PREDICTORS OF UNIVERSITY ADAPTATION AND GRADES FOR DIRECT ENTRY AND TRANSFER STUDENTS

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Abstract

This study compared the differences between students entering university directly from high school vs. those transferring from other higher education institutions for the variables of the academic self-control model (general resourcefulness, academic resourcefulness, academic self-efficacy, preparedness, failure attributions, and university adaptation). The goals of the research were to test the following: (1) the full academic self-control model using a large sample of undergraduate students to predict university adaptation and final grades; (2) if the pathways of association implied by the model are equally predictive regardless of whether students are direct entry, university transfer, or college transfer; and (3) if the means of the variables differed among these three groups. Results replicated previous studies showing that, for the entire sample, general resourcefulness, preparedness, explanatory style for failure, and academic self-efficacy were strongly predictive of academic resourcefulness, which, in turn, was strongly associated with university adaptation and grade. Moreover, the indirect and direct pathways of the model were found to be equivalent for the three student groups. Comparisons of the groups' means for the psychological variables revealed the university transfer group to have the most favourable scores followed by the college transfer group. The findings suggest that both college and university transfer students bring valuable skills to undergraduate programs and the keys to their university adaptation and academic achievement are the same as for direct entry students.

Keywords: academic self-control model, direct entry, university adaptation, final grade

Résumé

Cette étude a comparé les différences entre les étudiants/étudiantes qui entrent directement à l'université de l'école secondaire contre les étudiants/étudiantes qui transfèrent d'autres établissements d'enseignement supérieur pour les variables du modèle de maîtrise de soi académique (ressource générales, ressource académique, auto efficacité académique, la préparation, attributions d'échec, et adaptation universitaire). Les objectifs de la recherche étaient contrôle: le modèle de maîtrise de soi académique complet en utilisant un gros échantillon d'étudiants/étudiantes de premier cycle de prédire l'adaptation universitaire et des notes finales; si les voies d'association impliquées par le modèle sont également prédictives prédictifs peu importe si les étudiants/étudiantes sont entrée directe, transfert de l'université, transfert du collége; et si les moyennes des variables différaient parmi ces trois groupes. Les resultats a répliqué les études précédentes ont montré que, pour l'échantillon complet, ressources générales, la préparation, style explicatif de l'échec, et auto-efficacité académique étaient fortement prédictif de ressources académique, qui était, à son tour, fortement associé avec adaptation universitaire et des notes finales. De plus, les voies indirecte et directe du model ont été jugés équivalentes pour les trois groupes d'étudiants/étudiantes. Une comparaison des moyennes des groupes pour les variables psychologique a révélé que le groupe de transfert universitaire avait les scores les plus favorables, suivis par le groupe transfert du collége. Les conclusions du rapport suggèrent que les étudiants/étudiantes en transfert du collège et université apportent de compétences précieuses aux programmes de premier cycle et les clés de leur adaptation à l'université et la réussite scolaire sont le même que pour les étudiantes/étudiantes entrée directe.

