Higher education in Taiwan has undergone a rapid expansion since 1990s, resulting in universal access to and more than 50% participation in postsecondary education (Altbach et al., 2016; Chan & Lin, 2015; C. Chang & Shaw, 2016; Ministry of Education [MOE], 2020). At the time of this writing, the student net enrollment rate in postsecondary schools was approximately 71% in Taiwan, including increasing numbers of students in pursuit of higher degrees (MOE, 2020). The massification of higher education has resulted not just in significant increases in the number of college students but specifically in a six-fold increase in students seeking Master's degrees, reflecting the country's growing demand for a workforce with advanced education (Yang & Chan, 2020). The massification of master's level education also reflects the popular view that it is important for accumulating not only economic but also social capital for seeking upward mobility. Thus, on societal and individual levels, raising educational levels overall has the potential to reduce social inequities related to power and prestige (Altbach et al., 2016; Y. C. Chang & Lin, 2015; Goldsmith, 2010; Jung & Li, 2021).

Despite these recent developments in students' educational aspirations and pursuit of graduate degrees, and research documenting the importance of the quality of institutions affects student achievements, scholars have largely overlooked the role of educational aspiration in the pursuit of graduate education, especially in Asian contexts such as Taiwan, where there have been no empirical investigations of how college experiences shape students' educational aspirations for pursuing advanced degrees. To help close this gap, this study is an investigation factors that contribute to Taiwanese college graduates' aspirations to pursue graduate education.

As participating in higher education has become the norm among Taiwanese youth, achieving graduate degrees reflects their intention to elevate their qualifications and improve their chances of career success. In this regard, universities and colleges play a growing role in their lives as avenues leading to economic opportunity and social mobility. Therefore, understanding the relationships between college experiences and educational outcomes, including pursuit of graduate education, is increasingly important. Research has
demonstrated the perpetuation of economic stratification in Taiwan’s higher education system, which is divided into academic and vocational tracks, and students who are from socio-economically disadvantaged backgrounds are disproportionately concentrated in the vocational system, which may offer fewer sources of support and institutional integration than academic colleges and universities (Fu et al., 2022; Yu, 2018). Thus, it is important to examine commonalities and differences in the collegiate experiences that different institutions and institutional types provide to undergraduates (Astin & Oseguera, 2004; Lin et al., 2021; Chen & DesJardins, 2010; Wu & Pham, 2017) as well as with characteristics of different segments of the student population. Accordingly, students’ learning outcomes found to be associated with types of institutions, institutional geographic locations, and student demographics (Cappelli, 2015; Chetty et al., 2020). Students from low socio-economic backgrounds found to experience more challenges and were less likely to be admitted in more selective institutions, limiting their ability to achieve their goals and social mobility (Astin, 1993; Lin, 2016; Chetty et al., 2020; Haveman & Smeeding, 2006; Luoh, 2018; Paulsen & St. John, 2002; Walpole, 2003; Williams & Filippakou, 2010).

Most notably, students from socioeconomically disadvantaged backgrounds are more likely to take out loans to finance their undergraduate education, which is likely to make advancement to graduate programs less feasible than for students from higher socioeconomic status (SES) brackets (Chen & Wiederspan, 2014; Luoh, 2018; Smith, 2019; Wang & McCready, 2013). Therefore, to make progress toward equity at both the individual and the societal level, the increasing value of graduate education strongly suggests the need to advance understanding of the effects of the undergraduate experience on students’ advanced degree aspirations and participation in graduate education.

