

The Effects of Hope on Student Engagement, Academic Performance, and Vocational Identity

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Abstract

This study examines (1) the baseline measure of the Hope Centered Career Inventory (HCCI) in Canada and the United States and (2) the relationships among hope, student engagement, academic performance, and vocational identity, having hope as a primary predictor. The sample consisted of 1685 students at two universities in Canada and two universities in the United States. Normative scores of the HCCI for Canadian and U.S. students were derived from the data. The results indicate that hope has effects on both vocational identity and academic performance (GPA) via student engagement as a mediator. The effects of hope on GPA were found to be weak. Student engagement fully mediated the relationship with GPA and partially mediated the relationship with vocational identity.

Résumé de recherche

Cette étude porte sur la mesure de référence du répertoire des carrières axées sur l'espoir (HCCI/RCAE) au Canada et aux États-Unis et sur le lien qu'il peut exister entre espoir, engagement des élèves, résultats académiques et identité professionnelle, avec l'espoir comme principal indicateur. L'échantillon se composait de 1685 étudiants issus de deux universités au Canada et de deux universités aux États-Unis. On a ainsi pu déterminer à partir des données rassemblées, des scores normatifs du

HCCI/RCAE concernant les étudiants canadiens et américains. Les résultats révèlent que l'espoir a un impact à la fois sur l'identité professionnelle et la performance académique (moyenne pondérée cumulative des notes/MPC) et se manifeste par un facteur décisif, l'engagement des étudiants. Il a en revanche été établi que l'espoir influait faiblement sur la moyenne. L'engagement des étudiants, quant à lui a un impact direct sur le rapport à la moyenne des notes et un impact relatif sur le rapport à l'identité professionnelle.

Author Note

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The construct of hope has received growing attention given its linkages with positive outcomes in life domains such as work and education (Snyder, 2002). More recently, Niles, Amundson, and Yoon (in Niles, Amundson & Neault, 2011) developed and presented the hope-centred model of career development (HCMCD) using hope as a central construct. The model consists of seven competencies: hope, self-reflection, self-clarity, visioning, goal setting and planning, im-

plementing, and adapting. In this model, hope is a necessary precondition for the use of other competencies. Niles, Amundson, and Yoon integrated and synthesized three theories to create the HCMCD: Snyder's (2002) hope theory, Bandura's (2001) human agency theory, and Hall's (1996) career metacompetencies. As the central construct in the HCMCD, hope aligns with Snyder's hope theory comprised of goals, agency, and pathways. Self-clarity and adapting correspond to Hall's career metacompetencies of self-awareness and adaptability, respectively. Lastly, Bandura's human agency constructs of self-efficacy (labeled self-reflection in HCMCD), forethought (visioning in HCMCD), self-reactiveness (goal-setting in HCMCD), and intentionality (planning and implementing in HCMCD) represent the remaining HCMCD components. People with high hope-centred career competencies tend to be successful in their career planning (Niles et al., 2011).

Niles, Yoon, and Amundson (2010) created the Hope-Centered Career Inventory (HCCI) based on the HCMCD to measure the seven hope-centered career competencies. The HCCI has been piloted in a number of countries: Bermuda, Canada, Germany, Turkey, South Korea, and the United States. HCCI reliability and validity information has been accumulated and analyzed, confirming its structural soundness (Niles, Yoon, Balin, & Amundson, 2010). Additionally, norm scores on target populations are critical for



HCCI score interpretation as the norms scores provide a peer group context for the individual student or client's scores. Scores from the HCCI can be used to identify strengths and areas for growth to enable HCCI users to develop their personal career self-management plans. The HCCI has also been used to explore the relationships among career and academic outcome variables associated with hope within a university population. Researchers have found that highly hopeful individuals seem to achieve positive outcomes in both their studies and their careers, and yet, the role of hope in students' career success has not been fully explored (Niles, In, Chen, Su, deShield, & Yoon, 2013).

In the current study, we chose vocational identity as one of student outcome variables from the perspective of career development. According to Holland, Daiger, and Power (1980), vocational identity indicates one's clear sense of interests, talents, and personality that are related to career choice. We also used grade point averages (GPAs) to indicate academic success. In addition, we selected student engagement as a mediator between hope and outcome variables to further analyze the relationships. In post-secondary settings, student engagement has been used as a predictor for academic performance (e.g., Carini, Kuh, & Klein, 2006; Gordon, Ludlum, & Hoey, 2007). There is, however, no study investigating the relationship between hope and school engagement in the prediction of career and academic outcomes among college students. Thus, this study is meaningful as it examines how hope links to school engagement, and how student engagement, in turn, links to academic and career outcomes.