Mots-clés : modèle d'autocontrôle académique, entrée directe, note finale

Introduction

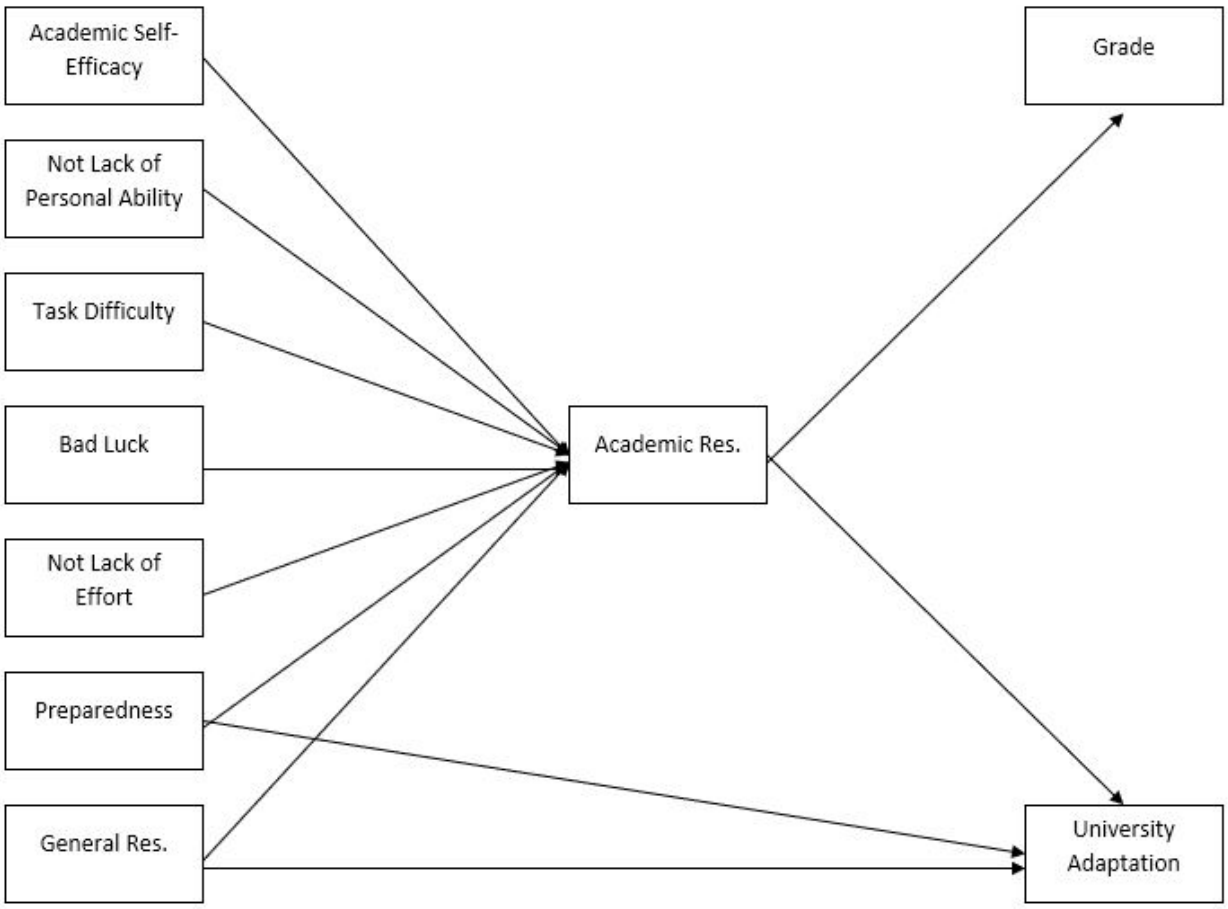
Attending university often includes missing family and close friends back home, attempting to live independently, and trying to balance a wide array of academic and non-academic activities (Dundes & Marx, 2006; Kennett et al., 2019; Strapp & Farr, 2009). Some students, however, are much better managing these life challenges than others. The Academic Resourcefulness Model (Kennett, 1994) addresses why this is the case and builds upon Rosenbaum's (1980) general self-regulatory framework. Supporting the model, studies show that these students tend to be more generally and academically resourceful and academically efficacious (Kennett, 1994). Additionally, they have an explanatory style that attributes academic disappointments to external factors such as bad luck and task difficulty, rather than to internal factors such as lack of effort and personal ability (Kennett, 1994; Kennett & Keefer, 2006). Hence, it is not surprising to find them to have higher university adaptation scores and final grades (Akgun & Ciarrochi, 2003; Duckworth et al., 2019; Job et al., 2015; Martin & Kennett, 2018; Martin et al., 2019). Unfortunately, limited research has been conducted to determine if these variables similarly predict year-end performance and adaptation for direct entry vs. students transferring from other higher education institutions. Understanding the psychosocial factors underlying academic success and adaptation—and if those factors are similar between direct entry and transfer students—is timely with the increased interest among policy makers to make this transition easier for students.

According to Rosenbaum's (1980, 1990) portrayal, individuals possessing a large repertoire of general resourcefulness skills have learned over the course of their lives how to engage in positive self-talk to reduce negative emotions. They recognize the importance of effort, sacrifice more pleasurable undertakings, and utilize a wide variety of problem-solving strategies that may be needed to resolve everyday obstacles. If engaged in higher education, these same people have been observed to be more academically resourceful (Akgun & Ciarrochi, 2003; Goff, 2011; Kennett, 1994; Kennett & Keefer, 2006; Kennett & Reed, 2009). Being more academically resourceful means that they think positively despite academic demands or setbacks, regularly set and reassess short- and long-term goals, rely on information and assistance from a wide variety of sources (e.g., professors and the library), organize their environment to make learning easier, apply self-consequences such as rewards, and often review lecture notes and other written material. Even when they do poorly on a test or assignment, they evaluate the possible reasons for the failure and modify study goals and strategies (Kennett & Keefer, 2006; Martin & Kennett, 2019; Reed, Kennett, et al., 2009). In short, they are less likely to give up and to consider dropping out of university (Xuereb, 2015). Instead, academically resourceful students look for ways to rectify the problem and believe that they have what it takes to succeed. Recent research also shows that these students are not only better adapted to the university environment socially and academically, but also their reasons for attending university are internal (i.e., because they like learning and its challenges) rather than external (i.e., to please others and to delay responsibilities) reasons. (Kennett et al., 2011, Kennett et al., 2013).

Kennett's (1994) academic self-control model incorporates the aforementioned psychological variables—general resourcefulness, academic self-efficacy and academic resourcefulness, and explanatory style for failure (task difficulty, bad luck, not lack of effort or personal ability). Building on past empirical investigations and on theory, Figure 1 highlights the direct and indirect pathways that are hypothesized to predict academic resourcefulness followed by two important academic outcomes: final grades and university adaptation. Multiple studies have consistently found that the unique/direct predictors of academic resourcefulness are general resourcefulness, academic self-efficacy, and an explanatory style that attributes academic setbacks as due to bad luck, and not to lack of effort or ability (Martin, & Kennett, 2018; Kennett, & Keefer, 2006) and accounting for large proportions of variance. Regarding the outcome variables, Kennett and Keefer (2006) and Quinn-Nilas et al. (2019) observed academic resourcefulness to be a direct predictor of final grades, with general resourcefulness making a shared/indirect contribution. Conversely, in other research, both academic and general resourcefulness have been found to make a unique contribution to university adaptation (Martin & Kennett, 2018). Given university adaptation is a more global construct, and assessing aspects such as ease of making friends, loneliness, and feeling at home, in conjunction with academic adjustment items, it makes sense for general resourcefulness—a more global construct as well—to have a direct impact on adaptation alongside academic resourcefulness.

Figure 1

Diagram showing the direct and indirect pathways specified by the model. Age was used as a covariate by including it as a predictor of each endogenous variable in the model (i.e., academic resourcefulness, grade, and university adaptation) and is not shown.