Undergraduate experiences in relation to educational outcomes is not a new topic of inquiry. A popular higher education issue is student retention and graduation as well as employability (Aničić, & Divjak, 2020; Lin et al., 2021; Chen & DesJardins, 2010; Pike et al., 2014; Pike & Robbins, 2020; Roksa et al., 2018; Yue & Fu, 2017), revealing that academic engagement and performance play an important role in students’ progress along the pathway to undergraduate degree attainment. In particular, college quality has been significantly related to graduate education, and socioeconomic factors have been found to exert influence on academic performance and educational attainments (Zhang, 2005a, 2005b). Students who complete bachelor degrees with higher grade point averages (GPA) are more likely to earn a master’s degree, and those from socioeconomically disadvantaged backgrounds were less likely to pursue graduate education because there is considerable expense involved in paying higher educational costs (Chiu, 2016; Lin, 2010). Furthermore, undergraduate disciplines found to be an important mediator of aspirations for graduate study. For example, participation in undergraduate research projects in STEM fields has been positively associated with aspirations for graduate education (Trolian & Parker, 2017; Xu, 2016). While these studies provide a partial picture, there is the need for further understanding of how undergraduate experiences may affect and even change students’ aspirations for pursuing graduate education.

To help fill this critically important gap, the present study drew upon data from a nationally representative cohort of Taiwanese college students to understand the dynamics of changes in students’ aspirations and the covariates related to their decisions concerning graduate education. In particular, it was focused on the role that collegiate experiences in different academic disciplines among postsecondary institutions play in changes in students’ graduate degree aspirations, with a specific focus on students from low socioeconomic backgrounds. The overarching purpose of this study was to identify the determinants that predict the development of college students’ graduate education aspirations and how these factors are associated with institutional quality and student characteristics.

The study was guided by the following questions:

1. To what extent do students’ characteristics, college experiences, and institutional environments influence their intentions to pursue graduate education?
2. What factors mediate the effects of students’ aspirations in educational pursuits?

Theoretical Perspectives

This investigation into the potential factors influencing differential educational outcomes in the study was informed by college choice perspective, human capital theory, and empirical research that have examined college experiences on educational outcomes and factors influencing students’ intentions to pursue graduate education.

College Choice Perspective on Graduate Education Attendance

One of the well-known models of student access and persistence is students’ college choice, which involves the multi-stage process of decision-making process, including predisposition, search, and choice (Callender & Dougherty, 2018; Hossler et al., 1999; Perna, 2006; Shellhouse et al., 2020). Adopting the college choice perspective can help researchers understand the changing process of pursuit of graduate education. When students have enrolled in a particular undergraduate institution, a variety of factors may impinge on their eventual access to graduate education, including geographical locations, college experiences, and institutional environments, highlighting the importance of the effects of institutional factors and college experiences on students’ plans for future education (Astin, 1993; D. F. Chang, 2015; Fu et al., 2021; Pascarella & Terenzini, 2005; Shellhouse
et al., 2020; Xu, 2016), particularly in their early stages of searching for graduate programs (Kinzie et al., 2004; Krezel & Krezel, 2017; Schoon & Polek, 2011). Studies have revealed that the aspirations of college students tend to cool down as they are more likely to be sensitive to the costs and economic returns of their education, resulting in less probability of earning even a baccalaureate degree (Doyle, 2010; Wang & Wickersham, 2014). College choice theory assumes that an individual’s decision for college attendance is based on a combination of personal academic capacity, financial conditions, institutional reputations, and the economic returns of education (Kolman et al., 1987; Meyer et al., 2020). With regard to graduate programs, students’ aspirations appear to be largely determined by the quality of college experience provided by institutions.

As conceptualized by human capital theory, graduate education is an integral stage in the accumulation of human and social capital, and higher levels of postsecondary education lead to increased economic benefits and career mobility (Becker, 1975; Chetty et al., 2020; Kinzie et al., 2004; Toutkoushian & Paulsen, 2016). These cumulative advantages are the result of substantial investments of time, money, and energy. Students who graduate from elite private colleges and research institutions are more likely to undertake graduate education (Eide et al., 1998; Pascarella & Terenzini, 2005; Wu & Bai, 2014; Wu & Pham, 2017; Yang & Chan, 2020; Zhang, 2005a, 2005b). Moreover, the overall proportion of students expressing intentions to obtain a graduate or professional degree are significantly lower after 3 years of college entry (Pascarella et al., 2003). Therefore, to examine changes in students’ aspirations at the college level, it is first helpful to understand the trajectory of their undergraduate experience.