Literature Review

The Effects of Hope

Snyder, Irving, and Anderson (1991) defined hope as "a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal-directed energy) and (b) pathways (planning to meet goals)" (p.287). In this definition, goals offer the targets toward which one's energy and actions are directed. Agency and pathways are equally important components for reaching desired goals. More specifically, agency thinking refers to the motivational element that allows a person to begin and continue to move towards pursuing goals. Pathways thinking indicates a person's perceived capability to formulate a variety of plans to achieve their goals (Snyder, 2002). These agency and pathways components of hope enable people to persist in their goal-pursuit and to generate alternative pathways when they encounter obstacles to their goals.

Hope is associated with desired outcomes in various domains of life such as physical and mental health, athletics, and academics (Snyder, 2002). In particular, researchers have found that hope predicts positive outcomes in work and academic lives. With regard to workplace behaviours, studies have revealed that workers with higher hope are likely to demonstrate better job performance (Combs, Clapp-Smith, & Nadkarni, 2010; Luthans, Avolio, Avey, & Norman, 2007; Luthans, Avolio, Walumbwa, & Li, 2005; Peterson & Byron, 2008), higher job satisfaction (Tombaugh, Mayfield, & Wooten, 2011; Youssef & Luthans, 2007), higher workplace happiness (Youssef & Luthans, 2007), and lower absenteeism (Avey, Patera, & West, 2006) than workers with lower hope.

Despite the considerable amount of attention given to the relationships between hope and workplace outcomes, few studies have examined the role of hope in the career development process of post-secondary students. Those studies support associations between high hope and positive career development variables. For example, several studies have found significant and positive correlations between hope and vocational identity (Jackson & Neville, 1998; Niles, Yoon, Balin, & Amundson, 2010). Juntunen and Wettersten (2006) proposed the concept of work-domain specific hope based on Snyder's hope theory. They also found strong relationships between work hope and vocational identity as well as career decision self-efficacy among diverse adolescent and adult populations in the United States. Another study found that the agency component of hope predicted, and was predicted by, adaptive educational and career development skills and outcomes among students at a public American university (Sung, Turner, & Kaewchinda, 2012). Collectively, these research findings suggest that hope plays an important role in students' career development. Relatively few studies have addressed this topic, however, and the samples have focused on students in the United States. Therefore, further studies are needed to examine the linkages between hope and career development among diverse university students beyond those in the United States.

Furthermore, hope has been found to contribute to academic success. Researchers have found that higher hope is associated with greater academic achievement (Curry et al., 1997; Day, Hanson, Maltby, Proctor, & Wood, 2010; Rand, 2009; Seirup & Rose, 2011; Snyder, Shorey, Cheavens, Pulvers, Adams III, & Wiklund, 2002) as



well as higher university completion rates (Snyder, Shorey et al., 2002). Moreover, results from several studies indicate that hope predicts student GPAs beyond the effects of previous academic achievement and related personal characteristics such as intelligence (Curry et al., 1997; Day et al., 2010; Seirup & Rose, 2011; Snyder, Shorey et al., 2002). For instance, hope positively predicted semester GPAs among university athletes, while controlling for their cumulative GPAs and sense of self-worth (Curry et al., 1997). Likewise, Seirup and Rose (2011) found that higher hope of university students on academic probation was associated with higher end of semester GPAs even after controlling for students' previous GPAs. Furthermore, Day et al.'s (2010) three-year longitudinal study revealed that hope was predictive of the academic achievement of college students over and above their prior academic performance, intelligence, and personality.

Overall, research evidence supports the importance of hope for university students' seeking to achieve their career and academic aspirations. However, little is known about how the positive links between hope and career and academic outcomes are mediated. In other words, the mechanism through which hope exerts its influence on students' career development and academic achievement has not been examined.

Precursors and Outcomes of Student Engagement

Engagement in an educational setting has been referred to using such terms as engagement, academic engagement, school engagement, and student engagement with at least 19 different definitions (Appleton, Christenson, & Furlong, 2008). However, according to Kuh

(2003), "the engagement premise is deceptively simple, even self-evident: the more students study a subject, the more they learn about it" (p. 25). Engagement is further specified to emotional, behavioural, and cognitive engagement (Appleton et al., 2008; Fredricks, Blumenfeld, & Paris, 2004). Fredricks et al. (2004) found that emotional engagement does not correlate as strongly with dropping out as does behavioural engagement, and evidence involving cognitive engagement is insufficient. Appleton et al. (2008) add that cognitive engagement is considered less observable, as it has been measured with such internal indicators as value of learning, self-regulation, and relevance of school experience to future possibilities. Therefore, choosing a behaviourally oriented approach to engagement would be desirable when exploring the effects of engagement.