Most of the aforementioned research, however, focuses on an aggregated group of undergraduates and does not separate and compare those who are direct entry from those transferring from colleges or other universities. This is likely because the samples in question consisted predominantly of students who attended university directly out of high school and there are proportionally fewer transfer students, making them a more difficult population to study. Transfer students are a group with heterogeneous profiles; some transfer from university to university, whereas others move from college to university. Further, students may differ in terms of the amount and type of transfer credits they receive. Lifestyles of transfer students vary highly as well compared to direct entry students—some work part- or full-time concurrent to their education, some are parents, and many are older than the traditional university/college-aged student (Duggan, & Pickering, 2008; Quinn-Nilas et al., 2019). Thus, there is substantial theoretical reason that the transfer student experience is quite different than the direct entry student experience, but it remains to be seen whether the psychosocial variables underscoring performance also differ.

In Ontario (Canada), post-secondary education policy has focused on facilitating student transfer from within and between college and university since the mid-1990s (Association of Universities and Colleges Canada, 2011; College-University Consortium Council, 1999). Transfer

students have also been of research interest elsewhere in the world, with the United States and the pathway between two-year college and four-year university being a critical example (Laanan, 2001; Laanan et al., 2010). Much of the early empirical literature on college transfer students investigated a phenomenon known as *transfer shock* (Hill, 1965; Peng & Bailey, 1977): the observation that college transfer students performed worse (at least in terms of grades in their first year) compared to peers who entered directly from high school (Glass & Harrington, 2002; Ishitani, 2008). Recent research in Ontario has called that *transfer shock* theory into question. These studies suggest that it is not a significant issue for transfer students in Ontario (i.e., they have comparable grades) (CUCC, 1999; Drewes et al., 2012; Martinello & Stewart, 2013; Shook et al., 2016; Quinn-Nilas et al., 2019), possibly because of the incorporation of programs and articulation agreements that have been established to facilitate academic success (e.g., Drewes et al., 2012).

Although the academic self-control model has been consistently well-established in undergraduate student populations, research into transfer student success has typically not focused on the psychological correlates of success (e.g., Drewes et al., 2012). The few studies that have focused on the psychological correlates have been limited in scope, examining only one single construct (i.e., explanatory style for failure) and treating university and college transfer students as one homogeneous group when comparing them to direct entry students (e.g., Quinn-Nilas et al., 2019). Given transfer students' previous exposure to the demands of higher education, they may perceive themselves as being more prepared to handle the expectations of the university's curriculum; thus, assessing university preparedness as a variable of interest appears relevant but has not been utilized in prior studies. Regardless of whether students are direct entry, college transfer, or university transfer, we further expect that perceptions of greater preparedness will have a positive and direct impact on both academic resourcefulness and university adaptation.

The goals of this study were as follows: (1) to test the full academic resourcefulness model using a large sample of undergraduate students to predict university adaptation and student grades (from the 2013 academic year); (2) to test if the pathways of association implied by the model for the three different student groups are similar (i.e., if the variables are equally predictive regardless of whether students are direct entry, college transfer, and university transfer); and (3) to test if the means of the variables differ among the groups.

Methods

Participants and Procedure

Procedures for this study were first approved by the university's Research Ethics Board. All undergraduate students at a small liberal arts university in Ontario, Canada—a student population of 7,761 at the time of the study (2013)—were sent an online survey invitation outlining the general goals of the study. This invitation yielded a response rate of 20%, totaling 1,545 respondents. Participation was voluntary and was incentivized via a draw for an iPad Mini and one of 10 gift cards. The survey was open for students to complete for three months (November to January), with two reminder emails also sent during this time. Student participants consented to having their grades drawn from the institutional database to be used in the study. Of these respondents, 59% entered directly from high school, 16% were students who had previous college experience, 11% were university transfer students, and 14% were grouped together as "other" because they were mature students, international, from out-of-province, or had backgrounds in both college and university. The "other" group was excluded because these students did not fit neatly into one of the transfer or direct entry groupings. These ratios are quite similar to other reports with data from the same university (Drewes et al., 2012).

Measures

The general information form collected information about age, sex, ethnicity, education, hours of study, program of study, degree, types of non-academic activities, time spent engaging in non-academic activities, how prepared students' skills were for the academic demands of university, and how often students used various support services (e.g., Academic Skills Centre; measured as a frequency of uses per term ranging from 0 to 5+ times). There were also open-ended options for students to describe additional supports or services that would have been helpful in their transition to university. A second section of this form was given only to transfer students

and asked questions about the number of transfer credits received on admission, satisfaction with their transfer experience (the process, availability of information, and satisfaction with the number of transfer credits received), whether they came in under an articulation agreement, and an assessment of how their university experience aligned with or differed from their expectations.

Kennett's (1994) Academic Resourcefulness Inventory (ARI) measures academic self-control behaviours (i.e., academic resourcefulness). It assesses students' use of positive self-statements to manage emotional responses, delay avoidance, and use of problem-solving strategies to cope with the demands of academia. The inventory consists of 23 items defined by pairs of opposing phrases that are rated on a 7-point Likert scale according to students' ability or inability to meet various academic demands (e.g., "As a student of university, I see myself as being: Disorganized with my work (1)—Organized with my work (7)"). Scores on the ARI range from 23 to 161, with a higher score reflecting greater academic resourcefulness. Construct-related validity and internal consistency of the ARI have been well-established (e.g., Kennett, 1994; Kennett & Keefer, 2006; Reed & Kennett, 2017). Kennett (1994) found a seven-month test-retest reliability of .75. Internal consistency was high in the current study (23 items; $\alpha = .89$).