**Collegiate Experiences Influencing Graduate Education Attendance**

Maintaining aspirations for graduate study is a continuous process, and the factors influencing this process vary significantly, but the pivotal relevance of college experiences on graduate education attendance requires further investigation (Lin & Borden, 2016). Research has shown that good teaching practices are associated with undergraduate students’ aspiration for graduate education, suggesting the significant role of faculty (Hanson et al., 2016). In spite of earlier inconsistent findings on educational aspirations (Pascarella, 1984), research has suggested that graduate education aspirations are related to the ways in which institutional contexts structure students’ interactions with faculty members and peers, particularly for those from underrepresented backgrounds (Xu, 2016; Zerquera & Gross, 2017). The quality students’ undergraduate institutions significantly influence their degree attainment, graduate school enrollment, and the quality of graduate programs to which they aspire academic development conducive to undertaking graduate study and promising career opportunities, both strong incentives for obtaining graduate education (Bowen & Bok, 1998; Yang & Chan, 2020; Zhang, 2005a, 2005b). Research has also addressed such issues as transition to graduate-level study (Baker et al., 2022; Chiu, 2016; Malcom & Dowd, 2012) and persistence (Bound et al., 2012; Perna, 2004; Zhang, 2005a).

Beyond institutional contexts, educational aspirations and attainment are influenced by financial factors (Cabrera et al., 1992; Callender & Melis, 2022; Dynarski & Scott-Clayton, 2006; Goldrick-Rab et al., 2016; Hillman, 2014; Hossler et al., 2008). Whether or not undergraduates have a realistic idea of the cost of graduate and professional education, their perceived financial constraints are related to their likelihood of attending graduate schools (DesJardins et al., 2019; Luna-Torres et al., 2019; Xu, 2016). Thus, the availability of financial aid may have significantly positive effects on reducing disparities in educational aspirations and college participation across different socioeconomic and ethnic groups (Chen & DesJardins, 2010; Goldrick-Rab et al., 2016; Perna, 2000; St. John et al., 2005). However, the form of the aid is relevant as the specter of debt due to dependence on student loans may haunt students wishing to pursue graduate and professional education and serve as an obstacle rather than a gateway to fulfilling their aspirations (Heller, 2011; Hossler et al., 2008, Pu & Luoh, 2015). Further insight into such critical individual and institutional factors can extend our understanding of how graduate degree aspirations vary within different institutional contexts as students move toward the next level in the educational pipeline, and educators look for ways to level the playing field for all. Informed by the literature, this study included the following variables: (a) student demographics (student characteristics, admission types, minority student status, housing status, SES proxy, college choice, academic preparation, and educational expectations), (b) college experience domain, (c) social integration, (d) financial factors (financial dependency status, financial support), and (e) aspirations for graduate education attendance, and the control variable (institutional characteristics).

**Methodology**

A Hierarchical Generalized Linear Model (HGLM) was implemented to investigate the effects of college quality on students’ graduate degree aspirations, particularly those from socioeconomically disadvantaged backgrounds, across higher education institutions (HEIs). Based upon the review of literature and previous empirical research, students’ aspirations for attending graduate education are considered a function of both individual-level and discipline-level factors (Chiu, 2017; Raudenbush & Bryk, 2002). Accordingly, HGLM involving two-level analysis is employed to investigate how student-level factors are associated with decisions regarding pursuit of graduate education when the discipline context effects are taken into account. Furthermore, given
the nested nature of Beginning Postsecondary Students (BPS) data in the Taiwan Integrated Higher Education Database (TIHED), HGLM is appropriate for this study because it offers better estimations than single-level regression designs (Titus, 2004).

