Equity of Access and School Experience of First Generation, Low Income College Students in Taiwan

MAU, Wei-Cheng
Wichita State University

Abstract: College access and enrollment rates vary considerably with parents' educational attainment and socioeconomic status. In the United States, first generation, minority students are often targeted for federal outreach programs designed to raise the level of student preparation and readiness for postsecondary work. During the last decade, higher education reform in Taiwan has resulted in a drastic change enrollment rate and education opportunity. However, very little is known about the impact of this change in educational/career behaviors of first-generation, low-income students in Taiwan. This study examined the characteristics of first-generation, low-income college students regarding their college enrollment paths, enrollment rate, fields of study, satisfaction with study and school, and academic persistence. A nationally representative sample of Taiwanese college freshmen (N = 49,611) enrolled in 2003 were tracked for two years into their junior year. Results suggested that FGLO students not only were less academically prepared before entering college, they also received less financial support and help with academic decision from their parents. Consequently, they experienced more difficulty in making educational/career decisions and were less satisfied with their college and college major than non first generational students, who were likely to benefit from their college parents' experience and support.
Keywords: First generation, Low-income, College students, Equity of access, Parental support

Introduction

In the era of demand for effectiveness and accountability under budgetary constraints, educational institutions must focus on administrative policy and practice that effect college success of admitted students, regardless if they are from United States, or other nations. The first step in ensuring college success for admitted students is to gain a clear understanding of characteristics and unique college experience and factors that contribute to academic success of the disadvantaged students.

There has been increasing attention paid to first generation students-- students whose parents never attended college. Lacking family role model and benefit of their parents' experience in preparing for and attending college, first generation students are at a distinct disadvantage in gaining access to (Horn, Nuňez, & Bobbitt, 2000) and being successful in postsecondary education (Chen & Carroll, 2005).

Characteristics of first generation students in US have been very much documented. For example, studies have suggested that first-generation students entering college were less academically prepared than other students (Swail & Perna, 2000; Warburton, Bgarin, & Nuňez, 2001), exhibited lower academic performance (Chen & Carroll, 2005; Riehl, 1994), received less family support (Terenzini, Springer, Yaeger, Pascarella, & Nora, 1996), received less support from parents in college decisions (York-Anderson & Bowman, 1991) had lower college retention rates (Horn, 1998; Ishitani, 2003; Nunez & Cuccaro-Alamin, 1998; Riehl, 1994; Warburton, Bgarin, & Nuňez, 2001), and were less likely to complete their four-year program in a timely

manner (Ishitani, 2003) than their counterparts.

Not every first generation student comes from the same socioeconomic background. Studies often ignore the student population whose parents never attended college and have low family income. Among the US first generation students, half of the first generation students were from low-income families, in contrast to less than one-third of students whose parents had some college degree, and less than 10% of students whose parents were college graduates (Horn, Nuňez, & Bobbitt, 2000). First-generation, low-income students may face even more severe problems and unique challenges in their pursuit of a college degree. Parental education level is not strongly related to student success per se, rather, factors typically associated with first generation students such as parental income may play a more vital role (Brown & Burkhardt, 1999). Differing from most studies, the present study breaks down the first generation students into high-income and low-income groups. We contrasted the first-generation, low-income group (FGLO) with the non first generation students, students whose parents had received at least a bachelor's degree (NFG).

Recently, Taiwan has gone through a series of high education reforms which has resulted in a drastic change in enrollment rates and educational opportunities for people who previously were lacking. During the last decade, the number of colleges and universities have increased from fewer than 20 to over 150. Another change is that the path to higher education also became more diversified: from a singular channel by use of the college entrance examination, to the multi-channeled route through nomination, application, entrance examination, and a combination of different paths. Logically, these changes should have created more equity of access and opportunity for people who have fewer socioeconomic resources or academic talents that are difficult to be measured by traditional tests. Do they have equal access to a better college/university and field of study? What are the unique challenges they have? What are their college experiences? Are their experiences different from other students in Taiwan; from first generation students in the United States? Unfortunately, research on first-generation, low-income college students in Taiwan is practically non-existent.

