Selecting and Supporting Future Graduates in British Columbia

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Abstract

The educational journey is long and difficult. Students who engage in further studies face many challenges as they progress towards a degree or other certification. These barriers are both academic and non-academic, and higher educational institutions need to be aware of these challenges in order to support students in their journey to credential completion. This essay will provide an overview of factors considered relevant to success both from the student’s perspective and the institution’s perspective. This journey begins long before a student applies and in many cases continues off and on for the rest of his or her life.
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Recruiting Future Graduates

The educational journey is long and difficult. Students who engage in further studies face many challenges as they progress towards a degree or other certification. These barriers are both academic and non-academic, and higher educational institutions need to be aware of these challenges in order to support students in their journey to credential completion. This essay will provide an overview of factors considered relevant to success both from the student’s perspective and the institution’s perspective. This journey begins long before a student applies and in many cases continues off and on for the rest of his or her life (Andres & Offerhaus, 2012).

As mentioned, the path is fraught with many barriers, the first of which is gaining access to a post-secondary program because institutions only have a limited number of seats. This means students must “compete” for entry. A common practise in Canadian post-secondary institutions is the evaluation of eligibility by assessing an applicant’s academic background. This is an important measurement because having the minimum academic background ensures that the student will have some basic understanding of theories. Basing entrance solely on previous academic achievement is an imperfect measure because it often fails to account for motivation, interest, aptitude, and different social, economic and cultural differences that restrict or provide access to higher education. Resumes and statements of intent can be used to evaluate softer skills like interest, but it much harder to identify and correct for social, economic and cultural barriers. Achieving the “ideal” or fairest admission criteria can be quite complicated and costly, but there may be a good return on investment as well-supported, academically prepared students should have a better chance of persisting through to completion.

While post-secondary institutions wrestle with the rubric to determine if an applicant should be admitted to the program, this is a singular event to the student. Once admitted the
student faces the real challenge of actually finishing the program. Hopefully, they have chosen the right field of study because they must now commit time, resources and energy to persisting through to completion. Those with access barriers may now face burdens, and once again post-secondary institutions need to provide support to ensure all students succeed. Success is an interesting concept because it looks different depending on your perspective. Students who begin at one institution but complete at a different one, may not be seen by the original institution as a success; however, in the eyes of the student they have been quite successful. As we unpack access and retention themes, we must keep in mind that institutional and personal goals are not always the same.

Before we go too much further, let me reveal my personal biases. I currently work as the Admissions Supervisor at the British Columbia Institute of Technology (BCIT). I have a solid understanding of evaluation of previous academics for entry, but I have questioned the fairness and legitimacy of this metric because previous academics do not measure current motivation. I myself was an under-achiever in high school: immature and unfocused. It did not engage in post-secondary studies until a workplace injury forced me to reconsider higher education. With increased effort, I achieved better marks. In my case, I was allowed to begin studies because a teacher waived the minimum English requirement for me; otherwise, I would have been required to spend additional time and money upgrading. As the student, I benefitted from this individual assessment. As the institution, I wonder how we can recruit and retain academically successful students making individual assessments of motivation, ability and aptitude.

Because access and retention is a broad subject, this essay is group into many sections. The first will provide an overview of the post secondary educational system in British Columbia (BC) because my understanding of entrance requirements, upgrading and student life is based in this
system. This provides a frame of reference for a more in depth discussion of social concerns about access, retention and persistence. It draws on literature from the United States, Europe, the South Pacific and other Canadian Provinces. This section will begin by exploring how the very act of setting entrance requirements—whether academic or non-academic—automatically advantages some groups and disadvantages others. Institutions should strive to remove disadvantages so those with the talent and motivation are given the opportunity to participate, keeping in mind that students must still accept any opportunity provided. This will be lead to section on academic prediction, and an overview of student persistence, retention, integration and completion.

In BC there are some specific sub-populations that require special consideration. Those assessing prior educational experience must be aware of global student mobility; especially, with the BC government hoping to increase enrolment of international students in response to declining high school graduates (Steffenhagen, 2011). Therefore language proficiency is an important consideration for educational planners whether before admittance (e.g., testing and/or upgrading) or after admittance (e.g., language support classes, tutors, etc.). Thus, there is a short section discussing assessment English as a Second Language (ESL) applicants. This will be followed by a section addressing the persistence and motivational concerns of mature students. These students usually have taken many years away from education and have a number of life priorities that take time away from studies. In BC there are a large number of mature students passing through the higher education system—engaging and disengaging with various institutions at various stages in their lives, and these students could help make up for program attrition at more advanced levels.

