

Indigenous University Student Persistence: Supports, Obstacles, and Recommendations

Patrick Walton

Thompson Rivers University

Kristen Hamilton

Thompson Rivers University

Natalie Clark

Thompson Rivers University

Michelle Pidgeon

Simon Fraser University

Mike Arnouse

Thompson Rivers University

Abstract

The tumultuous history of Indigenous education in Canada has negatively affected the persistence of Indigenous peoples at university. The research goals of this study were to identify the key supports and obstacles related to Indigenous university student persistence and to make recommendations as to how to improve levels of persistence. Combining interview, survey, and database information with 527 Indigenous students revealed that the strongest factors related to persistence were (a) social engagement, including good relationships with faculty and students, and support services provided by the Indigenous gathering place for Indigenous students on campus; (b) cognitive, such as academic support at university, learning effectively on their own, and hands-on teaching; (c) physical, including insufficient financial support and availability of affordable housing and child care; and (d) cultural, including connections with Indigenous faculty and culture. Age, home location, and parental education were not found to be related to persistence.

Keywords: Indigenous, Aboriginal, persistence, university, graduation, Indigenous student experience, Canada

Résumé

L'histoire tumultueuse de l'éducation des Autochtones au Canada a eu un impact négatif sur la persistance des populations autochtones à l'université. Cette recherche avait pour but d'identifier les principaux soutiens et obstacles liés à la persévérance des étudiants autochtones à l'université et de formuler des recommandations. Des entretiens, des enquêtes et des bases de données convergentes de 527 étudiants autochtones révèlent que les facteurs les plus importants liés à la persévérance sont : a) sociaux – notamment les bonnes relations avec le corps enseignant et les étudiants ainsi que les services fournis par le lieu de rassemblement des Autochtones sur le campus ; b) cognitifs – comme le soutien scolaire à l'université, l'apprentissage efficace personnel et l'enseignement pratique ; c) physiques – dont l'insuffisance de soutien financier, de logement abordable et de services de garde d'enfants ; et d) culturels – principalement en lien avec le nombre d'enseignants autochtones et la

culture. L'âge, le lieu de résidence et le niveau d'éducation des parents ne semblent pas associés à la persistance.

Mots-clés : autochtones, premières nations, persistance, université, diplomation, expérience des étudiants autochtones, Canada

Acknowledgements

We would like to thank Nathan Matthew and Dorys Crespín-Mueller from Thompson Rivers University for their assistance and support. This research was also supported by a grant from Thompson Rivers University.

Introduction

There are more Indigenous students going to university now and we fought for a long time to get that. We fought to get Grade 3, then Grade 7, and we got high school in 1951.

(M. Arnouse, Indigenous Elder, personal communication, May 11, 2009)

Indigenous education in Canada has a long and tumultuous history stemming from decades of colonialism and residential schooling that included mandatory school-leaving ages (Battiste, 2013; Battiste & Barman, 1995; Royal Commission on Aboriginal Peoples, 1996; Toulouse, 2017; Truth and Reconciliation Commission of Canada, 2015). This history affected the post-secondary aspirations and experiences of Indigenous peoples. Battiste (2000) concluded that the residential school system's attempts to destroy Indigenous culture resulted in widespread upheaval in Indigenous communities and reduced university attendance. The 2011 National Household Survey found that only 9.8% of Indigenous respondents had completed a university degree, compared to 26.5% for the general population (Statistics Canada, 2013). Only 3% of all students who completed a bachelor's degree in British Columbia in the 2013–2014 academic year were Aboriginal (Heslop, 2015). A 2015 report from the Office of the Auditor General of British Columbia observed that there continues to be “persistent and significant gaps in many school districts for certain groups of students, including First Nations students living on reserve, and Aboriginal children in care” (Bellringer, 2015, p. 5).

Shaienks and colleagues (2008) examined data from the national Youth in Transition Survey and found that Indigenous students had a significantly lower university participation rate (17%) and higher dropout rates (30% university, 31% college) than non-Indigenous students, who had a 41% participation rate, and lower dropout rates (17% for university, 25% for college). Universities and Indigenous communities could be better informed on how to address these inequalities once the key factors related to Indigenous university student persistence are identified. The research presented here attempts to address the educational inequalities historically faced by Indigenous students in the context of the Truth and Reconciliation Commission of Canada (2015), especially Call to Action

10, which addresses improving education attainment levels and success rates, and developing culturally appropriate curricula.

Indigenous Student Persistence

Persistence has been studied extensively in higher education, and while Tinto's model of student persistence is seen as foundational, there are other models that help to explore the factors surrounding student persistence (e.g., Melguizo, 2011). In his *Theory of Student Persistence*, Tinto (1975, 2006, 2010) proposed that academic and social integration were highly related to university graduation. With increasing diversity in post-secondary education student populations, current persistence models now need to encompass not only the individual student (e.g., gender, race, socio-economic status, sexuality, aspirations, motivation) but also systemic and societal factors (Braxton, 2000; Braxton & McClen- don, 2002; Melguizo, 2011). Recent models of persistence demonstrate a more holistic view of Indigenous student experience and use more diverse methodologies to understand persistence (Braxton, 2000; Melguizo, 2011; Pidgeon, 2008; Whitley, 2014).

Tinto's model was critiqued as assimilationist (e.g., Pidgeon, 2008). Students who left university were seen by Tinto as having academic and social deficits that worked against integrating into the university environment. The onus to change was on the individual, not on the institution. Tinto's model was examined with American Indian university students (Belgarde & Loré, 2004; HeavyRunner, 2009; HeavyRunner & DeCelles, 2002; HeavyRunner & Marshall, 2003; Pavel, 1991, 1999). While their findings supported Tinto's model to a degree, these researchers also identified key supports such as Indigenous social interactions and ceremonies that were not included in his model.

Indigenous Post-Secondary Experiences

In Canada and globally, there are calls for a new model for understanding Indigenous university persistence, one that includes the culture and experiences of Indigenous students (Archibald et al., 1995; Grayson & Grayson, 2003; Hare & Pidgeon, 2011; Larimore & McClellan, 2005; Malatest & Associates Ltd., 2002, 2004, 2010; Mendelson, 2006; National Indian Education Association, n.d.; Parkin & Baldwin, 2009; Pidgeon,

2008, 2016; Rendón et al., 2000; Schwartz & Ball, 2001; Shotton et al., 2013; Toulouse, 2017). Kirkness and Barnhardt (1991) made a key contribution by articulating the 4-Rs of effective Indigenous educational experiences (respect, relevance, reciprocity, and responsibility) and reframing the challenges of Indigenous post-secondary achievement. They argued that Indigenous students need an educational system that respects them for who they are and is relevant to their worldview. In one of the first large studies of Indigenous student experience, Archibald and colleagues (1995) listened to the stories of 100 Indigenous graduates from colleges and universities in the lower mainland of British Columbia and found that finances, family responsibilities, and racism were significant obstacles to staying in university, and that cultural connections with the Indigenous community were key supports.

Several researchers have studied persistence from culturally appropriate frames for Indigenous students (HeavyRunner, 2009; HeavyRunner & DeCelles, 2002; Huffman, 2008; Larimore & McClellan, 2005; National Indian Education Association, n.d.; Pidgeon, 2008; Shotton et al., 2013). The Family Education Model emphasizes recognizing the cultural experiences that Native American students bring and how these cultural ways of being are often not supported by the institutions they attend (HeavyRunner & DeCelles, 2002). Pidgeon (2008, 2016) and others (e.g., Shotton et al., 2013) demonstrated that Indigenous students' persistence was challenged when programs did not reflect Indigenous ways of knowing, were not relevant to Indigenous students, or when students experienced racism in their classrooms or on campus.