In order for students to be motivated to engage in learning, they must feel and believe that they belong to the community, that they are respected, and that the lessons of the post-secondary institution are relevant to their own situations (National Research Council & Institute of Medicine, 2004). Environmental variables such as family, culture, community, and educational context influence engagement (Fredricks et al., 2004). These findings suggest the importance of maintaining supportive surroundings to facilitate feelings of hopefulness within the learning context. Theoretically, according to HCMCD (Niles, Amundson, & Neault, 2011), hope is influenced by the environment. For example, if one is in a supportive environment, he or she is more likely to experience a higher level of hope than others who are in a detrimental environment. Thus, it makes sense to suppose that a high level of hope would positively influence one's engagement, and in turn it

would induce one to deliver desired outcomes in a given setting.

Outcomes of student engagement have been associated with test scores and GPA. Gordon et al. (2007) conducted a study at a large university in the United States using multiple years of National Survey of Student Engagement (NSSE) data and found that student engagement is positively and significantly correlated with academic performance (GPA), retention, and post-graduation job attainment. Gordon et al. used each item of the NSSE to investigate the relationships. For example, tutoring experience explained 2.6% of the variance in first-year students' GPA and 2.7% of the variance in senior students' GPA; and community service or volunteering work explained 10.3% of the variance associated with job attainment for senior-year students. Although some items predicted the student outcomes, overall results indicated that the NSSE benchmarks offer marginal predictive power of the outcomes (Gordon et al., 2007). Carini et al. (2006) also conducted an extensive study of the effects of NSSE scores on learning outcomes, using two standardized tests, the RAND and the Graduate Record Examination (GRE), and GPA, at 14 four-year colleges and universities. Although they found some positive correlations between student engagement and these standardized test results, it is important to note that the strength of the relationships between student engagement and GPA was weak.

Other student outcome measures should be explored. According to the National Research Council & Institute of Medicine (2004), the majority of 100,000 7th through 11th grade students in the United States responded that their main reason to actively engage in school work is to achieve good grades to enter university. The fact



that some studies in higher education settings (e.g., Carini et al., 2006; Gordon et al., 2007) still focus on test results seems to reflect expectations established in secondary schools. In contrast, Astin's study confirmed that student engagement increases learning, retention, and cognitive and affective development, in addition to academic performance in a post-secondary setting (as cited in Saenz et al., 2011). Although the setting is different from higher education, job and organizational engagement predicted job satisfaction, organizational commitment, organizational citizenship behaviour, and intentions to quit (Saks, 2006). It is imperative to find other outcome variables of student engagement in higher education settings than academic performance.

Student engagement could be used as a mediator between antecedents and outcomes. Fredricks et al. (2004) argued that there is limited evidence concerning the mediating role of engagement between context and achievement, and engagement has been used as an outcome variable rather than a mediator leading to student achievement. More recently, scholars such as Appleton et al. (2008) have discussed the need to use student engagement as a mediator between contextual factors and outcome variables. Perry, Liu, and Pabian (2009) examined the mediating role of student engagement between career preparation and academic performance in a high school setting. It seems, however, that there is still limited evidence related to the role of student engagement as a mediator in a higher education setting.

Purpose and Research Questions

The purpose of this study was to explore how the hopefulness (as measured by the hope subscale

of the HCCI) of college/university students intersects with critical variables such as student engagement, academic performance, and vocational identity. We used the HCCI and other measures with groups of post-secondary students in Canada and the United States 1) to establish the baseline scores of the HCCI, 2) to examine how hope positively affects student engagement, vocational identity, and academic performance, and 3) to investigate to what extent student engagement mediates the relationships in hope predicting vocational identity and academic performance. Accordingly, we developed two questions to guide this research: Research Question 1 (RQ1): How do students in Canada and the United States score on the HCCI? Research Question 2 (RQ2): What are the relationships among hope, student engagement, academic performance, and vocational identity?

Method

Participants

Using an online survey consisting of 101 items, we collected responses from 1756 participants from the University of British Columbia (UBC) and Thompson Rivers University (TRU) in Canada and from The Pennsylvania State University (PSU) and The Pennsylvania College of Technology (PCT) in the United States. Seventy-one responses were excluded, accounting for 4% of the participants, in order to insure the integrity of the data. The exclusion criteria included participants' responses that took less than 4.3 minutes representing 2% or responses that took over 63.1 minutes, also representing 2% of the total respondents. The 2% with the fastest completion times had extremely high intercorrelations among the HCCI variables ($\geq .90$), which suggests that the respondents

may have not responded sincerely to the survey questions. We excluded the slowest 2% for similar reasons, based on comparisons between the correlation patterns of the majority group and the slowest group. After the exclusion process, we analyzed 1685 cases, that had an average survey completion time of 11.6 minutes (see Table 1 for the demographics of the participants).