Rosenbaum's (1980) Self-Control Schedule (SCS) assesses the use of positive self-statements to cope with negative situations, the application of problem-solving strategies, the ability to delay immediate gratification, and knowledge of how to engage in self-change (i.e., general resourcefulness). The schedule consists of 36 items (e.g., "When I have to do something that makes me anxious, I visualize how I will overcome my anxiety while doing it") rated on a 6-point Likert scale indicating the extent to which individuals evaluate the item as characteristic of themselves (-3 = very uncharacteristic of me, +3 = very characteristic of me). Scores on the SCS range from -108 to 108, with a higher score reflecting greater general resourcefulness. Evidence for the construct-related validity and reliability of the SCS have been well-documented across a wide variety of populations and translations of the inventory (e.g., Boonpongmanee et al., 2002; Ngai et al., 2008; Lévesque, 1995; Redden et al., 1983; Rosenbaum, 1980; Turkel & Tezer, 2008). Cronbach's alpha for the 36 SCS items in the current study was .84.

Kennett and van Gulick's (2002) Explanatory Style for Failure (ESF) scale asks students to think of a disappointing academic situation and, with this experience in mind, to complete 18 explanatory statements (e.g., "My poor performance here reflects a tough professor/marker"). Participants rate the extent to which they agree or disagree with each statement on a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). Principal Components Analysis (Kennett & van Gulick, 2002) showed that scale consists of four subscales: bad luck, task difficulty, not lack of effort, and not lack of ability (after items are reverse-scored). Using Confirmatory Factor Analysis, Quinn-Nilas et al. (2019) showed that this 4-factor ESF model fit the data acceptably well, with means and standard deviations and alpha coefficients of the sub-scales reflective of other studies (e.g., Kennett & Keefer, 2006; Martin & Kennett, 2018.

Kennett's (1994) Academic Self-Efficacy Scale explores student beliefs about their academic abilities. For this nine-item scale, students rate, on a 6-point Likert scale ranging from 1 (strongly disagree) to 6 (strongly agree), how well each statement describes them (e.g., "I know that I will be able to learn new material"). Scores range from nine to 54, with a higher score indicating greater academic self-efficacy. Kennett (1994) demonstrated internal reliability, construct validity, and a seven-month test-retest reliability of .75. In the present study, internal reliability was excellent (nine items; $\alpha = .92$).

Crombag's (1968) University Adaptation Questionnaire assesses overall adjustment to university. The 18-item scale asks students to indicate whether statements are descriptive or characteristic of their feelings about their experience at university (e.g., "I made many friends here"). The scale generates total scores that can range from 18 to 108, with higher scores indicating healthier adjustment to university. Van Rooijen's (1986) study supported internal consistency of the items (18 items; $\alpha = .83$). In the current study, Cronbach's alpha was .87.

Data Analysis

Path analysis was conducted using R *lavaan* for structural equation modelling (SEM). Normality was assessed by looking at skewness and kurtosis values for each variable, as well as visual inspection of P-P plots and histograms. Variables appeared mostly normal, except for delaying responsibility as a reason to attend university,

2013 grade, and age, which were not normal by any of the indices. Therefore, multivariate normality was not assumed. The robust version of the maximum likelihood estimator was used to estimate the path model, which is robust to violation of normality. Missing data was handled using the full information maximum likelihood (FIML) estimation option in R *lavaan*. Levels of acceptable fit were 0.08 for the RMSEA (Root Mean Square Error of Approximation) and SRMR (Standardized Root Mean Square Residual), and 0.90 for the CFI (Comparative Fit Index) and TLI (Tucker Lewis Index) (Hooper et al., 2008). Excellent levels of fit were 0.05 for the RMSEA and SRMR, and 0.95 for the CFI and TLI (Hooper et al., 2008). Bayesian Information Criterion (BIC) values are used solely for model comparison and do not have thresholds that can be objectively evaluated. Lastly, age was included in the regression model as a covariate in order to account for any underlying differences in the variables under study that may be due to systematic differences in age.

Results

Sample

Students were mostly female (*n* = 1,049; 80%) with roughly 20% (*n* = 259) males. The average age was 21.47 (*SD* = 4.94) ranging from 17 years to 59 years. Students were mostly single and without dependents (*n* = 987; 75%), though a substantial number were single with dependents (*n* = 196; 15%) and married/cohabitating with dependents (*n* = 46; 3.5%). Demographic characteristics approximately match institutional characteristics as reported by others (i.e., Drewes et al., 2012; Maclean's, 2021) but there is some variation. The remaining individuals were married/cohabitating without dependents (*n* = 83; 6.3%).

The breakdown of transfer status is as follows: most were direct entry (*n* = 916; 70%), followed by college transfer students (*n* = 230; 18%) and university transfer students (*n* = 167; 13%). Lastly, 516 students (39%) indicated that they were the first in their family to attend university.

Sample Breakdown by Student Type

As shown in Table 1, most students in each group were single (no dependents), female, and Caucasian. Direct entry students were the youngest group, also having earned the least credits on average compared to college and university transfer students.