Many Indigenous university students come from small reserves in rural areas, while others are from urban settings. Students from rural areas experience not only the transition from high school to university, but often the cultural shock of moving to a city, both of which can affect their post-secondary education experience (Barnhardt, 2000; Bomberry, 2013; Hare & Pidgeon, 2011; Royal Commission on Aboriginal Peoples, 1996; Ryan, 1995). Pidgeon (2008) and Schwartz and Ball (2001) interviewed Indigenous students, and, similar to Archibald et al. (1995), found that support in the forms of finances, child care, access to elders, and Indigenous student services and other programs were supports for persistence. Those findings showed that being away from support networks and cultural ceremonies could negatively affect the persistence of Indigenous students who relocated.

Mile Arnouse is a Secwepemc elder from a local Indigenous community. As we reflected on themes to organize our research, the elder focused on the importance of a holistic four-component model of a person, including aspects that are social, cognitive, physical, and cultural. He described this model as an ancient way of life that many are trying to revive. One participating Indigenous student said in the interview, “If I don’t do what’s within my medicine wheel, my mental, physical, emotional, spiritual side, I will totally do a meltdown” (student E). Key topics on persistence found in the current study could effectively be organized around this four-component Indigenous human model, and the survey created for the research had several items related to each of the four (social, cognitive, physical, and cultural) components (see Appendices A and B).

Context of the Study

Ethical practices consistent with research with Indigenous peoples (Interagency Advisory Panel on Research Ethics, 2014) recommend involving local Indigenous communities at the start of the proposed research. In our case, a university Indigenous advisory committee requested the research. The advisory committee included representatives from local Indigenous communities and Indigenous faculty, staff, and students. The findings were shared with the communities and the university.

This study investigated the factors related to the persistence of Indigenous students ($N = 527$) at two universities in Western Canada; one mid-sized university in a small city and a second large university in a large urban setting. The Indigenous Advisory Committee at one participating university sought to increase the persistence of Indigenous university students, and their first step was a request to identify the key obstacles and supports to persistence. We drew on principles of Indigenous research methodology (e.g., Archibald, 2008; Kovach, 2009; Smith, 2012; Wilson, 2008) and followed ethical practices consistent with research with Indigenous peoples (Interagency Advisory Panel on Research Ethics, 2014). The research questions were:

1. What will Indigenous students, faculty, and staff report as supports and obstacles related to persistence at university?
2. Will gender, home location, age, parent education, or student engagement be related to Indigenous persistence or grade point average?

3. What recommendations will Indigenous students, support staff, and faculty make to increase persistence at university?

Research Methods

In total, 527 Indigenous students participated in the five-year study. The researchers (a) heard the university experience stories of 60 Indigenous students (via interviews) who also completed a survey on university persistence; (b) held a talking circle with 15 students and four staff and faculty; and (c) examined institutional data for 429 Indigenous students, 66 of whom also completed the National Student Survey of Engagement (NSSE). This convergent mixed-methods research design provided a wide range and depth of information, and allowed us to identify converging quantitative and qualitative findings (Privitera & Ahlgrim-Dezell, 2019; Teddle & Tashakkori, 2009). Table 1 shows the research methods and sample sizes in the study.

Table 1. Research methods and sample sizes

<p>Talking Circle ($N = 21$, 15 students, 2 staff, 2 faculty, 2 elders). Participants talked about supports and obstacles related to persistence at university, and made recommendations.</p> <p>Interviews and Indigenous Persistence Survey ($N = 60$). Students at two universities, 30 from each, were asked to tell us the story of how they came to be university students, identify supports and obstacles related to graduation, and make recommendations. They also completed a survey on Indigenous persistence created for the project.</p> <p>Institutional Data ($N = 429$). Anonymized data on graduation, age, gender, university GPA, and home location (rural or urban) of all Indigenous students at one university were collected.</p> <p>National Survey of Student Engagement ($N = 66$). A subsample of the students in the institutional database also completed the NSSE survey, which assesses student engagement at university.</p>

Indigenous Student Participants

Talking circle. Talking circles and interviews were held to hear the students' stories and understand Indigenous student persistence in depth. Talking circles honour many

principles that respect Indigenous methodology and cultural protocol (Kovach, 2009; Wilson, 2008). For our process, everyone was seated in a circle. One of the elders opened the talking circle with a prayer in the Secwepemctsin language, followed by an English translation. The elder said that we had fought for years to have Indigenous students attend university, and now we needed to improve the graduation rates for Indigenous students. Everyone in the circle introduced themselves in a clockwise direction, said what community they were from, and often gave the surname of their parents.

The talking circle was held with 15 current Indigenous students, four Indigenous university support staff and faculty, two elders, and two Indigenous research assistants. Notes were taken by a research assistant during the session. Participants were asked four open-ended questions on the topic of university persistence, and an open discussion followed each question. The four questions asked were: (1) Is there a need for more academic support at the university? (2) Are relationships with faculty and students important? (3) What non-academic issues are important for persistence? and (4) How could Indigenous students who left university before completing their programs be encouraged to return?

Student interviews. Stories are a core component of Indigenous ways of knowing (Archibald, 2008), and the Indigenous students' stories helped us to understand the complexity of graduation and persistence issues. The interview questions were developed from findings from the analyses of the university databases, the review of the literature, and student feedback from the pilot survey and the talking circle. The survey was piloted with 10 Indigenous students and revised based on their feedback. (See Appendices A and B for the interview and survey questions.)

The interviews were conducted in the second semester of the university term (February to April) with Indigenous students who had successfully completed at least one semester. Efforts were made to recruit students for the study who had left the university, but none chose to participate in the interviews. The majority of the Indigenous students (57 of 60) consented to have the interviews videotaped and transcripts were prepared from the videotapes. A discourse analysis was conducted with the videotapes and transcripts to identify themes across the interviews.

Survey on Indigenous university student persistence. A survey on Indigenous university persistence was created for the study as there was no existing survey that

covered the range of topics identified by the Indigenous students in our talking circle and the research literature (e.g., financial issues, cultural topics). Based on the four-component Indigenous human framework presented earlier (social, cognitive, cultural, physical), the survey also included several items that examined topics from each of the components. Students completed the 17-item Likert style survey immediately following the interview (see Appendix B).

Institutional data. The Institutional Research Office of the mid-sized university in the interior provided the research team with data from a five-year time frame (2004–2009) for all 430 Indigenous students who were enrolled in Baccalaureate of Arts programs. The five-year time frame was set to allow a time range for students to complete their program, recognizing that many students take longer than this time frame to complete their studies. The sample included all students who self-identified as Indigenous (First Nations, Métis, Inuit) on any university admission form.

Thirty-seven percent of Indigenous students in the institutional data sample stayed to complete their programs and graduate; for the purposes of this article, they are referred to as the Retained Group. Nine percent left and then later returned to university and this was the Returned Group. Fifty-four percent (231 of 429) left the university before completing their programs and did not return; we refer to this as the Gone Group. It is important to acknowledge that while this particular group left the institution, they may have gone on to other institutions or extended their period of stepping away from their studies. However, students in the Gone Group had a comparatively low GPA (i.e., $M = 1.47$), making it unlikely that they transferred to another university. Most of the students who left did so in their first year, and did not return to the university within the five-year span of the project. The comparable university leaving rate for non-Indigenous students was 34%, which is 20 percentage points less than the Indigenous leaving rate (Institutional Planning and Analysis, 2009).