The 1685 participants were comprised of 676 students attending Canadian institutions and 1009 students attending U.S. institutions. Female participants made up 64.9% of the sample, while males comprised 35.1% of the sample. The mean age of the participants was 21.55 years ($SD = 5.88$). The sample consisted of 68.8% first and second year students, while third year and higher students represented 31.2%. Interestingly, the demographic profiles of the institutions varied; for example, visible minority students accounted for 65.1% of the UBC responses, whereas Caucasians accounted for 94.3% of the PCT responses. Furthermore, 94.6% of the PSU responses came from first and second year students, while the UBC and PCT dataset did not show the skewness in the academic standing.

Measures

The Hope-Centred Career Inventory (HCCI). Niles, Yoon, and Amundson (2010) developed the HCCI with 28 items with an aim to measure individuals' levels of hope-centred career competencies. A 4-point Likert scale (4 = *definitely true*; 3 = *somewhat true*; 2 = *somewhat false*; 1 = *definitely false*) was used for the HCCI response options. A subscale with a high score indicates that the individual has a significant level of its respective hope-centred career competency. The following items are a sample of the seven HCCI subscales:



- Hope: I try to stay hopeful even when I face difficulties in my life.
- Self-reflection: I take time to think about my thoughts and feelings.
- Self-clarity: I can clearly describe my strengths.
- Visioning: I spend time thinking about what will happen in my future.
- Goal setting and planning: I make a list of things that I want to complete.
- Implementing: I take the next steps to meet my goals.
- Adapting: I am open to change that might improve my chance to reach my goals.

Niles et al. (2010) reported that the HCCI's overall scale had a coefficient alpha of .92, indicating strong internal consistency reliability. The coefficient alphas for the subscales ranged between .74 and .86. For the current study, the coefficient alpha of the overall HCCI was .91, and the coefficient alphas of the subscales were .81 (hope), .61 (self-reflection), .73 (self-clarity), .77 (visioning), .74 (goal setting and planning), .77 (implementing), and .74 (adapting).

The HCCI has sound internal validity with seven distinct factors tested by confirmatory factor analysis for the factor structure (Niles et al., 2010). The HCCI's convergent validity was tested by examining the correlations between relevant constructs. According to Niles et al. (2010), the total scores of the HCCI and the Assessment of Human Agency (Yoon, 2011) correlated highly at .82, because both measures used human agency as one of core theoretical backgrounds. Similarly, the total scores of HCCI and the Adult Hope Scale (Snyder, Harris, et al., 1991) correlated highly at .74, perhaps due to the fact that the the central concept of both

Table 1

Demographics of Participants

School	Total (n)	Gender (%)		Race (%)		Year in School (%)	
		Female	Male	Caucasian	Visible Minorities	1st, 2nd year	Above 2nd year
UBC(CA)	447	74.3	25.7	34.9	65.1	41.2	58.8
TRU(CA)	229	71.2	28.8	84.7	15.3	70.3	29.7
PSU(US)	643	64.1	35.9	79.8	20.2	94.6	5.4
PCT(US)	366	50.8	49.2	94.3	5.7	56.6	43.4
Total	1685	64.9	35.1	71.7s	28.3	68.8	31.2

scales is hope. These results confirm that the HCCI has strong convergent validity.

In this study, Research Question 1 examined the scores of all seven HCCI subscales of among college/university students in Canada and the United States. For Research Question 2, the 4-item hope subscale was used to measure respondents' degree of general hope.

Student engagement. The National Survey of Student Engagement (NSSE; Kuh, 2003) is the most widely used measure among post-secondary institutions in the United States. The NSSE is designed to be used at four-year institutions, while its companion version, the Community College Survey of Student Engagement (CCSSE; Angell, 2009) is designed for use at two-year institutions. We identified 14 items with behavioural indicators that are commonly used between NSSE and CCSSE, because one of the institutions (PCT) participated in this research offers two-year programs. The items represent three domains: student-faculty interaction (SFI; 5 items), level of academic challenge (LAC; 3 items), and active and collaborative learning (ACL; 6 items). We excluded two domains, enriching educational experiences (EEE) and supportive campus environment (SCE), because they do not directly measure students' engagement in academic activities. Out of the 16 items, we deleted two items that exhibited low factor loadings for in-

tended factors. Sample items include "Asked questions in class or contributed to class discussions" (ACL), "Worked harder than you thought you could to meet an instructor's standards or expectations" (LAC), and "Ideas from your readings or classes with instructors outside of class" (SFI).