Mean Comparisons for Time Allocation

Results of mean comparisons (using Analysis of Variance and post-hoc testing; ANOVA) between direct entry, university transfer, and college transfer students on how they spend their time can be seen in Table 2. Inspection of the results showed that college transfer students appeared to balance the most non-academic responsibilities—reporting significantly more hours working for pay off-campus and providing care for dependents compared to both the university transfer and direct entry students. Additionally, college transfer students reported significantly fewer hours attending class than direct entry students, less volunteering than both direct entry and university transfer students, and less time spent exercising or relaxing than both other groups. Importantly, all three groups spent equal amounts of time preparing for class and commuting—thus, the differences are mostly what they do in their discretionary time.

Mean Comparisons for Use of University Services

Mean comparisons (ANOVA) of services used between direct entry, university transfer, and college transfer students are shown in Table 3. Direct entry and college transfer students used the academic skills centre significantly more than university transfer students. Additionally, college transfer students used senior tutors/academic advisors significantly more than university transfer students, but university transfer students used departmental/faculty advisors significantly more than direct entry students. No significant group differences were observed in usage of the career centre, disability/accessibility services, peer mentors, and the counselling centre.

Mean Comparisons on Psychological Variables

Group mean comparisons (ANOVA) for the psychological variables are shown in Table 4. A pattern emerged among many of the variables with university transfer students possessing significantly higher (i.e., more fa-

Table 1

Summary of Descriptive Statistics

Group	Marital Status	Gender	Ethnicity	Age *M* (*SD*)	Credits Completed *M* (*SD*)
Direct	96% single (*n* = 879) 4% (*n* = 36) married/ cohabitating	81% (*n* = 736) female 19% (*n* = 176) male	84% Caucasian (*n* = 768) 3% Black/African American/African Canadian (*n* = 29) 6% Asian (*n* = 51) 4% Mixed (*n* = 38) 2% Indigenous (*n* = 15) .4% Hispanic (*n* = 4) 1% Arab/Middle Eastern (*n* = 10)	19.62 (1.62)	7.67 (6.83)
University	78% single (*n* = 130) 22% (*n* = 37) married/ cohabitating	83% (*n* = 139) female 17% (*n* = 28) male	86% Caucasian (*n* = 143) 2% Black/African American/African Canadian (*n* = 4) 7% Asian (*n* = 12) 3% Mixed (*n* = 5) 0% Indigenous (*n* = 0) 0% Hispanic (*n* = 0) 1% Arab/Middle Eastern (*n* = 2)	25.22 (6.54)	12.83 (10.79)
College	76% single (*n* = 174) 24% (*n* = 56) married/ cohabitating	76% (*n* = 174) female 24% (*n* = 55) male	81% Caucasian (*n* = 185) 5% Black/African American/African Canadian (*n* = 11) 3% Asian (*n* = 7) 5% Mixed (*n* = 12) 4% Indigenous (*n* = 8) 2% Hispanic (*n* = 4) .4% Arab/Middle Eastern (*n* = 1)	26.15 (7.24)	11.32 (8.57)

Table 2

Summary of Time Allocation (in Hours) of Student Groups

	Student Group	**N**	**Mean**	**SD**	**Sig. Group Diffs. (*p* < .05)**
Attending Class	College	230	3.90	1.33	
	Direct	914	4.45	1.17	Direct > College
	University	166	4.21	1.46	
Preparing for class	College	229	3.88	1.66	
	Direct	911	3.98	1.58	
	University	165	4.04	1.73	

	Student Group	N	Mean	SD	Sig. Group Diffs. ($p < .05$)
Working for pay on campus	College	224	1.31	1.05	
	Direct	908	1.29	0.94	
	University	162	1.28	0.94	
Working for pay off campus	College	225	3.28	2.61	College > Direct and University
	Direct	904	1.96	1.69	
	University	167	2.40	1.95	
Participating in co-curricular activities	College	228	1.66	0.94	
	Direct	911	1.93	1.18	Direct > College
	University	167	1.76	1.07	
Relaxing, exercising and/or	College	228	3.19	1.45	
	Direct	914	3.98	1.67	Direct > College
	University	166	3.58	1.72	
Providing care for dependents	College	225	1.88	2.20	College > Direct and University
	Direct	905	1.09	0.63	Direct < University and College
	University	165	1.57	1.76	
Providing care for other	College	229	1.45	1.10	
	Direct	906	1.18	0.66	Direct < College and University
	University	162	1.52	1.20	
Volunteering (on campus or off campus)	College	227	1.37	0.56	College < University and Direct
	Direct	912	1.55	0.88	
	University	167	1.73	1.04	University > College and Direct
Commuting to class	College	229	2.39	0.85	
	Direct	912	2.32	0.97	
	University	166	2.51	1.01	

Table 3

Mean Comparisons of Student Groups on Use of University Services

	Student Group	N	Mean	SD	Group diff
Academic Skills	College	227	2.07	1.99	
	Direct	909	2.08	1.93	Direct > University
	University	166	1.68	1.67	
Career Center	College	228	1.28	0.90	
	Direct	905	1.32	1.08	
	University	165	1.44	1.27	
Disability Services	College	226	1.34	1.10	
	Direct	904	1.29	1.09	
	University	164	1.41	1.26	
Senior Tutor/Academic Advisor	College	227	2.33	2.06	College > University
	Direct	905	2.13	1.91	
	University	165	1.91	1.76	

	Student Group	N	Mean	SD	Group diff
Departmental/Faculty Advisor	College	228	1.97	1.85	
	Direct	907	1.73	1.68	
	University	166	2.18	2.06	University > Direct
Peer Mentors	College	228	1.35	1.20	
	Direct	905	1.31	1.12	
	University	165	1.24	0.93	
Counseling Centre	College	229	1.42	1.25	
	Direct	906	1.41	1.18	
	University	166	1.50	1.35	

Note. Variables assessed are frequency of usage of the listed services per term ranging from 0 to 5 or more times (see measures section).