Institutions must recognize that as people age, their motivation and attitude towards higher education changes also. Years after leaving high school many people return to the education system as an effort to increase career opportunities. They follow a variety of adult educational
paths to gain entry to and/or continue through post-secondary studies. Institutions must respond to the needs of these academically mobile students to assist them in their educational goals (Andres & Adamuti-Trache, 2008b; Andres & Offerhaus, 2012; Finnie & Mueller, 2008). Program administrators at higher educational institutions have target enrolment numbers for limited seats; thus, the “academic bar” must be set low enough to enable access for enough students to fill the entry level of a program, but high enough to ensure that these students, once admitted, will have the academic foundation to persist through to the advanced levels of a program. Provided a student has chosen the right program and ‘fits’ with his peers and professors, those who possess the appropriate academic background should have a better chance of completing a credential. Once a student graduates from post-secondary education, these individuals should experience increased upward social and economic mobility. Technological education increases opportunities to gain employment or to continue with more advanced educational studies. Post-secondary graduates benefit the larger society by actively contributing to the provincial and global knowledge economy. It cannot be understated that post-secondary education is a very important life shaping experience, and it begins with the ability to access post-secondary training.

**BC’s Higher Education Landscape**

Access to BC post-secondary education was dramatically increased in the 1960’s. The MacDonald Report (1962) was the catalyst for the myriad of access and transfer options currently available to prospective students and adult learners in the province.

Prior to 1962 little development or diversification of post-secondary education had occurred in British Columbia. [...] consisted of the University of British Columbia with its satellite campus in Victoria, the tiny Notre Dame University in Nelson, one small private college, and vocational schools” (McArthur, 1997, p. 111-112).
The MacDonald Report recommended the creation of two, four-year degree granting colleges, but the provincial ministry went a step further and created two new full status universities: Simon Fraser University in Burnaby and the University of Victoria, formerly Victoria College. The report also recommended the creation of six two-year multi-purpose community colleges, some of which were amalgamated with the federally constructed BC vocational institutions. (Dennison, 1997; McArthur 1997). The report emphasised a spirit of excellence in the creation of university-transferable programs in regions outside the south west corner of the province. Individuals could take academically recognized first and second year courses in their home community and then complete the final two years at one of the three major universities to earn a degree; ultimately, laying the foundation for the now widely accessed and articulated provincial higher education system.

The early 1990’s saw many of the community colleges evolving into university-colleges. Initially, Malaspina, Cariboo and Okanagan colleges, which were located in the communities of Nanaimo, Kamloops and Kelowna, respectively. These were followed by colleges in the Lower Mainland (Kwantlen) and the Fraser Valley (University-College of the Fraser Valley) a few years later. Planning was underway for a university in Northern BC, and the Open Learning Agency was recognized to confer degrees through distance education. The Skills Now (1994) initiative saw the creation of applied technological degrees offered through non-university institutions, with Emily Carr College of Art and Design and BCIT designated to degree granting status (Dennison, 1997; McArthur, 1997). This same year, university-colleges, once conferring degrees under the auspice of one of the three major research universities, were granted the ability to confer their own credentials (Metcalf, Mazawi, Rubenson, Fisher, Maclvor & Meredith, 2007).
The province is now home to eleven universities, eleven community colleges, and four higher educational institutions. Many of these university designations were the result of significant changes to the provincial higher educational structure that followed Plant’s (2007) Campus2020 report on “Access and Excellence” into post-secondary education in the province of British Columbia. One of these changes saw institutions previously designated university-colleges, elevated to the status of teaching universities, and the University of British Columbia, Simon Fraser University and the University of Victoria would remain the province’s research universities (BCCAT, 2010b; Metcalfe et al., 2007; Plant 2007).¹ Plant recognized the same geographic challenges as Macdonald; however, the post-secondary landscape in 2007 had evolved significantly in terms of population, programs, structures and facilities that now exist in the various regions of the province.

[At the core] is the principle of equal opportunity within a hierarchy of achievement and ability. It envisions an unbroken educational freeway conveying learners from K-20 with enough on and off ramps to accommodate every speed and circumstance... limited only by a learners ability, ambitions, starting point and available time (Metcalfe et al., 2007).