The university data included information on program completion, age, gender, university grade point average (GPA), and home location (rural or urban). The 429 Indigenous students in this dataset were an average age of 22.75 years ($SD = 7.08$). There were 305 women in the sample (average age = 22.7 years, $SD = 7.07$) and 125 men (average age = 22.9 years, $SD = 7.14$). Home location was classified as either rural or urban based on the postal code of the application form to the university, and home location

information was available for 412 Indigenous students. Communities with a population of 85,000 or more were considered urban, while smaller communities were defined as rural. GPA was calculated as the average of all the university courses the student had taken as part of their BA degree.

National Survey of Student Engagement (NSSE). Many Canadian universities administer the National Survey of Student Engagement (NSSE) every three years to all university students in years one and four to assess academic and social engagement. The NSSE also asks students for the education level of their parents. The current study used these survey results from 2008 to 2010. Of the 429 Indigenous students in the institutional database sample, 66 had also completed the NSSE. The average age of the NSSE subgroup was 20.76 years ($SD = 5.52$) and included 48 females and 19 males. The NSSE had 85 questions grouped into five Benchmarks, which were further divided into 12 Scaletts. Students completed the survey over the internet. Copies of the Canadian NSSE survey are available from http://nsse.indiana.edu/html/survey_instruments.cfm.

Findings

Learnings from the Talking Circles and Students' Interviews

The interviews and talking circles provided an overview of the factors related to Indigenous university persistence and this section summarizes those findings. Convergence of the findings with the surveys and institutional database results are presented later.

Relationships with faculty. Every Indigenous student in the interviews and talking circles indicated that relationships with faculty were key factors to their success at university. Many Indigenous students sought out faculty for assistance and so initiated relationships with faculty. Several students suggested having more opportunities to get to know faculty socially, such as a “meet and greet,” and outreach practices where Indigenous staff and faculty could meet Indigenous students.

In the talking circles, all students supported the idea that good relationships with faculty were very important. One student said that it is important that the focus is not only

on the student coming to the instructor for assistance, but that the instructor reach out to students as “students are forgetting how to ask for help” (Interviewee S). Many participants were confident when communicating with faculty and one female student commented, “I usually have a good relationship with them [faculty]. I’m good at talking to them” (Interviewee C). Another student said, “I get along with my professors quite well. They’re quite available through internet, you know, through email and through phone” (Interviewee M).

The tension between the practices of the university and Indigenous students’ cultural teachings were evident in many narratives. One female interviewee said that as a child, she was taught to watch and listen and do the best she could. She explained, “I was raised up believing that you don’t ask for help, you do it yourself, to the best of your ability” (Interviewee C), which runs counter to universities expecting students to ask for help when they need it. Other participants shared stories that showed building relationships with faculty can be challenging for cultural or personality reasons.

The importance of relationships to Indigenous students was evident in the narrative of Interviewee C. Being supported by Indigenous student services staff, she reconnected with a faculty member whose course she had failed twice. This reconnection and support from both the staff and faculty member were instrumental to her return and completion of the course. The faculty member remembered the research paper she had submitted for the course previously, which positively impressed the student. “I thought, well how many papers has he done since then?” (Interviewee C). Another student, who also provided child care for a grandchild with a severe medical issue, identified the key role of her reaching out to her instructors, and their responses to her. Her instructor told her that “I’m here to see you succeed, not to see you fail” and “I’ll do whatever it takes to help you” (Interviewee A). Several students reported that small class sizes helped to build relationships with faculty and said, “...they could help us a lot more. I found it just so much more comfortable. It wasn’t so intimidating” (Interviewee N).

Another interview participant suggested that faculty could be more proactive in supporting Indigenous students. “A lot of the students here are quite shy so...you need to have someone who’s proactive go out there and find them. You know, because not everyone is going to come to an office and ask for help, right?” (Interviewee M). This was echoed by one of the male students, who said that he is shy as well but felt “it’s on the students” to build the relationships with faculty (Interviewee F). These conversations

provided insight into the principle that reciprocal relationships (Kirkness & Barnhardt, 1991) were important to many Indigenous students.

More Indigenous faculty. One interview participant stated that, “there are some Indigenous profs that I’m aware of that are very good and it’s because of the Indigenous profs that I would stay for my fourth year, and some of the Indigenous students” (Interviewee K). Another male student said that more Indigenous teachers “would help me in my learning because it would make me feel comfortable. It would set my mind that he’s done it and I could do it too” (Interviewee J). Another student shared, “I would have liked to have a friendly face my first year here. It was pretty lonely” (Interviewee D). Throughout the interviews and talking circle it was evident that creating a sense of family or collaboration with students and faculty were key supports for Indigenous students.

Culturally relevant curriculum, pedagogy, and support services. In connection to having more Indigenous faculty, participants placed value on having readings, activities, and assignments that were relevant to them. This may mean having a more experiential and hands-on application of theory to practice, having more small group discussions rather than a lecture style, and also having readings that are inclusive of Indigenous perspectives, authors, and researchers.

An Indigenous centre at the university was designed as a support, meeting, and studying space for Indigenous students. The centre has three full-time Indigenous staff who provide support with registration, housing, and tutoring, and also organize Indigenous social and cultural events (e.g., weekly student soup lunch). The Indigenous support staff were recognized in all student interviews for their effective role in supporting Indigenous students. Students recommended providing more services at the centre and expanding the physical space. These findings were consistent with research by Archibald et al. (1995) and Schwartz and Ball (2001).

Many talking circle participants responded that they needed more academic support, mostly with writing papers and with mathematics. Several indicated that they did not know where to go to get this assistance. One student described how challenging it was to find academic tutoring, saying, “I think I got it too late” (Interviewee D). A student returning to school, after working several years in the trades, stated how difficult it was to find a tutor. The request for tutoring was echoed by a student with a learning disability,

who was also a single mother. She described the multiple challenges of going to university with her low reading level, having no access to a computer, needing academic tutoring, and having limited finances for child care.

Many interviewees commented on the importance of “taking care of the spiritual, emotional, physical, and mental parts of your being” (Interviewee N). This suggestion was linked to the key role that elders played at the university, as well as having more Indigenous ceremonies and activities. Indigenous students also spoke of the need for non-Indigenous students and faculty to learn more about Indigenous culture to enhance cultural safety and awareness on campus.

Challenges of financial stress, housing, child care, and racism. All of the interviewees and talking circle participants indicated that financial stress was a key obstacle to completing their university programs. One interview participant said, “I almost left because of financial reasons...I hardly have enough for parking” (Interviewee K). Another male interviewee reported that he is supporting five children: “...so when I was worrying about what my kids would take for lunch, I don’t care about a final exam” (Interviewee N).

Housing, child care, and food were very expensive, and difficulties in paying for these created stress for Indigenous students. Several students indicated that the shortage of affordable housing in the city and on campus resulted in a slow start at the university in September. Furthermore, housing deposits were typically due weeks prior to the start of a semester, but some students’ band funding was not released until the first day of classes. One talking circle participant said that he waited four years on a waitlist with the Native housing society, even though he was told that he was given priority as a single parent. Two other talking circle participants felt that racism was the reason they were denied rentals. Many students from rural communities did not know that affordable housing in the city is especially difficult to find at the start of the university semester, and so they had to focus their efforts in the first week of university on finding housing and moving rather than on academics.