The purpose of this study is to describe the characteristics of first-generation low-income college students in Taiwan, their paths to college, their college experiences in contrast to students whose parents had at least a college degree, and those first generation students with a higher family income. Findings were discussed in relation to documented findings based on first generation students from the United States. Knowledge gained in one nation may have implications for policy and practice in many others. In light of research findings from the US, the general expectation is that first-generation, low-income students in Taiwan are likely to be less prepared for colleges, receive less familial and institutional support, experience more challenges in college, and thus will be less likely to persist in their educational pursuit.

Methods
Data Source
This study is based on a national longitudinal survey of college freshmen (NLS:04) conducted in 2004 by the Center for High Education Research, Taiwan National Tsing Hua University, sponsored by Taiwan National Science Council and the Ministry of Education. Parallel to the national databases created by the National Center for Educational Study in the United States such

as the Beginning Postsecondary Study, NLS:04 was designed to provide trend data about critical transitions experienced by students as they leave high school and make the critical transition into college (Peng, 2005) . Major topics covered in the survey included high school background, college life, personal-social attitudes and beliefs, educational/vocational goals and planning, etc. The base year survey is comprised of a nationally representative sample of 33,959 college freshmen, selected from 156 colleges and universities in Taiwan. The based year sample is stratified by school, filed of study, and percentage of minority students (i.e., international student, aboriginal students, and students with disability). The probability of selection ratio is p =.25 with a minimum of 30 students per field of study and 100 students per school. Of 49,611 selected to participate, 33,959 completed and returned the survey questionnaires, achieving 69% return rate. Due to the oversampling of aboriginal students and students with disabilities, sample weights were used to reduce the oversampling bias.

Variables

The independent variable is determined by parents' education level and parents' annual family incomes. Students were classified into two categories: (1) First-generation, low-income students whose neither father nor mother had received a college or higher degree and a family income lower than 50,000 NT per month, and (2) Students whose parents either father or mother had received a college degree.

The characteristics of first generation low income students were examined using the following variables:

   Demographic: Sex, Ethnicity (Taiwanese, Mandarin, Hakki, and Aboriginal)
   Parental influence: This variable was defined as the perceived importance of parents to involve in curriculum decision, college choice, and field of study.
   Financial support from parents: The main source of financial support for tuition.
   Pre-college academic performance: HS GPA, HS class rank, academic proficiency, and college entrance exam.
   College path: Admission type, number of prep test courses.
   College major: college major was indicated by 18 fields of study.
   College success: (1) Academic performance (first semester GPA), (2) Academic persistence (remain in college 2 years after freshmen), (3) Satisfaction with college and academic major, and (4) career certainty (i.e., certainty about college major, certainty about career choice, certainty about interests and abilities).

Results
Enrollment Rate

Differing from most studies, the present study breaks down the first generation students into high-income and low-income groups. We contrast the first-generation, low-income students (FGLO) which consist of 23% of college student population with the non first-generation students (NFG), which consisted of 35% of college students in Taiwan. The first generation students with income higher than 50,000 NT accounted for 42% of the college student population. The present study showed that there was a much higher percentage of first generation students in Taiwan (65%) than in the United States (29%) as reported in Chen and Carroll's study (2005)

Demographic Differences

Whereas women and men who come from high SES families are equally represented in the higher education, women (58%) are more likely than men (42%) to come from first generation low income family. The traditional view of low priority for women to obtain higher education may explain the significant gender difference in the percentage of first-generation, low-income students in Taiwan. In the United States, more female students than male students are first generation students (Brown & Burkhardt, 1999).

Similar to the U.S. first generation students that mostly comprised of Hispanic and African Americans (Horn, Nuňez, & Bobbitt, 2000), the present study found that aboriginal college students were more likely to come from first-generation, low-income family. Mandarin college students were more likely to have parents who attended college.