Table 4

Mean Comparisons Between Student Group on Model Variables

	Student Group	N	Mean	SD	Group Diff.
Academic Resourcefulness	College	204	112.65	19.60	
	Direct	762	110.69	19.29	
	University	143	118.61	20.12	University > College and Direct
Academic Self-Efficacy	College	209	41.24	7.21	
	Direct	807	40.22	7.12	
	University	150	43.49	7.69	University > College and Direct
University Adaptation	College	213	73.89	13.86	
	Direct	799	75.07	15.39	
	University	148	74.13	14.59	
Preparedness	College	222	31.54	6.91	
	Direct	884	31.25	6.62	
	University	162	34.48	7.04	University > College and Direct
Learned Resourcefulness	College	206	18.07	25.41	College > Direct
	Direct	769	12.56	24.47	
	University	144	17.69	25.13	
Grade	College	229	74.49	11.50	
	Direct	908	72.90	11.43	
	University	166	79.55	8.98	University > College and Direct
Not Lack of Effort	College	203	26.03	7.89	
	Direct	753	25.64	8.02	
	University	145	28.12	8.06	University > Direct
Task Difficulty	College	207	19.72	6.63	
	Direct	791	20.81	6.71	
	University	152	19.70	6.84	

	Student Group	N	Mean	SD	Group Diff.
Not Lack of Personal Ability	College	200	15.44	3.98	
	Direct	768	15.16	4.01	
	University	143	16.64	3.79	University > College and Direct
Bad Luck	College	206	11.17	4.21	
	Direct	794	11.62	4.15	Direct > University
	University	151	10.48	4.41	

vourable) scores than both direct entry and college transfer students on: academic resourcefulness, academic self-efficacy, preparedness, grades, and an attribution style that did not attribute academic disappointments/failure to lack of personal ability. Two variables did not fit within this pattern: general resourcefulness was significantly lower among direct entry students than college transfer students, and direct entry students had an explanatory style for failure that was attributed more so to bad luck and lack of effort compared to university transfer students. Groups were equal on university adaptation and task difficulty attribution scores.

Path Analysis

Multigroup Equality

Firstly, we sought to identify if the theoretical path model would function equally for direct entry, college transfer, and university transfer groups. To do this, we estimated the same model (as shown in Figure 1) but now using the multigroup framework in SEM. This framework allows for inferences about if and to what degree the model—overall—functions differently between these student groups. As can be seen in Table 5, model fit did not decline and became slightly more favourable (when considering the RMSEA and BIC values) when the model is estimated as multigroup. Overall, this suggests that although these groups have different levels of each of the variables, the proposed associations between each of the variables are stable in terms of the magnitude of their relationships across the three groups (direct, university transfer, college transfer).

Direct Effects (Equality)

As shown in Table 6, individuals scoring higher in preparedness, general resourcefulness, academic self-efficacy, and who attributed their failures less due to bad luck and more due to not lack of personal ability were higher in academic resourcefulness. Regarding grades and university adaptation, individuals scoring higher in academic resourcefulness had higher grades, and individuals scoring higher in academic resourcefulness, preparedness, and general resourcefulness were higher in university adaptation. Because these estimates are from the equality model, these direct effects are supported as being equal across direct entry, university transfer, and college transfer students.

Indirect Effects (Equality)

As shown in Table 7, the pattern of the indirect effects emerged, which showed that general resourcefulness, academic resourcefulness, and not lack of effort were significant positive indirect predictors of both grade and adaptation through academic resourcefulness. Considering all the pathway coefficients, this suggests that higher general resourcefulness/academic self-efficacy/not lack of effort scores were associated with higher levels of academic resourcefulness, which, in turn, was associated with higher grades and higher adaptation. And, because this finding was derived from the group equality model, this is equally supported for direct entry, university transfer, and college transfer students.

The amount of variance accounted for the prediction of academic resourcefulness, grade, and university adaptation by student group is shown in Table 8. Variance accounted for was highest for academic resourcefulness and lowest for grade and was similar across the three groups.

Discussion

This study examined the differences between direct entry students vs. students transferring from other higher education institutions for the variables of the academic self-control model comprising of general resourcefulness, academic resourcefulness, academic self-efficacy, preparedness, failure attributions, and university adap-

Table 5

Summary of Student Group Differences on Model Variables

Variable	Learned Resourcefulness	Grade	Not Lack of Effort	Task Difficulty	Not Lack of Personal Ability	Bad Luck
Direct Entry	12.357a	73.138a	25.696a	20.759	15.188a	11.629a
University Transfer	17.581	79.948ab	28.080a	19.729	16.686ab	10.443a
College Transfer	17.913a	74.629b	26.030	19.740	15.421b	11.128

Note. Columns that share a subscript are significantly different (alpha = .05).

