Thinking about Emotional Intelligence as a Predictor of Student Success in Post-Secondary Studies

Janet Miller, Brandon Smith, Don Best, Laurie Hellsten-Bzovey
Mount Royal University, McMaster University, Mount Royal University, University of Saskatchewan (Canada)
jbmiller@mtroyal.ca, brsmith@mcmasteru.ca, dbest@mtroyal.ca, laurie.hellsten@usask.ca

Abstract

Student retention has been identified as an important issue in colleges and universities. In North America, it has been reported that one quarter of the students who enter post-secondary after high school do not return for their second year of study [1; 2]. In Canada, it has been found that almost a quarter of post-secondary students withdraw prior to graduation [3], and the majority of those who leave, do so within the first two years of study [1]. This becomes expensive for institutions and, at times, devastating for individuals. Identifying which students will be "at risk" of dropping out is complicated, and academic and cognitive factors only provide marginal predictive information [4; 5; 6]. Success in a post-secondary setting is the product of more than one's intelligence and academic skill. Transition into university can be stressful and is often complicated by financial, interpersonal and intrapersonal issues. Emotional intelligence (EI) encompasses a range of emotional processing skills which likely support students to work through these challenges [7]. Studies which investigate the impact EI has on student success have just begun [8], and this study is designed to contribute to this growing field of study. In the Fall of 2010, first year, full time students entering into their studies at a Canadian university took part in a survey where they were asked to provide demographic information and respond to questions reflecting emotional intelligence, career uncertainty and general belongingness within the post-secondary context. A total of 898 students completed the questionnaire and consented to having their progress tracked through to the time of graduation. Results from the first years of this longitudinal retention study will be presented, focusing on fall to fall retention rates, and the prediction of summer leavers. Conclusions highlight the importance of emotional intelligence skills and career planning within the undergraduate experience approaches to further support student success in university studies.

1. Introduction

In North America, it has been reported that a quarter of first-year students who move directly from secondary education into post-secondary studies do not return for their second year of classes[1;2;3;9]. Similar rates have been reported in the UK (17%)[10], Netherlands (20%) and Sweden (26%)[9]. Poor rates of retention (defined as year-one-to-year-two registration) become expensive for institutions, families and students. However, identifying which students are "at risk" is complicated. High school grades, proficiency tests and standardized tests of intellectual aptitude seem to offer some predictive value (4;5;11], but studies have shown that students who leave prior to graduation do so for a variety of reasons. "Early leavers" are not always cases of failure or disengagement; indeed, many leave in good academic standing[12]. Given that transition into university represents a time of significant change/challenge[13], it makes sense that psychosocial variables play a salient role in success. First year students are challenged to manage finances, academic demands, relationships, and independence, and feel pressure to solidify their career goals and identity. Difficulty managing these challenges appears to be a common reason why students withdraw or fail[5;14]. Emotional intelligence (EI) encompasses a range of processing skills which likely support students to work through these challenges[7], and studies which investigate EI and student success have begun to appear in the literature[8].

Parker his colleagues [8] examined a group of first year students at a small Canadian university. At the beginning of the academic year, participants completed the EQ-i:Short[15], a brief version of the Emotional Quotient Inventory (a rigorously validated assessment tool for the EI construct). At the end of the year, academically "successful" students were compared to "unsuccessful" students. The two groups did not differ in terms of their High School average, age or course-load, but "successful" student had significantly higher scores on most of the emotional and social competency variables as measured by the EQ-i:Short. These results have been replicated with a different EI measure[16], at American universities [17], and using year-end enrolment status (withdrew vs. continued) as the indicator of success[18]. This has led researchers at Trent University to develop an EQ "risk index" used to identify first-year students at risk for retention problem[19] - here referred to as the EQ-11. This study aims to investigate the validity of this EQ-11 "risk index" within the context of a mid-sized (13,000 students) Canadian university to determine its efficacy for predicting fall-to-fall retention for first year undergraduate students.

2. Methodology

In the Fall of 2010, first-year, full-time students were invited to complete an on-line survey where they were asked to provide demographic information and respond to questions reflecting EI, career uncertainty and belongingness specific to this post-secondary context. Participants also consented to having their academic progress tracked through to the time of graduation. Demographic questions were designed to gather information such as age, gender, first generation status, and whether they considered themselves to be part of a visible minority group. The survey also included Trent's [19] EQ-11, a belongingness index (BI, 3 items), and a career indecisiveness index (CI, 4 items). These questions used a five-point Likert scale, and reverse scoring was employed on several items.

3. Results

Please note: Results presented here are focused on emotional intelligence as a possible predictor of student retention. Comprehensive findings from this study are being developed for later publication.