Every female Indigenous student with children reported that the lack of affordable child care was a significant obstacle to completing their programs. Child care was an issue for one talking circle student who had to drop out one semester because she did not have child care, and often her baby sitter did not show up. Also, the waitlist for the

on-campus daycare centre is two years. One student suggested that creating on-campus housing and child care "...would be like our own little rez on campus" (Interviewee F).

Cultural integrity versus cultural discontinuity. Many interview students indicated that persistence in the face of obstacles was important in competing their programs. "I'd like to give up. There's many times I've wanted to but it depends on how bad a person wants something. Anything can be overcome" (Interviewee A). A similar attitude was expressed by another female interviewee who graduated with two degrees in spite of struggling with child care support, finances, and the need for tutoring: "I had to work really hard to get really good grades so I could get scholarships to pay for my course and tuition. I had to live off the bare minimum for food and rent but it made me push harder" (Interviewee S). Another talking circle participant spoke of the need to get out of the "poverty mindset" in order to be successful. She stated, "As natives we tend to get into poverty consciousness, getting stuck in it. Move beyond this thinking. We didn't have poverty consciousness before DIA [Department of Indian Affairs] got involved."

It's not the rez: Cultural discontinuity. The transition from K-12 to post-secondary was daunting for many of these students. Several spoke about the discontinuity and adjustments needed when moving from a rural community to an urban setting. One student shared that "I came from Bella Coola and we don't have stop lights, we don't have fast food places, we don't have a mall, we don't have like a wildlife park or anything. I've never seen an animal in a cage before and so when we moved here it was like a big shock" (Interviewee K). Another student said that he quit university "because it's not the rez" (Interviewee G), a statement that says a great deal about the cultural differences. Also, several students said that they did not know how to find support services in the city, which were easier to access on their small reserves. The cultural discontinuity between the city, the university, and the home community was a significant obstacle to persistence for many Indigenous students.

The talking circles and interviews provided an overview of the factors related to student persistence. The following section presents the findings from the quantitative analyses of the institutional data, the persistence survey created for the study, and the NSSE student engagement survey. A synthesis of these findings is presented in the last section.

Will Gender, Home Location, or Age Be Related to Graduation or GPA?

The data from the institutional databases of the mid-sized university were used to answer the first research question restated in the heading above. All students who self-reported as Indigenous over a five-year time span were included in the anonymized sample ($N = 429$). Gender was included as a factor so that we could examine any differences between the university experiences of the men and women. The institutional database contained postal code information and this allowed for an examination of the effect of the transition from small rural areas to mid-sized or large urban centres on persistence (Hare & Pidgeon, 2011). Age was a potentially important factor, as it could be related to increased family and financial responsibilities, which are potential obstacles to persistence. Based on previous research (see Pascarella & Terenzini, 2005), academic performance at university could be related to persistence, and so GPA was included in the analyses. The information was available from the university through the use of ethics-approved anonymized data. There were 304 Indigenous female students and 125 males in the database; 149 came from rural homes and 262 from urban homes; 161 students graduated over the course of the five-year study, and 268 did not (54%).

A correlation analysis (Spearman rho) was used to identify the statistically significant connections among the demographic factors. Table 2 presents the correlations between the demographic factors of age, gender, and home location, as well as GPA and persistence (graduation). As can be seen in Table 2, the demographic factors of age, gender, or home location were not related to persistence. Gender was only slightly related to GPA, and further analysis found that females ($M = 2.00$, $SD = 1.00$) had a significantly higher average GPA than males ($M = 1.73$, $SD = 1.00$), $t(427) = 2.59$, $p < .01$, partial $\mu^2 = .02$. Overall, age and home location were not related to persistence or GPA.

The finding that home location was not related to persistence or GPA ran counter to the stories we heard from Indigenous students, many of whom spoke about the challenges related to moving from a small Indigenous reserve to a large university in an urban centre. Note that GPA was highly correlated with persistence, and this relationship is examined in later analyses.

Table 2. Correlations between age, gender, home, GPA, and persistence ($N = 429$)

Factor	1	2	3	4
1. Age	-			
2. Gender	.03	-		
3. Home Location	.06	-.04	-	
4. GPA	.07	-.12*	.02	-
5. Persistence	-.05	.07	.01	.53**

* $p < .01$, ** $p < .01$

Will parent education be related to graduation or GPA? The education levels of the parents of the 65 students who completed the parent education item from the NSSE survey are shown in Figure 3. About 20% of the parents of Indigenous students had university degrees. The education levels of their fathers and mothers differed for most students, so separate ANOVAs for the education level of the fathers and mothers were conducted. Education levels were assigned to one of four groups (No High School, High School Completion, Some College or University, and University Degree) in order to have large enough groups to do comparative analysis. The parent education levels before assigning the groups are presented in Figure 1.

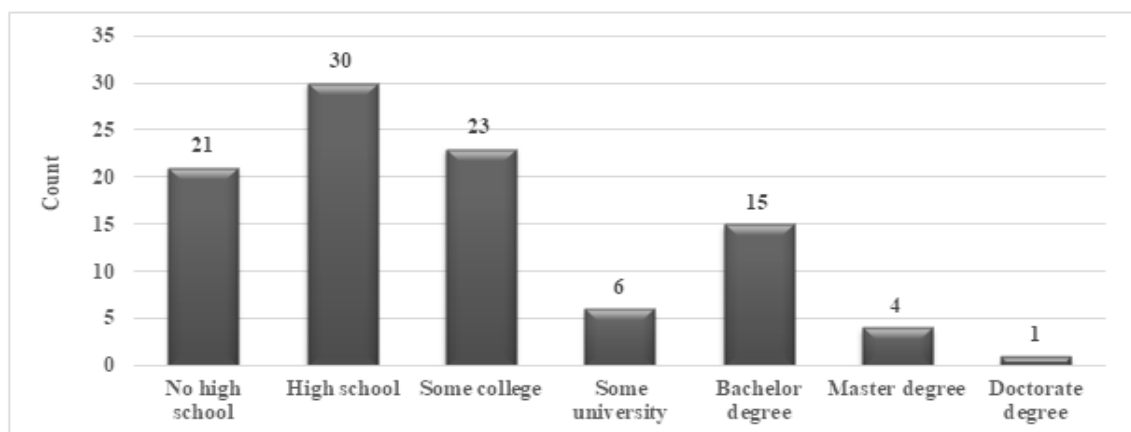


Figure 1. Parent education level of Indigenous students ($N = 65$)

Separate ANOVAs were conducted with the father's or mother's education level as the grouping variable and student GPA as the outcome. The father's education level was not related to their child's GPA ($F 1, 60 = 1.51$, $p = .22$, Partial $\mu^2 = .07$) and neither

was the education level of the mother ($F(1, 61) = 1.73, p = .17$, partial $\mu^2 = .08$). The education level of the parents was not related to their child's GPA at university.

To examine if parent education level predicted the university persistence of their children, separate X^2 analyses were conducted with father and mother parental education levels. The same educational level groups were used as for the ANOVA analyses and, once again, father education level did not differ significantly across the groups ($X^2 = 0.71, p = .87$) and neither did mother education level ($X^2 = 2.07, p = .56$).

In summary, Indigenous parent education did not predict persistence at university or affect the GPA of their children.