Irregular educational paths were continued at the pre-entry level. The Access for All initiative recommended that all pre-entry and access courses offered at provincial higher educational institutions be recognized for entry into programs at any of the other post-secondary institutions; thus ensuring BC residents substitute upgrading locally attended ABE courses for published high school entrance requirements when they apply to provincial higher education institutions. For students seeking admission to the various provincial post-secondary institutions,

¹ Added to this landscape are a number of institutions, like the University of Phoenix that specialize in internet delivery are expanding student enrolments to levels that far exceed those at traditional post-secondary schools (Coates & Morrison, 2011).
they would receive entry credit from any recognized upgrading programs. (BCCAT, 2010a; Dennison & Schuetze, 2004; Province of British Columbia, 2010). Since 2007, ABE in BC has been offered free for Canadian citizens and landed immigrants ensuring financial barriers are removed for adults needing academic upgrading to be eligible for post-secondary studies (Plant, 2007).

With such a kaleidoscope of academic and upgrading programs developed to overcome unique barriers to BC higher education, many educational routes have and continue to be taken by individuals who graduate from secondary school and mature into various life roles (e.g., parent, spouse, employee). To illustrate the number of different educational routes available to students in the BC system, *Paths on Life’s Way* began with the individual’s choice to attend either a university, a non-university or neither. At five-year intervals, educational outcomes for these individuals included non-participation, non-completer, non-university completer, bachelors completer, and first professional/graduate completer. This longitudinal survey has now documented 22-years of life history for individuals who graduated from BC high school in 1988 (Andres & Offerhaus, 2012). The credential completion rate was observed to increase as the sample aged, and just under two thirds of men and women completed bachelors degrees or other non-university credentials. A further nine percent of both genders went on to earn professional or graduate degrees (Andres, 2009b).

Andres and Adamuti-Trache (2008a) plotted 55 distinct post-secondary educational trajectories and observed students who took many different paths to completing or not-completing a credential. By correcting for entry timing and pace, 21 categories were identified with the highest frequency of individuals going immediately from high school graduate to post-secondary graduate, which meant earning a university or non-university credential by 1993. Those who continued into further studies followed an advanced route by continuing into subsequent professional or graduate
level studies. Other common BC post-secondary routes included *transfer*—those who began non-university, but completed a university degree, *prolonged*—those who took extended time to complete, *broader*—those who completed a non-university credential and continued on to complete a university degree, *delayed*—those who did not start immediately after finishing high school, *non-completer*—those who began, but discontinued, and *non-participants*—those who never entered into the post-secondary system (Andres, 2009b; Andres & Adamuti-Trache, 2008a).

Although non-participation in post-secondary education was initially reported at roughly 20% (18% of women and 22% of men) by 2003 non-participation dropped to only 6% (Andres & Adamuti-Trache, 2008b). While the overall variety of paths taken by BC high school graduates shown to be quite extensive (Andres & Offerhaus, 2012), it still could not account for many other individuals accessing the provinces higher education system (e.g., out of province, landed immigrants, international students, upgraded high school drop-outs, etc.). Educators and administrators must be aware of all of these different trajectories, and try to respond to the unique needs of students on these different paths. This should ensure the success of both the individual learner and the institution through maximizing enrolment at all educational levels.

Of interest to institutions like BCIT, which offer specialized vocational training, those individuals who entered into a technical or vocational institution immediately following high school and completed a credential (usually after two-years of study) were observed to be almost completely disengaged with higher educational training ten years later. Although, the desire for others in the sample to engaging in this type of study increased sample aged (Andres & Offerhaus, 2012), so with frequency of older students accessing specialized training, institutions may alter recruitment practices to attract more students with prior post-secondary training.
The BC post-secondary system shows success for students transferring between the institutions located within it, so these successes must be occurring somewhat independently of institutional retention practices. Over a student’s educational journey, he or she may sample a variety of programs and courses, acquiring many credits, and, when he or she finds a program of best fit, combine all previously earned credits to complete a credential (Andres, 2009b). Arguably, it would be in the receiving institution’s best interest to ensure that advanced level entry can be easily attained, as recruitment of these students would replace any withdrawing students. Institutions cannot force fit students into subjects that they lack interest or aptitude, and BC post-secondary institutions will continue to exchange students progressing irregularly through their academic experience (Andres & Adamuti-Trache, 2008b, 2009b; Andres & Offerhaus, 2012; Finnie, Mueller & Sweetman, 2008; Finnie & Qui, 2008).