After that, we parceled the remaining 14 items using the domain-representative parceling technique (Kishton & Widaman, 1994), and it resulted in three parceled items for the student engagement construct. We used parceling because our primary interest was to use the overall construct of student engagement without further exploring its sub-constructs (Little, Cunningham, Shahar, & Widaman, 2002). For the current study, the student engagement scale with three parceled items was .85. Although the reliability and validity of the NSSE has been challenged due to its low internal consistency for individual subscales and lack of theoretical background for the formation of them (see Porter, 2011), this reliability result with one latent variable avoids the concern.

Vocational Identity Scale (VIS). The Vocational Identity Scale (VIS) of the My Vocational Situation (MVS; Holland et al., 1980) was utilized to measure participants' vocational identity. VIS consists of 18 items measuring respondents' sense of clarity as to their career interests, talents, and goals (0 = true; 1



= *false*). Sample items include “I need reassurance that I have made the right choice of occupation,” and “I am confused about the whole problem of deciding on a career.” Higher scores of VIS reflect higher vocational identity.

According to Holland et al. (1980), VIS’s coefficient alphas ranged from .86 to .89. Scott and Ciani (2008) also observed the coefficient alphas in the similar range, between .84 and .86 with U.S. undergraduate students in the Midwest region. In terms of test-retest reliability, Holland, Johnston, and Asama (1993) reported an average correlation coefficient of approximately .75 with 1- to 3- month intervals. Holland et al. (1993) found significant correlations between the VIS and various career outcomes. On the Career Indecision Scale (Osipow, Carney, & Barak, 1976), for example, the *certainty* subscale positively correlated with VIS ($r = .60$), while the *indecision* subscale negatively correlated with VIS ($r = -.78$) in a study with college students (Wanberg & Muchinsky, 1992). The internal consistency for the VIS in the current study was .89 using the Kuder-Richardson formula 20 (KR-20).

In this study, in order to analyze structural equation models, the original 18 items were parcelled to three 6-item parcels based on the single factor method. That is, after items were forced into the one-factor solution using exploratory factor analysis (EFA), the highest and lowest loading items were grouped in the first parcel, the second highest and second lowest loading items were grouped in the second parcel, and this continued until the ninth highest and ninth lowest loading items were grouped in the ninth parcel (Landis, Beal, & Tesluk, 2000). The nine parcels were forced into the one-factor solution again and grouped into five parcels, and finally these five parcels were grouped into

the final three parcels using the single factor method.

Students’ self-reported

GPA. We used the participants’ cumulative GPA to measure their academic performance. Participants were requested to report their cumulative GPAs using a 4-point scale (1 = *mostly Ds or lower*; 2 = *mostly Cs*; 3 = *mostly Bs*; 4 = *mostly As*).

Data Analysis

SPSS 19.0 was used to analyze the data relating to RQ1 and generate descriptive statistics for each HCCI subscale and the total scale. In addition, we calculated t-test results for the differences in HCCI scores between the data from Canada and the United States. We used Lisrel 8.80 to answer RQ2 and tested a structural equation model with the variables of hope, student engagement, and vocational identity, academic performance, and vocational identity.

Results

RQ 1. Baseline Measure of the HCCI

First, we produced percentile scores for hope-centred career competencies of samples in Canada and the United States (see Table 2 & 3). These tables can be used when counsellors interpret students’ HCCI results. Second, we checked whether significant differences exist in the mean scores of the samples from Canada and the United States using a t-test (see Table 4). Interestingly, the U.S. data exhibited higher scores on all hope-centred career competencies at a statistically significant level. However, cautions need to be given when interpreting these significant differences between the two samples, because the samples represent only

two institutions in each country and their demographic compositions, particularly around culture, are different. Further investigation is necessary to interpret this finding. In both countries, the HCCI subscale with the lowest mean score was *goal-setting and planning* ($M = 3.08$, $SD = .59$ in Canada and $M = 3.19$, $SD = .59$ in the United States). In terms of highest mean scores, *adapting* was highest in the Canadian sample ($M = 3.39$, $SD = .45$), whereas *visioning* was highest in the U.S. sample ($M = 3.52$, $SD = .50$).

RQ 2. Role of Hope in Student Engagement, Vocational Identity, and Academic Performance

Figure 1 depicts a hypothesized model to answer RQ2. We hypothesized that a higher sense of hopefulness contributes to higher academic performance (GPA) and clearer vocational identity via enhanced student engagement. We used student engagement as a mediator between hope and two outcome variables. In other words, we hypothesized that hope predicts academic performance and vocational identity through student engagement in a postsecondary education setting.