HGLM includes three elements: a probability distribution from the exponential family, a link function, and a linear predictor at each level. The response of intentions to pursue graduate education for student $i$ ($i = 1, \ldots, I$) within discipline $j$ ($j = 1, \ldots, J$) follows the Bernoulli distribution with a probability of positive response of $p_{ij}$. The logit link function is chosen to connect the linear predictor to $p_{ij}$, represented as follows:

$$
\eta_j = \log \left( \frac{p_{ij}}{1 - p_{ij}} \right)
$$

The full model consists of two-level equations, where level 1 represents the student-level variables and level 2 represents the discipline-level variables. The level 1 model is specified as follows:

$$
\eta_j = \beta_{0j} + \beta_{1j} X_{1ij} + \beta_{2j} X_{2ij} + \ldots + \beta_{Mj} X_{Mij}
$$

where $X_{pj}$ ($p = 1, \ldots, M$) are variables of student characteristics and college experiences that influence students’ intentions to pursue graduate education. At level 2, the coefficients are specified as:

$$
\begin{align*}
\beta_{0j} &= \gamma_{00} + \gamma_{01} Z_{1j} + \gamma_{02} Z_{2j} + \ldots + \gamma_{0N} Z_{Nj} + u_{0j} \\
\beta_{1j} &= \gamma_{10} \\
\vdots & \vdots \\
\beta_{Mj} &= \gamma_{M0},
\end{align*}
$$

where $Z_{qj}$ ($q = 1, \ldots, N$) are variables of discipline environments that influence students’ intentions to pursue graduate education, and $u_{0j}$ is the random component of $\beta_{0j}$ that describes the variability between the disciplines and is assumed to follow $N(0, \tau)$. However, the effects of predictors within student level, $\beta_{pq}$ ($p = 1, \ldots, M$), are assumed to be fixed across disciplines and are represented as $\gamma_{p0}$ ($p = 1, \ldots, M$).

Empirical Model

In this study, the dependent variable was defined as the indicator that as an undergraduate a student expects to undertake graduate education (Wells et al., 2011). Student-level independent variables, which were identified as potentially important based on the research literature, included such as student characteristics, financial assistance, SES, academic preparation, college choice, expectations of education, college experiences, and social integration. Specifically, the model includes variables of student demographics such as gender, admission types, minority status, housing status, and financial support. SES refers to family income and father’s highest education attainment. The measure of academic preparation is measured by types of high schools and students’ academic percentile ranks. College choice refers to the reasons students chose to study at an institution. The variable of educational expectations is measured by whether students have plans to transfer, pursue more options for taking courses, take the civil servant examination, or study abroad. The college experience domain is measured by the degree to which a student engages in purposeful educational activities within an institution. Social integration refers to the degree to which students experienced being integrated socially on campus, measured by participation in student associations, work study, faculty-student interactions, and peer relations. Additionally, the measure of college major was identified as an important dimension to determine the relationship between academic discipline and the probability of pursuing an advanced degree. Thus, a discipline-level random effect was included in the model to account for the heterogeneity among disciplines in the present study.

Limitations

Care should be taken when making generalizations in the present study. As is often the case in longitudinal data analyses, it is limited by data availability. This restriction is particularly applicable to the second level of the multilevel analysis, which includes discipline-level findings. Although a discipline-level random effect is included in the model to account for unobserved heterogeneity among disciplines, there are other possible student-level and discipline-level variables omitted from the analysis, which can bias parameter estimation. In the current model, some predictors are suspected to be the endogenous variables; for instance, students’ aspiration for professional education may influence their college experiences. To further strengthen causal inferences, the instrumental variables method that is primarily used in economics research can be applied. With respect to the mediation analysis, it should be noted that the two additional mediation models could be considered post-hoc exploratory analysis. Additional research is needed to understand the mechanism underlying the mediating effects as well as the extent to which other specific factors may have similar mediating effects on the aspirations for graduate education. The last limitation is self-selection effects at the student-level in such matters as on-campus residency, college choice, willingness to incur student debt, and expectations of education. However, more sophisticated statistical method (e.g., propensity score matching) can in some ways mitigate the selection bias (Pike & Robbins, 2020; Wang & McCready, 2013). Thus, interpretations should be made cautiously.
Research Design

Data description. The study drew upon the BPS: 04/06, the core postsecondary education data collection program for the MOE of Taiwan. Data are collect from all colleges and universities and used to focus on postsecondary education policy issues and making data-driven decisions to improve student learning. The BPS results used in this study follow students who completed their baccalaureate degrees between 2003 and 2013. Against the backdrop of the current higher education environment, it is hard to imagine a time period in which the utility of research using BPS information would not be relevant as this dataset includes yearly about student-level, discipline-level, and institutional-level information, such as students’ learning experiences and economic backgrounds as well as financial support at nationally representative institutions. Moreover, prior research using BPS data has also shed light on the effects of student engagement and student finances on postsecondary participation and subsequent degree completion. Finally, BPS-based research also helps policy makers and institutional leaders to better understand the impact of college experiences on students’ educational pursuits.