**Educational Opportunity**

Although the BC post-secondary system has unique articulation and student mobility models, it evolved from older European and North American models. Historically, access to post-secondary education was a system of *sponsored mobility* because it was reserved primarily for the children of the elite and for the education of the clergy. New discoveries, knowledge and inventions increased demand for a more highly skilled work force, which, in turn, saw an increased demand for higher education. With these changes, access evolved into a system based more upon previously earned “merit” (e.g., high school grades, credentials, ability to speak Latin, athletics, etc.).

This provided an equal opportunity for individuals privileged enough to pursue post-secondary studies to compete for an opportunity to study using previous academic achievements as a uniform measure of assessment (Farwell, 2002; Hayton & Paczuska, 2002; Karabel, 2005). There is a major flaw inherent to systems of *contest mobility* because those who develop the interest and
ambition to seek further studies, must also possess the talent, cultural and socio-economic resources to compete for access to the system (Turner, 1960). Furthermore, increasing populations saw physical space on campus restricting the number of students admitted to a program, so as more young people demanded post-secondary education, stricter “gate-keeping” mechanisms were established to evaluate suitability for entry into a program. To offset the social inadequacies in the United States, affirmative action and special recruitment efforts targeted marginalized sub-populations (Karabel, 2005).

Karabel (2005) chronicled the changing definition of merit at Harvard, Princeton and Yale. These institutions based admissions primarily on the “mastery of traditional curriculum” (P. 5). Because this included subjects like Latin, many minority groups were disadvantaged. As an increasing number of Eastern Europe minorities became better educated in the 1920’s, institutions began defining merit through less academic means to more gentlemanly characteristics. For example, applicants were judged based on “sturdy character, sound body and proper social backgrounds” (p. 5). This criteria again benefited the elite Protestants who had the proper social background to be considered an “all-round man.” Eastern European and Jewish people continued to be disadvantaged because they were unfamiliar with the customs of the dominant Protestant culture. Entry was based on grades in specific high schools and “sponsorship.” Academic ability and effort became less important than participation in the elite social clubs, extra-curricular activities and athletics; those who studied too hard were often the target of institutionally supported bullying (Karabel, 2005).

By the 1950s, the Cold War saw elite universities struggling with talent loss. The Soviet Union was winning the “Space-race,” so entry merit retuned to a more academic definition with emphasis placed on SAT and extra-curricular activity, and less emphasis on birthright and the
subjective traits of manliness. A number of categories were defined in the rubric for assessing eligibility. These used combinations of high school grades, GPA, athletics, extracurricular activities, referrals, children of alumni and ethnic background to evaluate eligibility and suitability. Entry became a combination of contest and sponsored mobility.

The 1960’s saw the rise of human rights and the move towards inclusive and more culturally diverse admission’s policies; this included a drastic increase in number of women, Jewish and Black Americans being accepted into elite universities. Over the following decades, Harvard, Yale and Princeton opened their doors to a greater number and diversity of minority populations (Karabel, 2005). This brief history of the Big Three illustrates how “the definition of ‘merit’ is fluid and tends to reflect the values and interests of those who have the power to impose their particular cultural beliefs” (Karabel, 2005, p. 5, quotations in original), and no matter how merit is defined, it “will benefit some groups while disadvantaging others” (p. 3). Burbules et al. (1982) recommended that “equality [...] mean] equal and fair in light of relevant similarities and difference” (p. 171); furthermore, attributes of need and merit have a large role in the provision or prevention of access, and “policy makers must determine distributions by balancing what persons deserve against what limited resources permit” (p. 174).

On the surface it appears that the dominant culture can easily impose a system to advantage their children, but the social and economic benefits to those individuals who gain access to post-secondary education are immense, and special interest groups continue to influence who gains access. The protection of elite status conflicts with the forces of social inclusivity. These forces were brought to light by Karabel (2005) who observed “admissions to the Big Three is a history not only of elite dominance, but of resistance by subordinate groups” (p. 6).
Administrators and institutional planners must continue to exhibit leadership in social and economic opportunities for students from all social classes. This is not always easy because post-secondary institutions are continually responding to the needs and interests of funding sources (e.g., alumni, the government, business, etc.), internal agents (e.g., students, staff, faculty, etc.) and socio-cultural movements (e.g., affirmative action, unions, etc.) to define who will have access to the limited institutional seats. Personal, social, cultural, economic, cognitive and environmental factors that impact on the student’s decision and ability to attend further studies must be given special consideration and institutional support (Burbules et al., 1982, 1982; Evans, 1976). Any disadvantage—in essence, the opposite of merit—is considered a need that must be overcome for an individual to access and complete post-secondary studies. If a disadvantage warrants special consideration, intervention occurs on the part of the recruiters, government or special interest groups rectify the need, which may derive different social and racial problems on campus (Browne-Miller, 1996).