Table 5 exhibits the means and standard deviations of hope, student engagement, GPA, and vocational identity and the correlations between the variables. All of them were significantly correlated with each other at the .01 levels.

We tested the hypothesized mediation model using Structural Equation Modeling (SEM) after controlling for country, race, parental educational level, and age with the maximum likelihood method of parameter estimation. We excluded the effects of these demographic variables in order to test pure relationships among hope, student engagement, academic performance (GPA), and vocational



identity. The test results of the model fit revealed that the chi-square test was significant, χ^2 (df = 67) = 241.252, which indicates the lack of model fit. The chi-square, however, is very sensitive to sample size and almost always rejects the model with large samples (Hooper, Coughlan, & Mullen, 2008). The sample size in this study (N = 1685) is considered as very large; therefore, three practical fit indices were used to determine the degree of model fit: CFI (Bentler, 1990), NNFI (Tucker & Lewis, 1973), and RMSEA (Browne & Cudeck, 1993). The fit indices of the hypothesized model include CFI = .974, NNFI = .960, and RMSEA = .056. This model was found to be good based on the overall pattern of fit indices (Hu & Bentler, 1999), demonstrating that the hypothesized mediation model is well supported by the sample of this study. This led us to further examine regression coefficients within the model. Figure 2 exhibits the standardized regression weights of our hypothesized mediation model.

Hope predicts both GPA and vocational identity among college/university students. Hope had total effects on both GPA ($\beta = .078$, $p < .05$) and vocational Identity ($\beta = .407$, $p < .001$) at statistically significant levels. This denotes that hope had significant effects on GPA and vocational identity when the mediator, student engagement, was not considered in the model.

Hope predicts student engagement. When controlling for GPA and vocational identity, hope had a significant effect on student engagement ($\beta = .377$, $p < .001$). This indicates that one standard deviation of hope increase results in the increase of .377 standard deviation of student engagement.

School engagement fully mediates the effect of hope on GPA. When controlling for hope, the effect of school engagement on GPA was statistically significant ($\beta = .127$, $p < .01$). However, the residual direct effect of hope on GPA was not statistically significant when student engagement was considered ($\beta = .031$, $p > .05$). These results in addition to the significant effect of hope on student engagement indicate the effect of hope on GPA was totally mediated by student engagement, based on the joint significance rules for mediation (MacKinnon et al., 2002).

ational identity ($\beta = .370$, $p < .001$) was significant, indicating that school engagement was a partial mediator between hope and vocational identity.

Discussion

With regard to RQ1, the norm scores in each country could be used as a useful reference when interpreting HCCI results, because the tables allow career practitioners to locate percentile scores of individuals. However, career practitioners needs to be cautions when using the norm scores due to its limited

Table 2

Percentile scores of HCCI in Canadian Institutions

	Hope	Self-reflection	Self-clarity	Visioning	Goal setting/planning	Implementing	Adapting	Overall
Percentiles								
10	2.50	2.75	2.50	2.50	2.25	2.43	2.75	2.75
25	3.00	3.00	2.75	3.00	2.75	2.75	3.00	2.96
50	3.25	3.25	3.25	3.50	3.00	3.00	3.50	3.25
75	3.75	3.50	3.50	3.75	3.50	3.50	3.75	3.50
90	4.00	3.75	4.00	4.00	3.75	3.75	4.00	3.75

Table 3

Percentile scores of HCCI in United States Institutions

	Hope	Self-reflection	Self-clarity	Visioning	Goal setting/planning	Implementing	Adapting	Overall
Percentiles								
10	3.00	2.75	2.75	2.75	2.25	2.50	3.00	2.89
25	3.25	3.00	3.00	3.25	2.75	3.00	3.25	3.18
50	3.50	3.50	3.50	3.75	3.25	3.25	3.50	3.43
75	4.00	3.75	3.75	4.00	3.75	3.75	4.00	3.68
90	4.00	4.00	4.00	4.00	4.00	4.00	4.00	3.86

School engagement partially mediates the effect of hope on vocational identity. When controlling for hope, the effect of school engagement on vocational identity was also statistically significant ($\beta = .100$, $p < .05$). This result in conjunction with the significant effect of hope on student engagement indicates that school engagement mediated the effect of hope on vocational identity. However, the residual direct effect of hope on vo-

geographical representation in each country. Furthermore, the mean scores of HCCI results of students in Canada and the United States significantly differed from each other, but we are unsure about what accounts for the differences. Therefore, we need to gather more data from across both countries with more geographic representations in order to draw any meaningful conclusions. Despite of the varying results between the two countries, the mean