3.1 Participants. In total, 897 students (71% female, 28% male, and 1.3% no data) completed the survey. Of those students who completed the survey, 3% self-identified as Aboriginal, 17% self-identified as a "visible minority", and 11% met our definition of first generation learners (those who parents and/or guardians did not have any post-secondary experience). 56% currently lived with their parents, and 14% lived on campus in residence. The majority reported working while going to school (72%) and approximately half were volunteering.

3.2. EQ Index. Exploratory factor analysis was conducted using a Principle Axis Factor Analysis followed by Direct Oblimin Rotation. Using the guidelines of parsimony and simple structure, an iterative procedure was followed and non-loading items were removed from further analysis. The 11-item emotional intelligence index (EQ-11) was shown to have adequate internal reliability (r_{xx}=.683) but internal consistency improved with one factor removed (EQ-10 index, r_{xx}=.693).

3.3 EQ comparisons across demographic variables. Independent samples t-tests were conducted to examine mean comparisons in EQ-10 scores across variables of interest. Results showed statistically significant difference for gender, age (as defined by 20 years of age or younger versus 21 years of age or older), career index (as defined by lower and upper quartiles), and belonging index (as defined by lower and upper quartiles). Females, older students, students with higher career certainty, and students with higher belongingness scores scored higher on the EQ-10 scale (see Table 1). There were no statistically significant differences on EQ-10 scores between students who were or were not first generation University students or students who were new or returning University students.

In order to examine the relationships among the EQ-10 Index and other demographic variables, Pearson Product Moment correlations were calculated (see Table 2). Statistically significant correlations were found between scores on the EQ-10 risk index and scores on the Career (3 items, r_{xx}=.785) and Belonging indices (3 items; r_{xx}.492). As scores on the EQ-10 risk index increased, scores on the career decidedness and belongingness indices increased. In addition the EQ index was found to be statistically significantly related to age, gender, and re-registration.

3.4 Logistic Regression Results. Logistic regression was conducted to predict fall-to-fall retention. Approximately 71% of the students in this sample continued in their studies (re-registered) for Fall 2011 (n=636) and EQ was examined regarding its ability to predict who might re-register. Results showed that the EQ-10 risk index score was a significant predictor of student retention and as EQ-10 scores increased, the odds of re-registering also increased (see Table 3). However, results also strongly suggested that additional variables would significantly increase the predictive power of the equation.

Table 1. EQ-10 Index Mean Comparisons by Selected Demographic Variables

Variable		N	M	SD	t	Sig
Gender	Male	249	34.87	5.66	-3.85	.000*
	Female	636	36.50	5.68		
Generation	Not-First	100	35.50	6.35	-1.00	.317
	First	797	36.11	5.63		
Age	20-and-Under	678	35.51	5.64	-4.90	.000*
	21-and-Over	219	37.66	5.65		
Career Index	Lower-Quartile	249	34.66	5.39	-7.08	.000*
	Upper-Quartile	295	37.99	5.51		
Belonging Index	Lower-Quartile	304	34.68	5.88	-5.99	.000*
	Upper-Quartile	287	37.47	5.42		
Post-Secondary Experience	New-to-Post-Secondary	351	35.93	5.68	-.451	.652
	Not-new-to-Post-Secondary	546	36.11	5.73		

*Note.**indicates significant at the .001 level.

Table 2. Table of Correlations Between EQ-10 Risk Index and Demographic Variables

	EQ-10	Career	Belong	Age	Gender	First Gen	New to PS	Finished Fall 2010	Finished Winter 2011	Reg in Fall 2011
EQ-10	1.00									
Career	.231**	1.00								
Belong	.221**	.103**	1.00							
Age	.210**	.139**	-.170**	1.00						
Gender	.104**	.062	.023	.016	1.00					
1st-Gen	.043	.010	.132**	-.073*	-.025	1.00				
New-to-PSE	.008	-.091**	-.001	-.202**	.050	.021	1.00			
Fin-Fall-2010	.008	.067*	-.015	-.115**	-.028	.059	-.023	1.00		
Fin-Winter-2011	.064	.141**	.092**	-.146**	-.045	.047	.021	.344**	1.00	
Reg-Fall-2010	.106**	.165**	.100**	-.081*	.005	.054	-.001	.192**	.393**	1.00

Note. * indicates significance at the $p<.05$ level; ** indicates significance at the $p<.01$ level.

Table 3. Results of Logistic Regression to predict re-registration

		95% CI for Odds Ratio		
	B (SE)	*Lower*	*Odds Ratio*	*Upper*
Included				
Constant	-.66 (.47)			
EQ-Score	.04* (.01)	1.02	1.04	1.07

Note. R^2= .013 (Cox & Snell), .018 (Nagelkerke). Model χ^2 = 11.29, p=.001.* $p<.01$.

