teacher-preparation on the experiences of teacher candidates, as well as on the perceived needs of the local regulatory agencies that oversee teacher training programs. This will include exploring the accessibility, equity and seamlessness of the learning experiences, through the lenses of Universal Design for Learning (UDL) and the Seamless Learning Education Design (SLED) framework. It will also examine the impacts of the alternative pathway formats on the performances of candidates in achieving core program learning outcomes, on meeting local teacher supply demands, and on retention of qualified teachers within the K12 system. It will also examine the impacts of the alternative pathway formats on graduating candidates' perceptions of self-efficacy as teaching professionals.

Researchers

- Dr. Rob Power (Assistant Professor, Education, Cape Breton University).
- Dr. Dean Cristol (Associate Professor, Ohio State University)
- Dr. Belinda Gimbert (Associate Professor, Ohio State University)
- Dr. Helga Hambrock (Adjunct Professor/Educational Technology and Instructional Design Specialist, Concordia University, Chicago).

This study has been reviewed by the Cape Breton University Research Ethics Board [File # to be added] on [insert date].

RESEARCH DESCRIPTION

Eligibility Criteria

To participate in this study, you must be a faculty member or program administrator involved with a teacher preparation program at either Cape Breton University, Ohio State University, or with the IPTI or AREI programs administered by Ohio State University.

What you will be asked to do as part of this research:

You will be asked to complete an online survey that explores the aspects of the Seamless Learning Education Design (SLED) framework exhibited by teacher preparation courses with which you are involved, or familiar.

Notification of Research Results:

Final results of this research study will be submitted for publication as one or more journal articles and may also be submitted for presentation at educational technology-themed academic conferences.

Risks and Discomforts:

We do not foresee any risks associated with participation in the study. Your participation in this research study will not impact your participation in your teacher preparation program, or your grades on any course assignments.

Benefits of the Research and Benefits to You:

This research aims to examine the viability of alternative pathways to teacher preparation on meeting perceived needs for qualified teachers for K12 schools. It aims to answer questions about the ability of such programs to graduate competent teachers, as well as to meet the needs of potential teacher candidates who might not be able to pursue traditional, residency-based programs of study.

Voluntary Participation:

Your participation in the study is completely voluntary and you may choose to cease your participation in this research at any time before or during the data collection phases. To withdraw your participation from a survey as part of this research study, simply close your browser before completing the survey and your responses will not be recorded. Once a survey has been submitted, your responses cannot be withdrawn.

CONFIDENTIALITY

All information collected is anonymous and will only be used as part of research work being carried out by a researcher at Cape Breton University. All data collected will be stored in a secure location. Access to questionnaires will only be granted to the researchers listed above or assistants working directly for them. Data, when reported, will be in aggregate form. No personally identifiable information will be given out at any time.

Collection of Demographic Information

No personally identifiable demographic information will be collected as part of this survey.

Data Storage

All data will be stored on a password-protected external digital storage device (not connected to the Internet), which will be secured in a locked storage facility for a period of five (5) years after completion of the research. All data on the digital storage device will be deleted, and the device itself will be reformatted to prevent the recovery of deleted data.

In the unlikely event of a data breach, it will not be possible for personally identifiable information to be obtained through unauthorized access to data collected through the main initial survey.

Duty to Disclose

Please note that the researchers do have a "Duty to disclose" suspected abuse or neglect of a child or adult in need of protection. Under section 23(1), Nova Scotia Children and their Family, The Protection of Children and Adoption (1990) states that "Every person who has information, whether it is confidential or privileged, indicating that a child is in need of protective services shall forthwith report that information to an agency." Agency is defined as "an agency continued by or established and incorporated pursuant to the act..." that is, Nova Scotia Department of Community Service Child Welfare. This may vary across provinces within Canada and different regions outside of Canada.

QUESTIONS ABOUT THE RESEARCH

If you have questions about the research study in general or about your role in the study, please feel free to contact:

Rob Power, EdD

Assistant Professor, Education, Cape Breton University, Rob_Power@cbu.ca

If you have any questions about your rights as a participant in this study, complaints, or adverse events, please contact:

- Jared Walters, Cape Breton University Research Administration Officer, Facilitation and Outreach at ethics@cbu.ca or (902) 563 – 3196
- Bishakha Mazumdar, Co-Chair, Cape Breton University Research Ethics Board at Bishakha_Mazumdar@cbu.ca
- Tracey Harris, Co-Chair, Cape Breton University Research Ethics Board at Tracey_Harris@cbu.ca or (902) 563 – 1328.

INFORMED CONSENT

By selecting “**I AGREE**,” I acknowledge that I have been informed of the purpose of this research and agree to participate in this survey.

Note: Should you decide not to participate at this point, select “**I DO NOT WISH TO CONTINUE**,” and this survey will end without recording any responses.

Note: By selecting “**I AGREE**,” this form you do not give up any of your legal rights against the investigators, sponsor or involved institutions for compensation, nor does this form relieve the investigators, sponsor or involved institutions of their legal and professional responsibilities.

Appendix 7

Faculty/Program Administrator Recruitment Email

Date to be sent: To be determined.

Sender: Dr. Rob Power

Target audience: Faculty and program administrators affiliated with teacher preparation programs at CBU, OSU, IPTI, and AREI

Subject line: Optional Research Study: The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates?

Header: The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates?