Table 4

Comparison between Canadian Sample and the United States Sample

	Canada (n = 676)		US (n = 1009)		T
	M	SD	M	SD	
HCCI (Overall)	3.23	.38	3.40	.36	-9.12
Hope	3.25	.59	3.50	.49	-8.95
Self-reflection	3.27	.46	3.35	.44	-3.39
Self-clarity	3.19	.55	3.43	.48	-9.18
Visioning	3.34	.55	3.52	.50	-6.66
Goal setting and planning	3.08	.59	3.19	.59	-3.76
Implementing	3.10	.53	3.32	.51	-8.58
Adapting	3.39	.45	3.50	.44	-4.78

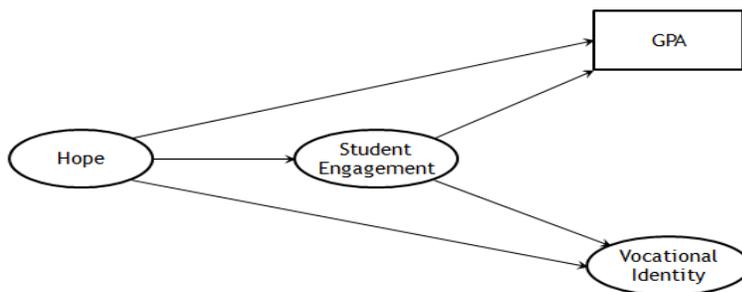


Figure 1. Hypothesized mediation model

scores of the all subscales of the HCCI were above 3.0 in both Canadian and U.S. samples. Considering the response options of the HCCI (4 = *definitely true*; 3 = *somewhat true*; 2 = *somewhat false*; 1 = *definitely false*), it appears that the participants in both countries reported positive views on their levels of hope-centred career competencies on average. In addition, it appears that students in both countries scored lowest on goal setting and planning. This might indicate the need for curriculum around *goal setting and planning* to provide students with additional opportunities to develop these skills.

The findings from RQ2 expand the hope-related research in the context of career development by exploring a mechanism (i.e., student engagement) through which hope predicts GPA and vocational identity among post-secondary students. The results of structural equation modeling confirmed the hypothesis that hope predicts academic performance and vocational identity via student engagement. First of all, the significant total effects of hope on both GPA and vocational identity indicate that high levels of hope are linked to high GPA and clear vocational identity. Specifically, each standard deviation increase in hope produced a 0.078 standard deviation increase in

GPA, indicating a weak but still significant relationship between hope and GPA. These results are consistent with previous findings of the significant associations between hope and academic achievement (Curry et al., 1997; Rand, 2009; Seirup & Rose, 2011) and hope and vocational identity (Jackson & Neville, 1998; Juntunen & Wettersten, 2006; Niles et al., 2010).

Second, the results suggest that student engagement fully mediated the effect of hope on GPA, given 1) the significant effect of hope on student engagement, 2) the significant effect of student engagement on GPA, and 3) non-significant effect of hope on GPA in the hypothesized mediation model. This finding suggests that hope indirectly affects students' GPA through enhancing students' school engagement activities. In other words, it appears that positive expectations about students' futures should accompany with students' engagement in their academic work in order to achieve higher GPAs. Specifically, student engagement mediated 61.4% of the total effect of hope on GPA. Appleton et al. (2008) and Perry, Liu, and Pabian (2009) addressed the need for employing school engagement as a mediator, and this finding confirmed that school engagement can be used as a mediator in the particular relationship between hope and GPA.

Third, the results indicated that school engagement partially mediates the effect of hope on vocational identity. This assumes three significant path relationships: 1) effect of hope on school engagement, 2) effect of school engagement on vocational identity, and 3) effect of hope of vocational identity. The findings suggest that post-secondary students with higher hope are more likely to engage in meaningful school activities; those students, in turn, are more likely to develop a

Table 5

Correlations, Means, and Standard Deviations of Study Variables

	Hope	Student Engagement	Vocational Identity	GPA	M	SD
Hope	-				3.40	.54
Student Engagement	.336	-			2.39	.51
Vocational Identity	.417	.271	-		.59	.29
GPA	.123	.148	.143	-	3.36	.67

Note. All correlations significant at $p < .01$.