Will student engagement predict graduation or GPA? The NSSE was sent out randomly at the mid-sized university to all baccalaureate students during the study. From our institutional Indigenous database of 429 students, 66 also completed the NSSE survey. This allowed for analyses to identify the key student engagement factors related to persistence or GPA. The NSSE had 85 items organized within five subscales (benchmarks) but other research with the NSSE did not replicate the subscales (e.g., Campbell & Cabrera, 2011), so the quantitative analyses of student engagement used the item level, not the subscales.

One research goal was to identify the most influential factors related to persistence. A correlation analysis (Pearson r , persistence coded as 0 or 1) was used to identify all engagement factors related to persistence. Ten items were significantly correlated with graduation and 12 items were correlated with GPA, and several were significantly correlated with both, as shown in Table 3 related to 22 items. The list identifies all the significant student engagement factors related to persistence. Larger values in a correlation matrix indicate a stronger relationship between two factors, but single correlations do not control for the effects of other factors, as indicated by multiple regression analysis. To identify the most influential factors related to persistence or GPA, the items with significant correlations with persistence or GPA were used as predictors in separate backward regression analyses (forward regression yielded the same findings). The significant multiple regression items for each regression analysis are bolded and presented first in Table 3.

The binomial probability of observing 22 or more significant correlations out of 170 (85 items with graduation and GPA) with $p = .05$ was .001. This warranted further examination of the significant items related to graduation and GPA.

Table 3. NSSE items with significant correlations with persistence or GPA ($N = 66$)

Item	Persistence	GPA
Faculty relationships (90% positive)	.37**	.41**
Learning effectively on your own (43% did not do this)	.33**	
Courses emphasized memorizing (62% experienced this)		.31*
Course had job related skills	.38**	.26*
University had academic support	.34**	
Understanding yourself	.32*	
Student relationships (88% positive)	.31*	.25*
Significant time studying	.29*	
University provided non-academic support (70% negative)	.27*	.32**
University activities (e.g., cultural)	.27*	.29*
Entire university experience	.26*	
Diverse students in courses		.40**
Research with faculty (76% did not experience this)		.28*
Courses emphasize analyzing		.28*
Courses have diversity content		.27*
Learning in a community (66% did not experience this)		.26*
Broad education		.25*

* $p < .01$, ** $p < .01$

Relationships with faculty and *learning on your own* were the key NSSE items that predicted persistence, and *relationships with faculty* and *courses emphasized memorizing* were the key items that predicted GPA. Note that *relationships with faculty* was the only key item to predict both graduation and GPA. Also, 90% of students had positive relationships with faculty and 88% reported positive relationships with other students. Of concern was that 43% of students did not learn to study effectively on their own, 70% responded negatively to university non-academic support, and 66% of students did not experience learning in a community (e.g., cohort model).

The multiple regression analyses identified the significant individual student engagement predictors of persistence and GPA, but they did not examine how these predictors and outcomes were interconnected. A path analysis following Falk and Miller (1992) with small sample sizes was conducted to examine the relationships among the key student engagement factors, GPA, and persistence. As can be seen in Figure 2, *faculty*

relationships was related to persistence through *learning on your own* and GPA. Also, *courses emphasized memorizing* predicted persistence through GPA.

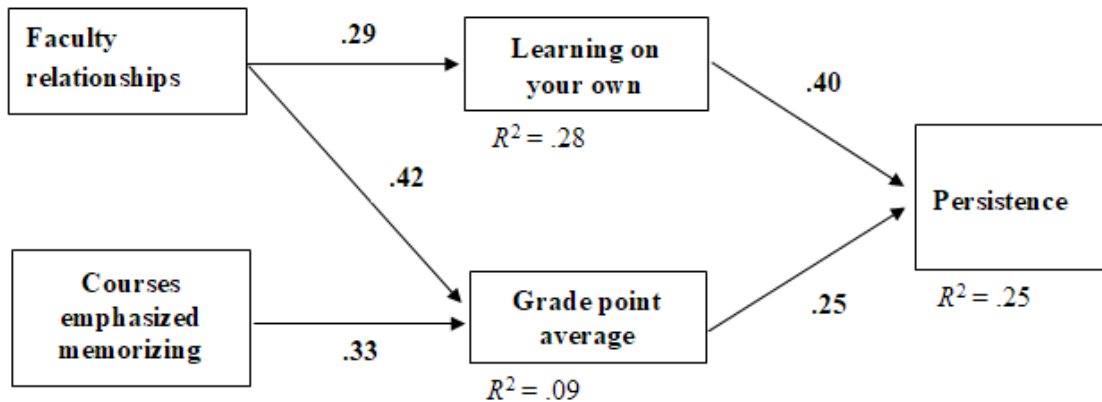


Figure 2. Path analysis of key NSSE student engagement items, persistence, and GPA ($N = 63$)

It is important to note that the path analysis in Figure 2 shows the key student engagement factors related to university persistence. However, the NSSE did not include potentially important variables related to Indigenous university student persistence such as the cultural and financial issues reported in the literature review. To address the question of missing potentially important factors related to Indigenous university persistence, an Indigenous student persistence survey was created for the study.

Indigenous Persistence Survey

The survey included a range of persistence topics (see Appendix B) from the NSSE findings on student engagement (e.g., student and faculty relationships), other research with Indigenous university students (e.g., financial issues), and from our talking circles (e.g., cultural activities). The survey contained several items that examined each component of the four-component Indigenous framework presented earlier (social, cognitive, cultural, physical). The findings of the survey are presented in Figure 3 and include the percentage of students who agreed or disagreed with each item, and their view on a 5-point Likert scale with scores from 1 (Strongly Disagree) to 5 (Strongly Agree).

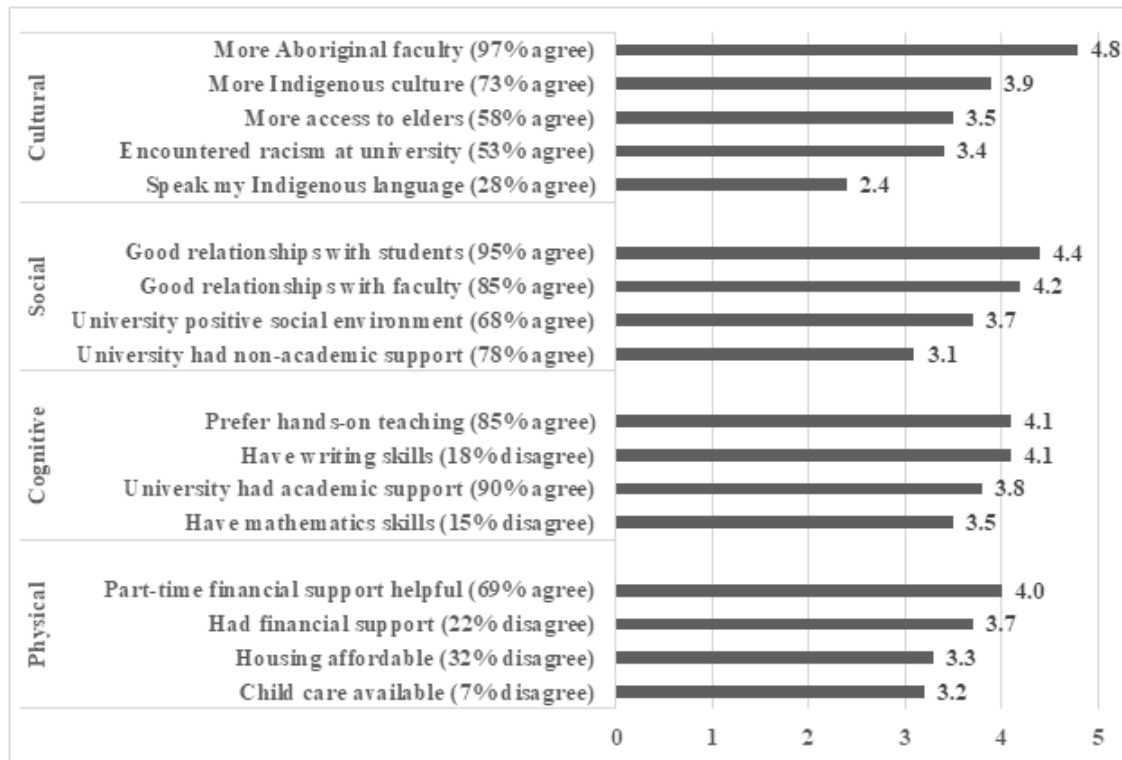


Figure 3. Indigenous student persistence survey results ($N = 60$)