While society grapples with fairness and equality, institutions are still using previous academics to measure student motivation and possible success. Measureable qualities like academics and athletics have inherent biases preventing fair access to committed students. This is because actual effort required for these achievements is not accurately reflected in this measure. High marks with low effort are indistinguishable from high marks with high effort. The latter probably has qualities better suited to persisting though the duration of the post-secondary training. The same can be said about results achieved by students with high ability but low effort and those achieved by students with low ability but high effort (Burbules, Lord & Sherman, 1982). It is hard to say which student would be more successful in post-secondary because the former, while gifted with intelligence, may not have developed the study skills or commitment to complete
a credential; the latter, may have strong academic habits, but lack the intelligence to grasp advanced topics.

The possession of ability, merit and the removal of any access barriers still requires that an individual accept the opportunity to engage in higher educational studies. Opportunity is a special kind of choice where an individual must have access to the choice, the willingness to engage and the aptitude to be successful (Burbules et al., 1982). Thus, “opportunity is an evaluative as well as a descriptive label” (Burbules et al., 1982 p. 170). Ennis (1976) argued that the concept of equality of educational opportunities is generally agreed upon as a goal of higher education, but found that the application of this concept became quite subjective when defining what actually constitutes education, the cultural value of this training and what it is meant by having an opportunity. Karabel (2005) also identified equality of conditions as a philosophical objective of educational opportunity because access to higher education should not be influenced by wealth or social status. So, while philosophically higher education tries to level access through scholarships and affirmative action, few considerations can be made for an unwillingness to accept an opportunity due to cultural or social beliefs (Barbules et al., 1982).

For example, working class individuals may pass on the opportunity to participate in higher education as a “strategy of risk avoidance, rather than a lack of inspiration or talent” (Archer, Leathwood & Hutchings, 2002, p. 107). The risk of attending higher education (e.g., cost, both in time and money, uncertainty of knowledge application or career outcome, student loan repayment, etc.) outweighs the benefits in the mind of the individual (e.g., career advancement, expansion of personal knowledge, economic and social mobility, etc.).

Cultural challenges exist in the widening participation. Many advantages that traditional choosers—university attendance is “part of what they do” (p. 25)—have due to an adequate level or
surplus of cultural, societal, economic and social capitals are educational choices are socially constructed as *habitus* acquired in their upbringing (Macrae & Maguire, 2002). They identified that non-traditional choosers—first generation students—often lacked social and cultural capital, which led to poor program choice and/or a lack of critical guidance required for them to better survive a long term educational experience.

Although the rules of the meritocratic contests have been strongly influenced by social, cultural, economic and academic forces, for the student who engages in the opportunity, access represents a single transitional point on the journey through higher education. Once a student begins this journey, they can look forward to the academic trials that lead to a credential. “The question of widening access is not just about recruitment, it is about student retention [... and] some students are better placed to navigate a route through higher education and stay the course than others” (Evans, 2002, p. 25). The next section will address the topics of student persistence and the “science” of predicting student success.

**Prediction Using Academic Merit**

In the prediction of student success, academic merit can account for about a third of the factors pushing a student toward success (Willingham, 1990). However, academic merit can be evaluated in a number of ways. For instance, Geiser and Santelices (2007) compared SAT test scores with high school grade point average (HSGPA) as predictive measures of success over the four years of a program and on through to graduation. They found that the HSGPA were “consistently the strongest predictor of four year college outcomes for all academic disciplines, campuses and freshman cohorts in the University of California Sample, and predictive weight associated with HSGPA [increased] after the freshman year” (Geiser & Santelices, 2007, p. 2). When the analysis was controlled for campus and subject groupings, “the coefficient for...HSGPA, actually
increased)” (Geiser & Santelices, 2007, p. 21), yet close to two-thirds of variance was still left unexplained by either HSGPA or SAT predictors. These “results should not be surprising given the many other factors that affect students’ undergraduate experiences after admissions, such as financial aid, social support and academic engagement in college” (Geiser & Santelices, 2007, p. 12).