Pre-College Academic Achievement

We compared the FGLO and NFG students' high school grades, high school rank, academic proficiency tests and college entrance exams. Results did not suggest significant difference in high school grades or class rank. However, significant differences were found in academic proficiency and college entrance examination scores. NFG scored significant higher than FGLO on both tests.

College Enrollment Path

There was a small but statistically significant difference in the methods students used to enroll in college. FGLO students (66%) were less likely than NFG (69%) students to enter college through the national entrance exam. A greater percentage of FGLO students (34%) than NFG (31%) entered college through application, nomination, or other methods. Does the entrance exam tend to be biased against first-generation low-income students? Or, is it because FGLO students were less prepared for college? Further studies are needed to clarify this issue.

NFG students were more likely than FGLO students to enroll in public universities. FGLO students, on the other hand, were more likely to enroll in private voc-tech colleges. In the United States, the proportion of first-generation students varies widely by type of institution, with the highest representation at for-profit private institutions (67%), followed by public two-year institution (51%), public four-year institutions (30%), and private, nonprofit four-year institutions (25%) (Brown & Burkhardt, 1999).

There was no significant difference in the enrollment rate of the top three fields of studies between FGLO and NFG students. The top three fields of study that have the highest enrollment rates for first generation students were Business, Engineering, and Computing Science & Math. The top three fields of studies that have highest enrollment rate for first generation students were Engineering, Business, and Computing Science & Math, respectively.

Parental Influence

Studies have shown that US first generation students are more likely to be influenced by their teachers, counselors, or friends in curriculum decisions (Horn, Nuňez, & Bobbitt, 2000), whereas students with college-educated parents were more likely to seek information from their parents (Galotti & Mark, 1994). Similarly, in our study, NFG students perceived greater importance of

parental influence on both college decisions and academic major decisions than did FGLO students. NFG also reported a greater influence from their parents on course selection than did FGLO students.

Financial Support

The majority of college students were supported by their parents to finance their tuition. However, FGLO students (58%) were significantly less likely than NFG students (81%) to rely on their parents for tuition support. 31% of FGLO student use loan as their main source of financial support whereas only 12% of NFG did so.

Academic Performance, College Satisfaction and Persistence

Studies on academic performance of first generation students have produced a mixed result. Some (e.g., Chen & Carroll, 2005; Riehl, 1994) found that first-generation students did not perform as well as their peers, other (Billson & Brooks-Terry, 1982; Brown & Burkhardt, 1999) found no difference. The present study did not find significant differences in academic performance. However, in spite of lacking in financial resource, parental support, and pre-college preparation academically, FGLO students did just as well as other students. It is also worth of noting that neither the academic proficiency tests nor the entrance exams were significantly correlate with first semester college GPA. Less than 2% of variance in Freshmen GPA was accounted for by both academic proficiency tests and entrance exams. High school GPA was a better predictor, however, only 4.4% of variance was accounted for (see Table 3). More research is need to exam the predict validity of college entrance exam for FGLO students.

We did find a small but statistically significant difference in satisfaction with the college attended. FGLO students were less satisfied with the college/university they were attending than did NFG students. Only FGLO students were less satisfied with their college, they were also less certain about their choice of academic major, career choice, and their interests and abilities than were their counterparts.

Some research found first generation students were more likely to drop out of college (Nunez, 1988, Riel, 1994), other studies (e.g., Maack, 1998) found no difference in one-year persistence rate. In our study, 94.6% of FGLO students were still enrolled in college which is no significant difference than NFG students (94%).

Discussion and Implications

This study used data from a national longitudinal survey conducted in Taiwan (Peng, 2005) to exam the characteristics of first generation, low-income Taiwanese college students regarding their pre-college preparation, enrollment paths, college persistence and academic success. Results suggested that FGLO students not only were less academically prepared before entering college, they also received less financial support and help with academic decision from their parents. Consequently, they experienced more difficulty in making educational/career decisions and were less satisfied with their college and college major than non first generational students, who were likely to benefit from their college parents' experience and support.