Table 6

Summary of Direct Pathway Coefficients

DV	IV	Estimate	Std. Est	P-value	[LLCI, ULCI]
Academic Resourcefulness	Preparedness	0.349***	0.122	<.001	[0.206, 0.493]
	General Resourcefulness	0.234***	0.311	<.001	[0.197, 0.270]
	Academic Self-Efficacy	1.231***	0.451	<.001	[1.088, 1.373]
	Not Lack of Effort	0.431***	0.176	<.001	[0.309, 0.553]
	Task Difficulty	-0.122	-0.042	0.052	[-0.245, 0.001]
	Not Lack of Ability	-0.199	-0.041	0.109	[-0.444, 0.045]
	Bad Luck	-0.275*	-0.060	0.012	[-0.490, -0.061]
	Age	0.132	0.049	0.207	[-0.073, 0.336]
Grade	Academic Resourcefulness	0.234***	0.427	0.000	[0.194, 0.273]
	Age	0.049	0.034	0.534	[-0.105, 0.203]
University Adaptation	Academic Resourcefulness	0.290***	0.397	0.000	[0.238, 0.342]
	Age	-0.098	-0.050	0.321	[-0.291, 0.095]
	Preparedness	0.247***	0.118	0.000	[0.110, 0.383]
	General Resourcefulness	0.105***	0.191	0.000	[0.064, 0.145]

Note. *p < .05, ***p < .001

tation. We found that the full academic resourcefulness model predicting university adaptation and student grades to be of an acceptable fit according to model fit indices. Additionally, we also identified that the direct and indirect pathways of association connecting the psychological model variables to these outcomes were similar for the three student groups: direct entry, college transfer, and university transfer. Lastly, our results found that although the pathways of association were consistent among the student groups, the means of many of the variables differed between groups in a pattern that suggested that both university and college transfer students enter with a robust array of learned and cognitive skills that help them perform well and adapt.

In comparison to previous studies using the academic self-control model (e.g., Kennett & Keefer, 2006; Martin & Kennett, 2018), the overall structure of the model for the entire sample was replicated in this study. Specifically, the precursor variables of general resourcefulness, preparedness, explanatory style for failure, and academic self-efficacy were highly predictive of academic resourcefulness, which, in turn, was highly asso-

Table 7

Summary of Indirect Pathway Coefficients

Indirect Effects	Mediator	IV	Estimate	Std. Est.	P-value	[LLCI, ULCI]
Grade	Academic Resourcefulness	General Resourcefulness	0.055***	0.133	<.001	[0.042, 0.067]
		Academic Self-Efficacy	0.287***	0.193	<.001	[0.227, 0.348]
		Not Lack of Effort	0.101***	0.075	<.001	[0.067, 0.134]
		Task Difficulty	-0.028	-0.018	0.053	[-0.057, 0.000]
		Not Lack of Ability	-0.047	-0.017	0.111	[-0.104, 0.011]
		Bad Luck	-0.064*	-0.026	0.014	[-0.115, -0.013]
		Preparedness	0.082	0.052	<.001	[0.045, 0.118]
University Adaptation	Academic Resourcefulness	General Resourcefulness	0.068***	0.123	<.001	[0.052, 0.083]
		Academic Self-Efficacy	0.356***	0.179	<.001	[0.277, 0.436]
		Not Lack of Effort	0.125***	0.070	<.001	[0.084, 0.166]
		Task Difficulty	-0.035	-0.017	0.057	[-0.072, 0.001]
		Not Lack of Ability	-0.058	-0.016	0.115	[-0.130, 0.014]
		Bad Luck	-0.080*	-0.024	0.016	[-0.145, -0.015]
		Preparedness	0.101***	0.049	<.001	[0.055, 0.147]

Note. *$p < .05$, ***$p < .001$

Table 8

Summary of Variance Accounted for by Models Across Group

Group	Variable	% variance
Direct	Academic Resourcefulness	59%
	Grade	16%
	University Adaptation	30%
University	Academic Resourcefulness	55%
	Grade	28%
	University Adaptation	31%
College	Academic Resourcefulness	67%
	Grade	18%
	University Adaptation	30%

ciated with university adaptation and grade. Importantly, this study expanded on these prior results by testing several indirect effects of these precursor variables on final grade and university adaptation through academic resourcefulness, and the pattern of results highlighted indirect pathways of higher general resourcefulness, academic self-efficacy, and explanatory style that did not attribute failure to lack of effort. Our results highlighted the direct importance of general resourcefulness, academic self-efficacy, and not lack of effort on academic resourcefulness. Their indirect effects on adaptation and grade through their association with academic resourcefulness are consistent with theory in this area (Kennett, 1994; Rosenbaum, 1990) as well as extant research, which supports the importance of these variables in particular (Martin & Kennett, 2018; Martin et al., 2018).

Finding support for equivalence of the regression coefficients of the model across groups implies that direct entry students and transfer students (both college and university) succeed at university via similar direct and indirect pathways. The testing of group differences, however, indicated that there were important differences in skills and attitudes that these groups bring to university. University transfer students were the most adept and were observed to possess higher academic resourcefulness, academic self-efficacy, preparedness, grades, and not lack of personal ability scores than both direct entry and college transfer students. On the other hand, compared to direct entry students, the college transfer group was, on average, more generally resourceful, but otherwise were quite similar to direct entry students. Interestingly, there was no significant difference between college transfer students and direct entry students in terms of preparedness. This seems to suggest that, although the college transfer group, on average, has higher general resourcefulness, they are reporting feeling less prepared than university transfer students—but not differently prepared than direct entry students. This is consistent with extant findings about university preparedness, which emphasizes that universities should seek to develop academic skills and preparedness through first-year pedagogical practices (Jansen & van der Meer, 2012). Given the importance of general resourcefulness in the model, the finding that college transfer students have higher general resourcefulness scores than direct entry students may suggest that their additional life experiences, due to being older and married/cohabitating and/or having post-secondary experience, helps them augment these cognitive and behavioural skills.