The first year or two of college can be a difficult transition period for many students who must adjust not only to the more rigorous academic standards of college but often as well to the experience of being away from home for the first time [...] for those who do persist, mean GPAs plummet well below what students have been accustomed to earning in high school. (Gieser & Santelices, 2007, p. 17)

After this initial adjustment, student grades showed gradual improvements, and HSGPA remained the stronger predictor. The difference in predictability between HSGPA and SAT may be the result of method covariance. For instance, high school courses have a similar method of instruction, assessment and teacher-student interaction as used in post-secondary courses, and the SAT only measures academic competence through a single means during the brief testing timeframe (Geiser & Santelices, 2007).

Ramist, Lewis and McCamley (1990) found that courses with the highest correlation to the SAT (i.e., most predictive) were quantitative and scientific in subject. The courses with the lowest correlations (i.e., least predictive) were less traditionally academic subjects, such as remedial English, music, art and physical education; furthermore, students in the lower third percentile demonstrated lower predictability of freshman grade point average (FGPA, Ramist et al., 1990). Adding to this, there was very little change in the validity coefficient observed for the top third percentile. Grades of students in the lower third tended to be less predictable, which may be due in part to available learner support services within a given institution. The offering of these services
students with stronger academic backgrounds (Ramist et al., 1990).

**Student Retention and Study Progress**

The concepts of *student retention* from an institutional perspective and *study progress* from a student perspective are complicated by both (a) the academic and social relationships between the institute and the student (Andres & Carpenter, 1997; Tinto, 1988), and (b) the provincial structure enabling the ease of student mobility in the post-secondary environment (Dennison, 1997, Schuetze & Day, 2001). It is generally understood that the better a student integrates into the educational environment, the more likely the individual will progress through a program to graduation.

What does integration mean then? To a student, they may integrate both socially and academically, yet as they learn more about the chosen discipline, they may not like the educational or professional outcomes. For the student, education is a significant decision that impacts the rest of his or her life, so it is reasonable to assume that he or she will continue to explore or discover new career and/or other educational opportunities even after commencement of studies into a program. This results in the transition of academically successful students who discontinued study in one field before the completion of a credential, and transferred to a different program or institution that may have a better fit (Andres et al., 2007; Martinello, 2008; Schuetze & Day, 2001). This effect has been magnified in BC where the provincial government has facilitated the development of an articulated post-secondary system enabling ease of student mobility among the
various public post-secondary institutions with the assurance of credit for previously completed subject matter (Andres & Adamuti-Trache, 2008a; BC Council on Admissions and Transfer, BCCAT, 2010a; Dennison, 1997; McArthur, 1997; Metcalfe et al., 2007).

Integration into the educational environment also involves the ability to learn. For instance, faculty and staff who were members of the Association of American Universities, were asked about the characteristics of a well-prepared and successful student. A number of skills were identified, which Conley (2003) labelled \textit{habits of the mind}. These habits included aptitudes like (a) critical thinking, (b) problem solving, (c) an openness to critical feedback, and (d) the ability to use acquired knowledge rather than simply regurgitating it. Many of the faculty and staff interviewed suggested that these habits are somewhat more important than just simply high school grades. They still support the assessment of incoming students because skills would be required for students to be successful in high school and, provided students apply themselves, these skills should carry forward into post-secondary.

So program choice, foundational knowledge, and the ability to learn are some factors in student integration; however, there are many other factors that have an impact on progress throughout a program. In an exploration of student success, Van Overwalle (1989) observed mid-term results, the efficiency of study time and academic self-esteem as the best indicators of final exam success. The academic confidence of successful students was moderated by personal characteristics that included, but were not limited to, prior knowledge, study effort and time commitments, interest in the subject, ability to understand lectures and fear of exams (Van Overwalle, 1989). The influence and expectation for study originated both internally and externally to the student, and were either more or less controllable by the student.
An external controllable factor, for example, would be the help and support available from other students and faculty. External to the student because it hinges on the willingness of peers to provide support, but it is controllable because the student can chose to engage in this manner of study or not. An example of an internal uncontrollable factor would be test anxiety. It is internal because it’s a feeling that resonates from within the individual, yet it is irrational, largely uncontrollable and difficult to suppress (Van Overwalle, 1989).