Although Taiwanese and American first generation students share many similar characteristics, they also differ in several characteristics. There is a lack of evidence that FGLO

students in Taiwan did more poorly than their counterparts in academic performance or persistence in academic pursuits. Unlike American first generation students who were more likely to attend public universities, FGLO students in Taiwan were more likely to enroll in private colleges which resulted in more financial burden due to a much higher tuition cost than that of public colleges. In the United States, first-generation, low-income minority students are often targeted for federal outreach programs (e.g., TRIO) designed to raise the level of student preparation and readiness for postsecondary work, assist them through college, and help them pursue post graduate work. There is practically very little or no programmatic help for first generation, low-income students in Taiwan. The call for administrative policy change in order to assist these disadvantaged students seems to be critical and urgent.

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Table 1 *Chi-Square Distribution of First-Generation, Low-income (FGLO) and Non-First generation Students (NFG)*

Variables	FGLO %	NFG %	Effect Size (Phi Statistic)
Sex			.08
Male	42	51	
Female	58	49	
Ethnicity			.17
HuKen	70	60	
Hakka	11	13	
Mandarin	6	15	
Aboriginal	4	2	
Admission Type			.15
By entrance exam	66	69	
By nomination	28	27	
By other types	6	4	
School Type			.32
Public 4 yr	13	29	
Private 4 yr	14	7	
Public voc-tech	23	39	
Private Voc-Tech	50	25	
Academic Major (Top 3)			.13
Business Administration	20	19	
Engineering	20	19	
Computer science	12	11	
Financial Support (Main source)			.26
Family	58	81	
Self	6	3	
Scholarship	3	2	
Loan	31	12	
College Persistence			.00
Retention	94.3	94.2	
Stopout or Droptout rate	5.7	5.8	

Table 2 *Results of ANOVA on Differences in Characteristic between First-Generation, Low-income (FGLO) and Non-First generation Students (NFG)*

| | FGLO | | NFG | | | | |
Variables	*M*	*SD*	*M*	*SD*	*F*	*Cohen d*	
Pre-College Academic Performance							
High School Grade	3.2	.8	3.2	.8	1.6	.00	n.s
High School Rank	2.7	1.6	2.7	1.6	0.2	.00	n.s
Academic Proficiency	46.1	12.3	52.0	10.7	621.8**	.51	FGLO < NFG
College Entrance Exam	254.8	110.5	299.9	103.6	319.1*	.64	FGLO < NFG
Number of Cram Courses	5.0	4.8	5.6	4.9	60.5**	.12	FGLO < NFG
Parental Influence							
Course Selection	2.0	1.0	2.2	1.1	76.7**	.58	FGLO < NFG
College Choice	2.8	.8	3.0	.8	74.0**	.25	FGLO < NFG
Academic Major Choice	2.7	.9	2.9	.9	120.1**	.22	FGLO < NFG
College Satisfaction							
Satisfied with the College	2.8	.7	2.9	.7	81.2**	.15	FGLO < NFG
Satisfied with the Major	2.7	.8	2.8	.9	3.1	.11	n.s.
Career Indecision	10.2	2.8	9.8	2.8	335.6**	.14	FGLO > NFG
College Success							
GPA[a]	74.6	11.5	74.4	11.8	3.48	.02	n.s.
Satisfied with Learning	2.7	.8	2.7	.8	1.95	.00	n.s.

[a.] Based on 100-point scale

Table 3 Bivariate correlation of First Semester College GPA and Pre-college Academic performance

Variables	FLGO		NFG	
	r	% variance	r	% Variance
High school GPA	.21	4.4%	.26	6.7%
High school rank	.11	1.1%	.13	1.7%
Academic Proficiency	.09	8.0%	.13	1.7%
Entrance Exams	.07	.5%	.07	.5%