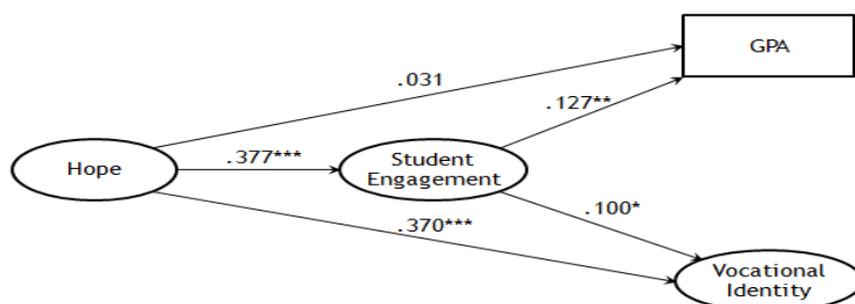


Figure 2. Standardized Parameter Estimates for Mediation Model
 Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

better understanding of their vocational interests, strengths, or goals. More specifically, it appears that having hope about one's future motivates post-secondary students to actively interact with faculty, work collaboratively with peers on academic work, and invest more time on class preparation and assignments. As students engage in these academic activities, they will likely learn more about their talents, interests, and/or values, as well as some career possibilities, which may eventually contribute their vocational identity development.

Interestingly, when the mediator, student engagement, was considered, the direct effect of hope on vocational identity remained substantial and statistically significant ($\beta = .370$). Student engagement mediated only 9.3% of the total effect of hope on vocational identity. This finding implies that there may be another process by which hope influence vocational identity. Thus, further research is needed to examine other potential mediating variables. Another possible mediating variable is career exploration activities such as job shadowing, participating in experiential learning opportunities, or attending job fairs. Studies have supported that career exploration activities allow students to refine and solidify their vocational identity (Gushue, Scanlan, Pantzer, & Clarke, 2006; Robitschek & Cook, 1999). In demonstrating that more hopeful students are likely to engage in meaningful school ac-

tivities, it is possible that being hopeful prompts students to participate in career exploration activities such as attending career fairs, participating in co-operative education or internship programs, and taking vocational inventories. These activities, in turn, may facilitate students' vocational identity development.

In summary, results of the present study suggest that hope plays an important role in the development of vocational identity and, to a lesser degree, academic performance among college and university students in Canada and the United States. In addition, the analyses suggest that the mediating role of student engagement was confirmed in the relationships between hope and two outcome variables—academic performance and vocational identity.

The findings from this study have important implications for career counsellors and educators who work with students. When hope is lacking, students may not actively engage in academic activities such as completing homework, communicating with faculty, and engaging in discussions relevant to course topics. Furthermore, students who lack hope may be less likely to achieve high GPAs and to have solid vocational identities. Thus, it is critical for career counsellors and educators to promote hope in their students. Career and school counsellors are encouraged to assess and address students' hope as an integral part of the career counselling and education process. In order to effectively foster

hope in students, it is necessary to identify strategies and resources that can enhance hope. By doing so, counsellors can assist students to actively engage in academic activities, which in turn, aid students in improving academic performance and developing a strong sense of vocational identity.

Limitations and Recommendations

This study holds several limitations. We acknowledge that cross-sectional data was used in this study, so it is difficult to draw conclusions regarding causal relationships. Future research needs to adopt causal research designs (e.g., experimental research, longitudinal research) to rule out confounding factors and draw causal conclusions. Some studies have shown the reciprocal relationships between hope and student engagement (Van Ryzin, 2011) as well as hope and vocational competency (Wandeler & Bundick, 2011). Future researchers may want to examine the possible reciprocal relationships among hope, student engagement, and career/academic variables using longitudinal data. Additionally, this study used self-report measures to assess each variable, which may introduce potential limitations of social desirability and common method bias. Future researchers could use methods of measurement other than self-report, such as actual GPA data, attrition rates, or observations in order to examine various academic and career-related variables in relation to hope.

Furthermore, the participants were limited to the four institutions in Canada and the United States. For the Canadian portion of the samples, participants were recruited using a list of students who had previously accessed career services at their respective universities. The majority of participants were



Caucasian, female, and first- and second- year students. As a result, the generalizability of the findings to other populations and institutions is limited. Replicating this study with diverse populations is necessary, such as undergraduate students with high barriers and low hope, older workers, graduate students, and people who are unemployed. Thus, using more sites for data collection is recommended.

Conclusions

This study provides empirical evidence that hope significantly predicts academic performance and vocational identity using student engagement as a mediator. Student engagement served as a full mediator between hope and GPA and as a partial mediator between hope and vocational identity. The significant total effects of hope on both GPA and vocational identity suggest that high levels of hope are linked to high GPA and clear vocational identity. Taken together, career practitioners and educators are encouraged to provide necessary interventions based on assessment considering the roles of hope and student engagement in students' vocational identity development and academic performance.

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