Due to the multitude of influences on a student, prediction of academic completion is strongest in the first few terms, but the influences diminish over time. In a case study at the University of Manitoba, Cyrenne and Chan (2010) found that high school GPA still had a strong correlation to student success. They observed that high school grades were a good indicator of a student’s initial academic success; however, as time progressed, other factors like academic fit, educational and career expectations, and a student’s commitment were all found to exert a greater influence on longer term study progress than high school grades.

In a similar study, Beekhoven et al. (2003) observed secondary school GPA was a good indicator of a student’s initial ability, having a strong positive effect on the study progress for first year Dutch students; however, this influence decreased in subsequent terms with completed courses showing a stronger influence on study progress. This supports the findings of O’Hallaran and Russell (1980) who found that the influence of high school on performance in a part-time math course decreased significantly after two years with the authors stating that “no matter how accurate and reliable an earlier measure, it will not account for later changes in a students attitude, interests and career aspirations” (p. 546). These factors tend to complicate research evaluating the predictive validity of entrance requirements.
**Educational Event Histories**

A common observation technique in higher education is the longitudinal study of term by term progress through a program. Desjardins, Ahlburg and McCall (1999) used one competing and two single risk models to identify the timing of four possible student outcome variables—(a) continue, (b) drop-out and do not return during the study period, (c) first stop-out, or (d) graduation—over a seven year program, and they found that students were less likely to stop-out if they entered a program with a higher GPA; however, students with transfer credit were more likely to stop-out in year one. This study found that a higher GPA had a negative effect on drop-out (i.e., students were less likely to experience drop-out), and the authors recommended that institutions practice monitoring student grades as early as possible in a program to improve student retention and success (Desjardins et al., 1999), and over the credential duration, continuous enrolment and continuous improvements in grades were considered to be more important than just simply first year grades in the completion of a credential. GPA was found to be a “powerful predictor [...as] one grade increase in GPA more than doubles a student's chance of graduating” (Desjardins, McCall, Ahlburg & Mage, 2002). Interestingly, longitudinal research has observed voluntary departure behaviour was observed by academically successful students who discontinued studies (Ishitani, 2003). Indicating that factors other than academic knowledge influence the student's ability to succeed.

**English as a Second Language**

With student integration playing such an important role in student retention and success, second language speakers are disadvantaged both in verbal translation of classroom instruction and in conversations with peers. The second language socialization theory describes the link between linguistic and socio-cultural knowledge as individuals are socialized "into different groups
and social context in which they seek membership” (Zappa-Hollman, 2007, p. 459). Generally, ESL applicants must demonstrate a minimum level of English, and this requirement presents a barrier both to international students and to those who have immigrated to Canada and wish to pursue further education. Golder (2006) described English assessment as a long-term barrier to new Canadians resuming previous professional occupations, but the enforcement of the English requirement was supported by Coley (1999) who addressed the temptation for setting the entry level too low for ESL students.

In a study of Australian institutions, Coley (1999) argued against accepting GCE English tests taken overseas because ESL applicants were only being tested for reading and writing components, and not being tested for listening and speaking components. A majority of the institutions surveyed in this study used The British Council and The National Academic Recognition Information Centre guide (1999) to determine equivalencies for GCSE/GCE levels in order to admit foreign students. Institutions were further advised to align entry requirements with the levels recommended by international testing agencies (e.g., TOEFL) to ensure that these students were successful. This supported Spinks and Ho’s (1984) findings that IELTs results have good predictive value if properly used because this language test assesses all four components.

**Mature Students**

Older students face unique challenges when undertaking a long-term educational commitment, and when encouraging the mature student to embark on the risky endeavour of further education, practical matters must be considered for them to be successful. For instance, providing stable timetables well in advance of study to allow for the planning of daily activities like childcare, work, and commuting (Dinsdale, 2002). In many educational systems, access programs have been developed to provide mature students the ability to gain entry to higher education.
Similar to the Canadian educational system, Carey (2002) reviewed how access courses developed in the 1970s in Britain, have successfully increased participation by under-represented and economically disadvantaged adults. Attendance in 1999 had risen to 37,726 students registered at 457 institutions—women made up three quarters of these access students. With three different credentials available, many of these programs focused more on learning skills, than just the acquisition of a large body of knowledge. The universities in Britain readily accepted applicants who employed this educational route because the observed success/failure ratio of access students and traditional students were roughly the same in the subsequent higher educational programs (Carey, 2002).