To sum up, the BPS: 04/06 employed a cluster sampling design that followed a nationally representative cohort of 20,187 first-time, full-time, degree-seeking undergraduate students who enrolled in colleges and universities in 2003 and 2004 to track their progress toward degree completion. Listwise deletion was performed on the student level data, and it ends up with a total of 174,277 students from 156 HEIs in this study, and each student had equal sampling weight for selection except that representatives of minority groups (e.g., indigenous) were targeted to ensure their sufficient presence in the sample. Data collection took place during their first year of college, in which the survey topics focused on college choice, and third year, in which the topics were focused on their college experiences and aspirations for graduate education.

Descriptive statistics. The descriptive analyses show the distribution of the variables (Table 1). Approximately 58% of the students in the sample were female. Minority students accounted for about 5% of the sample, while nearly half had the experience of living on-campus. Approximately 66% of the students in the sample aspired to graduate education. In terms of socio-economic backgrounds, the highest educational attainment of more than half of students’ fathers was a high school diploma or below. The tuition costs and fees of 65% of students were fully covered by their families. At the institutional level, 33% of students attended public institutions. Cross-tabulations (not shown) demonstrate that approximately 85% of the students received partial or full financial support from parents or relatives whether they were enrolled in public or private postsecondary institutions. About 11% of the students had applied for financial aid. More students in private institutions than in public institutions, and more females than males, took out loans, indicating higher levels of financial need.

Results

HGLM Analyses

In response to the first research question, the HGLM analyses reveal that several student-level variables are associated with aspirations for graduate education (see Table 2), including gender, admission types, minority status, financial support, SES, academic preparation, college choice, education expectations, college experience domain, and social integration. All of the results are displayed as coefficients and odds ratio (χ² = 3,743; df = 44; p < .001). Specifically, other things being equal, males were more likely than females to indicate graduate school plans, and those who gained admission through national entry examination were more likely than those through recommendations to pursue advanced degrees. Minority status was also significantly associated with lower aspirations for advanced academic degrees (Kim & Sax, 2009; Kezal & Kezal, 2017). Consistent with previous research (Hossler et al., 2008; St. John, 2003), students' financial dependency status and SES were positively related to aspirations for graduate education in the full model. Notably, in keeping with the great value placed on education in Taiwan, family financial support and financial aid were found to be significant for students’ aspirations for graduate education. In light of the picture provided here, future research could investigate relationships between types of financial aid and types of postsecondary institutions by estimating the model with cross-level interaction. Further, the findings also suggest that SES is a strong predictor of aspirations for graduate education. Students whose parental educational attainment was at the level of high school or below were less likely than those with college-educated parents to pursue a higher level of education, indicating the significance of intergenerational transmission of educational aspirations, which may enlarge the social/income inequality in society (Lin & Borden, 2016; Y. Chang & Lin, 2015).

With regard to academic preparation, high school academic performance was related to intentions to pursue, of graduate education, which were higher for students from public high schools than those from private high schools. Factors associated with college choice included significant others, institutional reputation, financial assistance, institutional geographic location, and individual interests. Further, students’ educational expectations, including plans to transfer, take more courses, engage in advanced study, and study abroad, were found to positively affect the likelihood of pursuing graduate education. The results showing the effect of the college experience domain also revealed that academic engagement, having a minor or double major, participating in a license and certificate program, cumulative credit hours, and number of failed
Table 1. Descriptive Statistics for the Study.