The strongest single student recommendation was to have more Indigenous faculty (98%). Students also recommended building relationships with faculty and students, hands-on teaching, and part-time financial support. Of concern was that 22% of students reported they did not have the financial support to complete their programs. This was related primarily to a lack of affordable housing, but also to child care and other expenses. Also, 53% of Indigenous students reported experiencing racism at the university.

Summary and Findings

A key goal of the research was to generate recommendations that could improve university persistence among Indigenous students, a goal that is consistent with Call to Action 10 in the Canadian Truth and Reconciliation Commission report (2015). The most influential factors were consistently identified in the interviews and talking circles, and also converged with the statistical analyses of the institutional database and the two surveys. The key factors related to persistence are presented in Figure 4 within the

four-component Indigenous model, which was described by elder Mike Arnouse as an ancient way of life that is being revived (personal communication, May 11, 2009).



Figure 4. Four component model of Indigenous university persistence

Social Components

All of the Indigenous students who were interviewed said that the presence of positive relationships with faculty and students was strongly related to persistence, and to returning to university if they left before completing their programs. This finding was confirmed with the statistical analyses of the surveys. A willingness to speak to instructors and ask for help was important, but many students recognized that this was not easy. Many spoke of feeling alone, shy, and scared at university. They also said that approaching faculty went against cultural teachings about not asking for help. While most students indicated that it was up to the student to reach out to faculty, they all had recommendations for enhancing student–faculty relationships, primarily related to socials with faculty, students, and staff. Many students reported that the Indigenous staff at the Indigenous gathering place helped them build relationships with faculty and students and supported

cultural activities. These findings were in line with other research on Indigenous post-secondary persistence (e.g., HeavyRunner, 2009).

Cognitive Components

Many students reported the need for academic support to complete their programs, a finding that was confirmed by the survey analyses. Students said that offering this support, especially in the first year, could potentially increase persistence. Several students reported not knowing how to access academic tutoring on campus. Students preferred hands-on or activity-based teaching methods. Finally, learning to learn on their own was one of the strongest overall predictors of persistence.

Physical Components

Financial challenges were mentioned repeatedly by Indigenous students as their greatest source of stress, and were sufficient reason for students to leave the university. The intersecting factors of financial challenges (funding issues with their Indigenous community, child care, housing), and having family supports far away were problematic, especially for single parents, most of whom were female.

Cultural Components

Most Indigenous students (97%) recommended having more Indigenous faculty and Indigenous cultural events (73%) at university. These findings are consistent with other research on university Indigenous persistence (e.g., Archibald et al., 1995). Students said that having more Indigenous faculty would increase engagement with faculty and provide Indigenous role models. They reported that activities such as powwows and weekly soup lunches would facilitate meeting other Indigenous students, faculty, and staff. The Indigenous gathering place at the university was key to providing them with these Indigenous social and cultural activities. Indigenous ceremonies at the university were linked to elders, who many students thought should be considered faculty.

Demographic Factors, GPA, and Persistence

University GPA predicted university persistence but gender, age, home location, and parental education did not. Given the literature on the influence of GPA and parental education on persistence, it was surprising that these factors were not related to persistence. Several students reported that while their parents had not completed university, their parents and the Indigenous community strongly supported higher education.

Discussion

The research goals in this study were to identify the key factors related to the persistence of Indigenous students at university, and to make recommendations about where universities, Indigenous communities, and Indigenous students could focus their efforts. Convergent findings from the qualitative and quantitative analyses were used to identify the strongest supports, barriers, and recommendations. Regarding supports and barriers, Indigenous students who developed good relationships with faculty and students, had academic support, learned how to learn on their own, experienced hands-on teaching, and had sufficient financial support tended to complete their programs. Regarding recommendations, students suggested increasing the numbers of Indigenous faculty and bringing more Indigenous culture to the university.

These findings supported the four-component model (social, cognitive, physical, cultural) of Indigenous university persistence described by elder Mike Arnouse (see Figure 4). The key factors were social factors (relationships with faculty and students), cognitive factors (academic support, learning to learn on your own, hands-on teaching), physical issues (financial support, affordable housing), and cultural elements (more Indigenous faculty and culture).

The findings intersected with the impacts of academic issues such as academic support, with poverty-related stressors such as finances, child care needs, and affordable housing. For example, every female single parent in the study reported they did not have sufficient financial support, which was directly related to the lack of affordable housing and child care. Also, cultural supports such as Indigenous ceremonial activities at university intersected with social engagement with university elders, faculty, staff, and other students. For example, Indigenous students, staff, and faculty could organize an annual

powwow at the university that brings together the Indigenous community and others at the university.

The persistence survey created for the research included six options in the demographic section related to sex or gender (Male, Female, Transgendered, Two-spirited, Gay, Lesbian). There was only one student who did not select Male or Female, and that person identified as Two-spirited. That survey was not used in the statistical analysis by gender because comparing groups requires calculating an average for each group, which was not possible with a group of one. Further research is recommended on the persistence of Indigenous students who do not identify as male or female. The institutional databases and the NSSE gave only Male or Female options in their demographic items, a feature that may limit potentially important issues related to sex or gender (for a discussion see Tannenbaum et al., 2016).

An important finding was that 53% of Indigenous students experienced racism at the university. However, this research did not find a direct link between the experience of racism at university and persistence.

It is unclear if the supports, barriers, and recommendations made by the Indigenous students taking face-to-face courses, as represented by the participants in the current study, would be the same for Indigenous students taking online courses. This is beginning to become clearer as a result of research recently completed and accepted for publication in the *International Journal of E-Learning and Distance Education* (Walton et al., accepted for publication). The survey used in this research with Indigenous students taking face-to-face courses was modified for use with Indigenous online university students ($N = 212$). Interestingly, most of the key supports and barriers for the online Indigenous students were the same as for the face-to-face students, including having good faculty relationships, sufficient financial support, and more Indigenous faculty. So, the findings on persistence from Indigenous online students also supported the four-component Indigenous model described by elder Mike Arnouse and used in the current study.

Recommendations

Our research found that the most consistent and strongest single recommendation made by Indigenous students to increase persistence was to have more Indigenous faculty

(97%), including elders. Stories from the Indigenous students revealed that many would be more likely to approach faculty if they were Indigenous. Indigenous faculty would likely be aware of the importance of developing a relationship with the student, and that some students will not approach faculty as they were taught to solve their own problems. Indigenous faculty could potentially facilitate having more Indigenous cultural events at the university, a related recommendation made by the students. Universities could address this issue by hiring more Indigenous faculty and fostering future Indigenous faculty.