4. Discussion

The retention rate of this student cohort was about 71%, with the majority of students leaving after their first year of study. EQ-10 risk index scores were found to be significantly related to age, gender, and re-registration with older students, female students, and students who re-register in their second year of study having higher scores. The predictive power of the EQ-10 was further investigated using a logistical regression analysis, and this risk index was shown to be a significant predictor of retention. As EQ-10 scores increased, the likelihood of students re-registering also increased. This suggests that interventions that support the development of EI skills may help to enhance student retention. However, results also suggest that additional variables would significantly increase the predictive power of this equation. Further analysis is warranted. This study is limited by the fact that students self-selected to participate, the questionnaire relies on self-report data, and information about "intention to graduate" was not gathered. Furthermore, not every case of attrition is a tragedy or failure. This study does not reveal the reasons for why students leave, some of which could be due to positive personal reasons or employment opportunities. Access to this kind of information would have strengthened this study. Researchers on this project will continue to mine the data, and plan to revise the survey for Fall 2013. The hope is to uncover a predictive model that may be used to identify students-at-risk in time to intervene.

References

[1] Gerdes, H. & Mallinckrodt, B. (1994). Emotional, social, and academic adjustment of college students: A longitudinal study of retention. *J. Counsel. Develop., 72,* 281-288.

[2] Pancer, S. M., Hunsberger, B., Pratt, M. W., & Alisat, S. (2000). Cognitive complexity of expectations and adjustment to university in the first year. *J. Adol. Research, 15,* 38-57.

[3] Shaienks, D., Gluszynski, T., & Bayard, J. (2008). *Postsecondary education – participation and dropping out.* Ottawa, ON: Statistics Canada.

[4] Côté, J. E., & Levine, C. G. (2000). Attitude versus aptitude: Is intelligence or motivation more important for positive higher-educational outcomes? *J. Adol. Research, 15*, 58-80.

[5] Perry, R. P., Hladkyj, S., Pekrun, R. H., & Pelletier, S. T. (2001). Academic control and action control in the achievement of college students: A longitudinal field study. *J. Ed. Psych., 93,* 776-789.

[6] Randsell, S. (2001). Predicting college success: The importance of ability and non-cognitive variables. *Int. J. Ed. Research, 35,* 357-364.

[7] Salovey, P. & Mayer, J. D. (1990). Emotional Intelligence. *Imagination, Cognition and Personality, 9*, 185-211.

[8] Parker, J. D. A., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. A. (2004). Emotional intelligence and academic success: Examining the transition from high school to university. *Pers. Ind. Diff., 36*, 163-172.

[9] Thomas, L. & Quinn, J. (2003). International insights into widening participation: Supporting the Success of Under-represented Groups in Tertiary Education. Stoke-on-Trent: The Institute for Access Studies. Stafforshire University.

[10] Thomas, L., Cooper, M. & Quinn, J. (eds) (2003). House of Commons Select Committee on Education and Employment 6th Report, in *Improving completion rates among Disadvantaged Students.* Stoke-on-Trent. Trentham Books. 203; 87.

[11] Berger, J. B., & Milem, J. F. (1999). The role of student involvement and perceptions of integration in a causal model of student persistence. *Research High. Ed., 40,* 641-664.

[12] Mount Royal University (2010). Early Leavers Survey 2009. http://oiap/ - retrieved January 15, 2012.

[13] Robotham, D., & Julian, C. (2006). Stress and the higher education student: A critical review of the literature. *J. Further and Higher Ed, 30*, 107-117.

[14] Isaak, M. I., Graves, K. M., & Mayers, B. O. (2006-2007). Academic, motivational, and emotional problems identified by college students in academic jeopardy. *J. Coll. Stu. Retention, 8*, 171-183.

[15] Bar-On, R. (2002*). Bar-On Emotional Quotient Short form (EQ-i:Short): Technical manual*. Toronto, ON: Multi-Health Systems.

[16] Parker, J. D., Austin, E., Hogan, M., Wood, L., & Bond, B. (2005) Alexithymia and academic success: examining the transition from high school to university. *Pers. Ind. Diff., 38 (6), 1257-1267.*

[17] Parker, J. D. A., Duffy, J., Wood, L. M., Bond, B. J., & Hogan, M. J. (2005). Academic achievement and emotional intelligence: Predicting the successful transition from high school to university. *J. First-Year Exp. & Stu. Transition*, *17*, 67-78.

[18] Parker, J. D. A., Hogan, M. J., Eastabrook, J. M., Oke, A., & Wood, L. M. (2006). Emotional intelligence and student retention: Predicting the successful transition from high school to university. *Pers. Ind. Diff. 41*, 1329-1336.

[19] Wood, L. M., Parker, J. D. A., & Sitarenios, J. (2007, June). *EQ-i: New post-secondary indexes for identifying at-risk students.* Paper presented, Annual meeting, CPA, Ottawa, ON