A small qualitative study of seven students who dropped out of pre-entry courses in the UK examined barriers to success for mature students (Reay et al., 2002). Those who abandoned training expressed difficulty juggling work, and/or family obligations, and/or logistical difficulties in arranging for all their commitments. A lack of prior-knowledge led to a lack of academic self-esteem in many of the respondents, and a low socio-economic status also factored into the withdrawals. “The consequence for [upgrading] students not having adequate finances is that they cannot afford travel, decent accommodations, or even essential course materials” (Reay et al., 2002, p. 10). Although Reay et al. (2002) made a case that financing was a significant issue for mature students, they did not compare it to the pre-entry experience of those who completed and continued into subsequent post-secondary studies. It would have been interesting to see if successful mature students in the same cohort faced the same financial, family, and social obligations, but developed better strategies to cope with these pressures.
Conclusion

Students who have met requirements should be confident that they have the appropriate academic foundation to understand the content of the program and the skill to cope with the program’s rigor, yet persisting to graduation will require more than just foundational knowledge. As students progress through a program, resources like money and time begin to outweigh pre-entry grades. Students who do not meet minimum requirements would need to leverage social and economic capital before even beginning post-secondary studies, and if under-qualified students are admitted before obtaining a minimum foundational knowledge, they would require additional institutional support which would be over and above any classroom time assigned homework. This could have a negative impact on the student by adding extra courses and/or tutoring, which increases the academic time commitment and could lead to burn-out.

One could argue that an under-qualified but highly motivated student could overcome the academic challenges created through a lack of foundational knowledge in a subject, but an alternate argument could be made that these students have been set up to fail. Unless it was coupled with an increase in corresponding academic support resources, these under-qualified students will have more difficulty and less chance of completing the credential (Willingham, Lewis, Morgan, & Ramist, 1990).

Under-qualified students may adversely affect their peers; for example, students who lack the appropriate background knowledge may ask more questions for clarity on basic concepts in the classroom. On the other hand, stronger students may benefit by having peers to help, which may improve their learning through tutoring and mentoring weaker students (Oakes, 1987). This presents the first big complication involved in predictive assessment: peer influence.
How could an institution possibly match students together who will form a “high performing team?” (Leadership Seminar, 2012) And isn’t the ability to work well both independently and with others, skills students should learn during their post-secondary experience? By asking these questions, we must resign ourselves to the fact that, although peer interaction is an important factor in a student’s persistence, it happens naturally in the educational environment. Without a significant increase in resources, how would an institution determine and/or optimize and/or correct for interactions between the students within each cohort every term? What characteristics would be evaluated, by whom and how?

Another complication arises in assessing for motivation and commitment. These factors, while considered important, are subject to events in an individual’s life at a given time. How does the institution predict a student’s long-term motivation and commitment to persist? Although these skills are necessary to complete a degree, maybe these characteristics should be exercised and developed throughout the post-secondary program rather than evaluated before commencing. Appropriate non-academic support must be offered to guide students to develop and hone motivational skill and commitment over the course of their post-secondary study.

We must now ask whether a student can and/or should be evaluated for minimum commitment and motivation? Completion of high school with good marks is considered a reflection of a student’s commitment and motivation while he or she was in high school, and it is hoped that these attributes will carry forward into higher education. Enrolment in upgrading courses could be considered another sign that an individual is motivated with completion of these courses being another indicator. As we accept this reasoning, we must keep in mind the changing motivation and commitment levels of individuals at various stages of their lives. On an individual level, assessment of maturity, professionalism and motivation can be made somewhat accurately, but how does the
institution evaluate for self-efficacy or academic confidence? While natural abilities, aptitudes and peer integration have a strong influence on student success, they are very difficult to accurately quantify for predictive assessment unless a personal meeting is conducted for every prospective student. A practice that would require increased resources for eligibility assessments. This means many higher educational institutions will continue to rely on past academic performance as predictive of the success for the majority of prospective students.
References


Reay, D., Ball, S. & David, M. (2002). "It's taken me a long time but I'll get there in the end:" Mature students on access courses and higher education choice. British educational Research Journal. 28(4), 5-19. doi: 10.1080/01411920120109711


485. Toronto, Ontario: University of Toronto Press.