Body:

This message is being sent on behalf of Dr. Rob Power (Cape Breton University School of Education and Health). You are invited to participate in an optional research study **The Road Less Travelled: Where Could Alternative Pathways Take Teacher Candidates**. Participation is entirely voluntary and there is no obligation nor need to participate if you do not want to do so. Please direct inquiries to Dr. Rob Power (Rob_Power@cbu.ca).

Participation in this research study will include the completion of one survey.

If you are interested in participating in this study, please access the survey at [Link to be Added].

Note – the full research project information letter and informed consent are available through this survey link and at [Link to be Added].

If you have any questions about your rights as a participant in this study, complaints, or adverse events, please contact:

- Jared Walters, Cape Breton University Research Administration Officer, Facilitation and Outreach at ethics@cbu.ca or (902) 563 – 3196
- Bishakha Mazumdar, Co-Chair, Cape Breton University Research Ethics Board at Bishakha_Mazumdar@cbu.ca
- Tracey Harris, Co-Chair, Cape Breton University Research Ethics Board at Tracey_Harris@cbu.ca or (902) 563 – 1328.

This study has been reviewed by the Cape Breton University Research Ethics Board [REB File # to be added] on [insert date].

Sincerely,
Dr. Rob Power
Assistant Professor, Education, Cape Breton University

Appendix 8

Research Biographies

Dr. Rob Power

Assistant Professor, Education, Cape Breton University

Dr. Rob Power is currently an Assistant Professor of Education at Cape Breton University. He has an extensive background in educational technology integration and instructional design for online and blended learning in K12, post-secondary, and workplace training contexts. Dr. Power has worked as an instructional design consultant and as the Leader of the Online Learning team with the Fraser Health Authority in British Columbia, Canada. He has also served in leadership roles with the International Association for Mobile Learning (IAmLearn) and the Canadian Network for Innovation in Education (CNIE). Dr. Power is also a founding member of the Pedagogy, Education and Technology Lab (PETL) and the International Research Network for Innovative Sustainable and Seamless Learning (IRN-ISSE), and president of Power Learning Solutions.

Dr. Dean Cristol

Associate Professor, Education, Ohio State University, USA

Dr. Dean Cristol is an Associate Professor of Education. He is a Member of the Executive Committee for the International Association for Mobile Learning and an Associate Editor for the Theory Into Practice Journal.

His recent publications include “What it means to be a citizen in the internet age: Development of a reliable and valid digital citizenship scale”, Computers and Education (2017); “Evaluate and Optimize Learning Professional Development”, International Review of Research in Open and Distributed Learning (2016). “Mobile technology in K-12 environments”, Chapter in Handbook of Mobile Teaching and Learning, (Springer 2015); “Academic Achievement in BYOD Classrooms”, Journal of Applied Learning Technology, (2014).

Dr. Belinda Gimbert

Associate Professor, Education, Ohio State University, USA

Belinda Gimbert, PhD, is an associate professor, Educational Administration, Department of Educational Studies, The Ohio State University. Her research addresses strategic management of human resources in chronically, low performing and hard to staff urban and rural school systems. Gimbert teaches course related to strategic management of human capital/talent management, introduction to educational administration, and K-12 supervision. She taught mathematics and computing science for fifteen years in secondary schools (Grades 7-12) in rural New South Wales, Australia and administered in Human Resources and Staff Development with Newport News Public Schools, VA. Dr. Gimbert led Project KNOTTtT (2007-2013) that hired and retained about 560 new teachers. She was the principal investigator for Mobilizing National Educator Talent (2011-2017), a partnership of colleges/universities and school districts in 12 states, The District of Columbia and Puerto Rico that transitioned 1,656 teachers to full state certification, while addressing the national issue of teacher quality. Currently, Dr. Gimbert is the project director/PI for two national project, Educators and Families for English Language Learners (2017-2022) and Helping English Learners and Partners Excel with Research-based Practices and Support (2021-2026) that partner with public and charter schools in The District of Columbia, Columbus City

Schools (OH), NOBLE Academy (OH), the Harris County Department of Education (TX), and University of Puerto Rico, Mayaguez and is sponsored by U.S. ED's Office of English Language Acquisition.

Dr. Helga Hambrock

Adjunct Professor, Education/Senior Instructional Designer, Concordia University Chicago, USA

Dr. Helga Hambrock is an Adjunct Professor of Educational Technology and Instructional Design for Masters and PhD students. She also works as a Senior Instructional Designer at the Concordia University in Chicago. She serves as chair for PhD committees as well as reviewer and external examiner for international universities. Her passion lies in the improvement of education by utilizing technologies and methodologies, with a specific focus on mobile and seamless learning. During the year of completing her PhD studies in South Africa in 2016, on the use of smartphones by students in and out of class, she moved to the USA and settled in Chicago. Over the past years her interest in global collaboration has grown to address common challenges and to find common solutions in the field of education. She joined the International Association for Mobile learning (IAmLearn) in 2016 and was on the EXCO as member at large for two years and as Vice President from 2018 to 2020. Dr. Hambrock initiated the first Global Research Project for IAmLearn in 2018 and subsequently the first book was published in 2020. Over the past years, she presented papers at numerous conferences, lead conference workshops and published articles and book chapters. She also received several invitations to present at international conferences as keynote speaker. A book published by IGI where she contributed a chapter, was selected as part of a collection for eLearning resources for all USA schools. She received a Global Outreach Award for initiating Micro-learning training for Early Childhood Centre caregivers in Southern Africa in 2019. Her latest project is leading the publication of this e-book with researchers from 12 countries. Besides her passion to contribute to the improvement of education for the greater good she also enjoys spending time traveling and visiting her children and recent grandchild in South Africa and Ethiopia.