The teaching and learning implications for faculty are that many Indigenous students require academic support, benefit from learning how to learn on their own, and prefer hands-on teaching. These teaching practices are arguably effective for all students.

Insufficient financial support was identified by students (22%) as a barrier, and several students commented that others had left the university for that reason. Housing and child care expenses for single parents created financial barriers, typically for female parents. Addressing the affordable housing and child care barriers experienced by Indigenous students could potentially increase their persistence at university.

Importantly, the survey found that 53% of Indigenous students experienced racism at the university, and some while seeking housing. Unfortunately, students did not elaborate on this topic during the interviews and it is a potentially important issue for future research.

Our findings may not be generalized to Indigenous students at other universities, and organizations are encouraged to use the persistence survey we developed with the Indigenous students in their region (see the Appendices).

Promising recent initiatives by the mid-sized university were to implement an Indigenous mentoring program where senior Indigenous students were paired with beginning Indigenous students to provide social and academic support. In addition, the university initiated an Indigenous mentoring project for senior undergraduate Indigenous students and faculty that facilitated writing, publishing, and social engagement (Thompson Rivers University; The Coyote Project website: <https://www.tru.ca/indigenous/coyote.html>). A recent and similar innovative project was reported with Native American students in the United States (McMahon et al., 2019).

About the Authors

Patrick Walton has French-Canadian, English, and Indigenous ancestry.

Kristen Hamilton is a settler ally to Indigenous people, and was born and raised in the territories of the Anishinabek Nation.

Natalie Clark has interconnected identities, including her settler/Indigenous ancestry, as a parent of three Secwepemc children, and as part of the Secwepemc community through kinship ties.

Michelle Pidgeon is of Mi'kmaq ancestry from Newfoundland and Labrador.

Mike Arnouse, Sexqeltqín, is a Secwepemc Elder.

Appendix A: Indigenous University Student Persistence Survey Interview Questions

1. As a university student, you have had success in education. Please tell me your background story about how you came to be a university student here.
2. What academic or tutoring support was provided at the university (e.g., writing, math)? What additional academic support would be helpful?
3. How can the social environment at the university be enhanced at the university?
4. How can relationships with students and faculty be enhanced at this university?
5. What or who supported you to complete your program, and what obstacles worked against you?
6. Some Aboriginal students leave the university before completing their programs. What can be done to help them return?
7. What Aboriginal courses would you like the university to add?
8. What teaching methods or experiences would you like faculty to add that would have a positive impact on your learning?
9. Do you have any other ideas on how to help Aboriginal students complete their programs at the university?

Appendix B: Indigenous University Student Persistence Survey

Please circle the number below that best describes your view.

Item	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1. I had the financial support I needed to succeed.	1	2	3	4	5
2. Financial support to take my program part-time would help me to succeed.	1	2	3	4	5
3. Affordable housing was available.	1	2	3	4	5
4. Child care services were available to support me.	1	2	3	4	5
5. The university gave me the academic support to complete my program.	1	2	3	4	5
6. The university helped me to cope with non-academic issues (e.g., family).	1	2	3	4	5
7. More Aboriginal cultural activities would help me to succeed at university.	1	2	3	4	5
8. I can speak my Aboriginal language.	1	2	3	4	5
9. More access to elders on campus would help me to complete my program.	1	2	3	4	5
10. I have the writing skills to complete my program.	1	2	3	4	5
11. I have the mathematics skills to complete my program.	1	2	3	4	5
12. I have or had good relationships with the faculty at the university.	1	2	3	4	5
13. I have or had good relationships with other students at the university.	1	2	3	4	5
14. It is important to have Aboriginal faculty at the university.	1	2f	3	4	5
15. I encountered racism at the university.	1	2	3	4	5
16. I prefer hands-on teaching methods.	1	2	3	4	5
17. The university provides a positive social environment.	1	2	3	4	5

References

- Archibald, J. (2008). *Indigenous storywork: Educating the heart, mind, body, and spirit*. UBC Press.
- Archibald, J., Selkirk Bowman, S., Pepper, F., Urion, C., Mirenhouse, G., & Shortt, R. (1995). Honoring what they say: Post-secondary experiences of First Nations graduates. *Canadian Journal of Native Education*, 21(1), 1–247.
- Barnhardt, R. (2000). Educational renewal in rural Alaska: The Alaska Rural Systemic Initiative. *Rural Educator*, 21(2), 9–14.
- Battiste, M. (Ed.) (2000). *Reclaiming Indigenous voice and vision*. UBC Press.
- Battiste, M. (2013). *Decolonizing education: Nourishing the learning spirit*. Purich.
- Battiste, M., & Barman, J. (Eds.). (1995). *First nations education in Canada: The circle unfolds*. UBC Press.
- Belgarde, M. J., & Loré, R. K. (2004). The retention/intervention study of Native American undergraduates at the University of New Mexico. *Journal of College Student Retention: Research, Theory & Practice*, 5(2), 175–203.
- Bellringer, C. (2015). *An audit of the education of Aboriginal students in the B.C. public school system Auditor General of British Columbia*. Office of the Auditor General of Canada. <http://www.bcauditor.com/pubs/2015/audit-education-aboriginal-students-bc-public-school-system>
- Bomberry, M. (2013). Negotiating two worlds: Learning through the stories of Haudenosaunee youth and adults. *Canadian Journal of Education*, 36(2), 248–283. <http://search.proquest.com/docview/1491105486?accountid=13800>
- Braxton, J. M. (2000). *Reworking the student departure puzzle*. Vanderbilt University Press.
- Braxton, J. M., & McClendon, S. A. (2002). The fostering of social integration and retention through institutional practice. *Journal of College Student Retention: Research, Theory & Practice*, 3(1), 57–71.

- Campbell, C. M., & Cabrera, A. F. (2011). How sound is NSSE?: Investigating the psychometric properties of NSSE at a public, research-extensive institution. *The Review of Higher Education*, 35, 77–103.
- Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*. University of Akron Press.
- Grayson, J. P., & Grayson, K. (2003). *Research on retention and attrition*. <http://site.ebrary.com/lib/sfu/docDetail.action?docID=10222131>
- Hare, J., & Pidgeon, M. (2011). The way of the warrior: Indigenous youth navigating the challenges of schooling. *Canadian Journal of Education*, 34(2), 93–111.
- HeavyRunner, I. (2009). *Miracle survivor (Pisatsikamotaan): An indigenous theory on educational persistence grounded in the stories of tribal college students*. (Doctoral dissertation, University of Minnesota). University of Minnesota Digital Conservancy, <http://hdl.handle.net/11299/50897>.
- HeavyRunner, I., & DeCelles, R. (2002). Family education model: Meeting the student retention challenge. *Journal of American Indian Education*, 41(2), 29–37.
- HeavyRunner, I., & Marshall, K. (2003). Miracle survivors: Promoting resilience in Indian students. *Tribal College Journal*, 14(4), 14–18.
- Heslop, J. (2015). *B.C. Bachelor's Degree completers of 2013/2014: A longitudinal research study from the Student Transitions Project*. https://www2.gov.bc.ca/assets/gov/education/post-secondary-education/data-research/stp/bach_completers_of_2013-2014_report_v3_2015-10-07.pdf
- Huffman, T. (2008). *American Indian higher educational experiences: Cultural visions and personal journeys*. Peter Lang.
- Institutional Planning & Analysis. (2009). *National Survey of Student Engagement 2009 results: Aboriginal report*. Thompson Rivers University.
- Interagency Advisory Panel on Research Ethics. (2014). *Tri-Council policy statement: Ethical conduct for research involving humans*. http://www.pre.ethics.gc.ca/pdf/eng/tcps2-2014/TCPS_2_FINAL_Web.pdf
- Kirkness, V. J., & Barnhardt, R. (1991). First Nations and higher education: The four R's- respect, relevance, reciprocity, responsibility. *Journal of American Indian Education*, 30(3), 1–15. <http://jaie.asu.edu/v30/V30S3fir.htm>