Indeed, an examination of the time allocations of the different students showed that the college transfer students spent more time working off-campus and providing care for dependents, and less time relaxing than both direct entry and university transfer students. This supports the assertion that these students have additional life experiences outside of academia that might be more applicable to the development of general resourcefulness skills. Our findings suggest that, even though psychologically and in terms of life experiences direct, college transfer, and university transfer students are different, they all adapt well enough to university. This may be because adaptation is a highly personal phenomenon—what well-adapted means in terms of social life or work/life balance will be quite different for a direct entry student (who may be living on campus and highly enmeshed in campus environment) vs. a college transfer student (who may be raising a family and working off-campus). Although different experiences come to mind when these students consider the questions asked of them in the university adaptation questionnaire, their adaptation in aggregate is similar. However, considering how students spend their time, it is clear that college transfer students were the most heterogeneous, as they participated more in non-academic activities such as caring for dependents and working for pay.

Furthermore, although university transfer students had the highest grade average compared to the other groups, it should also be noted that college transfer and direct entry student averages were not significantly different from one another. Overall, these findings contrast historical research and assumptions (Hill, 1965; Peng & Bailey, 1977) in this area that suggested that college transfer students were at a deficit and achieved lower grades, which our findings do not support. Instead, our findings suggest a broader pattern toward similarity between the direct entry and college transfer groups, with the college transfer students being more generally resourceful. This is consistent with other research in Ontario showing that direct entry and college students tend to perform similarly in terms of academic performance (Acai & Newton, 2015).

Our findings suggest that, within Ontario at least, transfer students are well equipped to succeed within the university environment—particularly university transfer students, who had higher scores in academic resourcefulness, self-efficacy, preparedness, and grades than direct entry and college transfer students, who scored similarly. Hence, it appears that transfer students and transfer pathways are beneficial for universities, allowing for the entry of skilled and capable students who switch from university to university or from college to university, thus bringing value to the classroom. Our results, however, also suggest that transfer students—particularly college transfer students—live different lives than direct entry students in terms of non-academic responsibilities. College transfer students were older and more likely to be married/cohabitating, and they spent less time relaxing and more time taking care of dependents than direct entry students. Universities should be cognizant of the fact that some college transfer students are balancing

their academics with a busy non-academic life, which may present challenges in terms of time management, causing additional layers of stress. Duggan and Pickering (2008) identified balance between academic, social, work, and family obligations to be a key factor that can help or hinder transfer student success. Having programs in place to help students struggling with this balance may be key to increasing their academic success and warrants further investigation.

Much of the literature has focused on comparisons between direct entry and college transfer students; thus, little is known about students who transfer from one university to another (Glass & Harrington, 2002; Ishitani, 2008). Fundamentally, university transfer students are not moving inter-system because they are simply shifting from one university to another instead of moving from high school to university, or from college to university. Although reasons for inter-system transfers (i.e., movements from high school/college to university) are well-documented, we are left to speculate as to why individuals transfer between universities. The university in this study boasts small undergraduate class sizes and experiential learning, which may have factored into some individuals' decisions to leave a larger university for a smaller one. Data about this sample of students' reasons for transferring, however, was not collected and is worth exploring in subsequent studies. Further, there is also growing incidence of students transferring from university to college. Investigation of the motivations for transfer, adaptation, and success for this segment of students also warrants further study.

Limitations

Inferences from this study are limited by the cross-sectional design. One of the primary goals of the study is to test the pathway of associations connecting the psychological variables to academic outcomes like grade and adaptation; however, inferences are limited by the lack of temporal precedence. Future studies should seek to utilize longitudinal designs to establish temporal precedence and thus develop evidence for the model's proposed directional associations. Furthermore, longitudinal studies would have the added benefit of being able to sample both direct entry students and transfer students when they enter their programs, and thus to collect data from them over time as they progress through their university education. This would allow more specific conclusions regarding transfer shock in the current university system, and the long-term predictive capacity of the academic resourcefulness model. Although our sample demographics are similar in terms of the overall demographics of the university, there are slight disparities that may under/overrepresent certain groups (e.g., sex). Lastly, longitudinal analysis would allow for a more thorough tracking of grades, rather than relying on a single point in time. Methods like growth curve modelling would enable researchers to understand factors that drive variability in grades over time.

Conclusion

This study examined a large (N = 1,545) sample of undergraduate students, comparing direct entry and transfer students (university and college transfer). We found that the academic resourcefulness model predicting final grade and university adaptation fit equally well for each group—academic resourcefulness was highly predictive of grade and adaptation, and the theoretically consistent precursor variables were related to academic resourcefulness. Results from this study suggest that both college and university transfer students bring valuable skills to undergraduate programs and that the keys to their success are the same as for direct entry students, but that on average they enter with higher levels of general and academic resourcefulness skills, respectively (compared to direct entry students). Universities wishing to ensure the success of college transfer students should endeavour to help students maintain balance between their academic and non-academic responsibilities. However, all students would benefit from undergraduate programs that foster both general and academic resourcefulness skills, given these variables' positive influence on university adjustment and final grades.

Acknowledgements

This work was supported by the Ontario Council on Articulation and Transfer.

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