- Kovach, M. (2009). *Indigenous methodologies: Characteristics, conversations, and contexts*. University of Toronto Press.
- Larimore, J. A., & McClellan, G. S. (2005). Native American student retention in U.S. postsecondary education. *New Directions for Student Services*, (109), 17–32. <http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=16381411&site=ehost-live>
- Malatest, R. A., & Associates Ltd. (2002). *Best practices in increasing Aboriginal postsecondary enrolment rates*. <http://www.cmec.ca/publications/lists/publications/attachments/49/malatest.en.pdf>
- Malatest, R. A., & Associates Ltd. (2004). *Aboriginal peoples and post-secondary education: What educators have learned*. <http://www.millenniumscholarships.ca>
- Malatest, R. A., & Associates Ltd. (2010). *Promising practices: Increasing and supporting participation for Aboriginal students in Ontario*. http://www.afn.ca/uploads/files/education2/promising_practices_increasing_and_supporting_participation_for_aboriginal_students_in_ontario-2010.pdf
- McMahon, T. R., Griese, E. R., & Kenyon, D. B. (2019). Cultivating Native American scientists: An application of an Indigenous model to an undergraduate research experience. *Cultural Studies of Science Education*, 14(1), 77–110. <https://doi.org/10.1007/s11422-017-9850-0>
- Melguizo, T. (2011). A review of the theories developed to describe the process of college persistence and attainment. In J. C. Smart & M. B. Paulsen (Eds.), *Higher education: Handbook of theory and research* (pp. 395–424). Springer
- Mendelson, M. (2006). Aboriginal peoples and postsecondary education in Canada. <http://www.caledoninst.org/Publications/PDF/595ENG.pdf>
- National Indian Education Association. (n. d.). *Using culturally based education to increase academic achievement and graduation rates*. <http://www.niea.org/data/files/policy/culturallybasededdbp.pdf>
- Parkin, A., & Baldwin, N. (2009). *Persistence in post-secondary education in Canada: The latest research*. http://www.yorku.ca/pathways/literature/Aspirations/090212_Persistence_EN.pdf

- Pascarella, E. T., & Terenzini, P. T. (2005). *How college affects students: A third decade of research* (vol. 2). Jossey-Bass Publishers.
- Pavel, D. M. (1991, October–November). *Assessing the fit of Tinto's model of institutional departure with American Indian and Alaskan Native national longitudinal data*. Paper presented at the Annual Meeting of the Association for the Study of Higher Education, Boston, MA. <https://files.eric.ed.gov/fulltext/ED339324.pdf>
- Pavel, D. M. (1999). American Indians and Alaska Natives in higher education: Promoting access and achievement. In K. G. Swisher & J. Tippeconnic (Eds.), *Next steps: Research and practice to advance Indian education* (pp. 239–258). ERIC.
- Pidgeon, M. (2008). Pushing against the margins: Indigenous theorizing of “success” and retention in higher education. *Journal of College Student Retention: Research, Theory & Practice*, 10(3), 339–360.
- Pidgeon, M. (2016). More than a checklist: Meaningful Indigenous inclusion in higher education. *Social Inclusion*, 4(1), 77–91. <http://dx.doi.org/10.17645/si.v4i1.436>
- Privitera, G. J., & Ahlgrim-Delzell. (2019). *Research methods for education*. Sage.
- Rendón, L., Jalomo, R., & Nora, A. (2000). Theoretical considerations in the study of minority student retention in higher education. In J. M. Braxton (Ed.), *Reworking the student departure puzzle*. Vanderbilt University Press.
- Royal Commission on Aboriginal Peoples. (1996). Gathering of strength, Volume 3. *Report of the Royal Commission on Aboriginal Peoples (RCAP)*. Minister of Supply and Services.
- Ryan, J. (1995). Experiencing urban schooling: The adjustment of Native students to the extracurricular demands of a post-secondary education program. *Canadian Journal of Native Studies*, 15(2), 211–230.
- Schwartz, C., & Ball, J. (2001). *Evaluation of an effective postsecondary program in Canadian Aboriginal communities: Students' perspectives on support* (ED453223). <http://eric.ed.gov/?id=ED453223>
- Shaienks, D., Gluszynski, T., & Bayard, J. (2008). *Postsecondary education - participation and dropping out: Differences across university, college and other*

- types of postsecondary institutions* (ISSN: 1711-831X). http://publications.gc.ca/collections/collection_2008/statcan/81-595-M/81-595-MIE2008070.pdf
- Shotton, H., Lowe, S. C., & Waterman, S. J. (Eds.). (2013). *Beyond the asterisk: Understanding Native students in higher education*. Stylus.
- Smith, L. T. (2012). *Decolonizing methodologies: Research and indigenous peoples*. Zed Books.
- Statistics Canada. (2013). *2011 National Household Survey*. <http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-011-x/2011001/tbl/tbl02-eng.cfm>
- Tannenbaum, C., Greaves, L., & Graham, I. D. (2016). Why sex and gender matter in implementation research. *BMC Medical Research Methodology*, 16, 145. <https://doi.org/10.1186/s12874-016-0247-7>
- Teddlé, C., & Tashakkori, A. (2009). *Foundations of mixed methods research*. Sage.
- Thompson Rivers University. (n.d.). *Open Learning - Indigenous TRU*. <https://www.tru.ca/indigenous/coyote.html>
- Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research*, 45(1), 89–125.
- Tinto, V. (2006). Research and practice of student retention: What next? *Journal of College Student Retention*, 8, 1–19.
- Tinto V. (2010). From theory to action: Exploring the institutional conditions for student retention. In J. Smart (Ed.), *Higher education: Handbook of theory and research* (vol. 25). Springer. https://doi.org/10.1007/978-90-481-8598-6_2
- Toulouse, P. R. (2017). *Achieving Indigenous student success*. Portage & Main Press.
- Truth and Reconciliation Commission of Canada. (2015). Honoring the truth, reconciling for the future: Summary of the final report of the Truth and Reconciliation Commission of Canada. http://www.trc.ca/websites/trcinstitution/File/2015/Honouring_the_Truth_Reconciling_for_the_Future_July_23_2015.pdf
- Walton, P., Clark, N., Pidgeon, M., Arnouse, M., & Hamilton, K. (accepted for publication). Supports, barriers, and learning preferences influencing online Indigenous university student persistence. *International Journal of E-Learning and Distance Education*.

- Whitley, J. (2014). Supporting educational success for Aboriginal students: Identifying key influences. *McGill Journal of Education / Revue Des Sciences de l'éducation de McGill*, 49(1), 155–181. <https://doi.org/10.7202/1025776ar>
- Wilson, S. (2008). *Research is ceremony: Indigenous research methods*. Fernwood Publishing.