| Variable name                      | Definition                                                                 | Range  | % or M  |
|------------------------------------|---------------------------------------------------------------------------|--------|---------|
| (a) Student demographics           |                                                                           |        |         |
| Student characteristic             |                                                                           |        |         |
| Gender: Female                     | Students’ gender (0 = male and 1 = female)                                | 0–1    | 58.40   |
| Admission types                    | Four primary types of college admission, including national examination,   | 0–1    | 69.25   |
| National examination               | individual application, recommendations, and others                       | 0–1    | 11.40   |
| Individual application             |                                                                           | 0–1    | 16.28   |
| Recommendations                    |                                                                           | 0–1    | 3.07    |
| Others                             |                                                                           | 0–1    | 4.77    |
| Minority students                  | Whether students are from minority groups (e.g., indigenous)             | 0–1    | 5.77    |
| Housing status: On-campus residency| Whether students live on- or off-campus                                   | 0–1    | 50.69   |
| SES proxy                          | Socioeconomic status, including family income and father’s highest         | 500–5,000 | 1,000.94 |
| Family income (in 1,000 dollars)   | education attainment                                                      | 0–1    | 67.74   |
| Father’s education attainment:     | High school                                                                  | 0–1    | 3.33    |
| or below                           |                                                                           | 0–1    |         |
| College choice                     | College choice refers to the reasons students chose to study at an         | 1–4    | 2.59    |
| Significant others                 | institution                                                                | 1–4    | 2.91    |
| Reputation                         |                                                                           | 1–4    | 2.98    |
| Environments and campus culture    |                                                                           | 1–4    | 2.94    |
| Financial assistance               |                                                                           | 1–4    | 3.21    |
| Employment                         |                                                                           | 1–4    | 3.11    |
| Scores-decided                     |                                                                           | 1–4    | 2.30    |
| Distance                           |                                                                           | 1–4    | 3.37    |
| Individual Interest                |                                                                           | 1–4    |         |
| Academic preparation               | The academic preparation is measured by types of high schools and         | 0–1    | 32.99   |
| High school type: Private          | students’ academic percentile ranks                                       | 10–90  | 54.52   |
| High school GPA ranking (in PR)    |                                                                           | 1–4    |         |
| Educational expectations           | The variable of educational expectations is measured by whether students   | 0–3    | 0.67    |
| Plan to transfer                   | have plans to transfer, pursue more options for taking courses, take the  | 0–5    | 2.31    |
| Plan to do more course-taking      | civil servant examination, or study abroad                                 | 0–3    | 1.65    |
| Plans to take civil servant exams  |                                                                           | 0–2    | 0.73    |
| Plan to study abroad               |                                                                           |        |         |
| (b) College experience domain      |                                                                           |        |         |
| Academic engagement                | Time spent reading per day                                                | 0–24   | 2.78    |
| Minor                              | Whether students had a minor major                                         | 0–1    | 4.85    |
| Double major                       | Whether students had a double major                                        | 0–1    | 1.81    |
| Transfer status                    | Whether students transferred                                               | 0–2    | 0.08    |
| License and certificate program    | Whether students participated in a license and certificate program         | 0–2    | 0.14    |
| Satisfaction with college major    | How satisfied are students with their college majors                       | 1–4    | 2.78    |
| Facilities and environment         | How satisfied are students with college facilities and environment         | 1–4    | 2.52    |
| # of credit hours failed in college| Number of credit hours students failed in college                          | 0–100  | 4.84    |
| Cumulative credit hours            | Sum of credit hours students have taken                                    | 0–250  | 48.88   |
| (c) Social integration             |                                                                           |        |         |
| Faculty-student interactions       | Level of faculty-student interactions                                      | 1–4    | 2.97    |
| Student club                       | Level of involvement in student clubs                                      | 1–4    | 1.51    |
| Peers relations                    | Closeness of peer group relationships                                      | 1–4    | 2.99    |
| Work study (# hours/week)          | Time spent for part-time jobs per week                                     | 0–168  | 7.03    |
| (d) Financial factors              |                                                                           |        |         |
| Financial dependency status        | Dependency status on family financial support                              | 0–1    | 64.57   |
| Fully supported by families        |                                                                           | 0–1    | 26.76   |
| Partially supported by families     |                                                                           | 0–1    | 8.67    |
| None                               |                                                                           |        |         |

(continued)
Table 1. (continued)

| Variable name                        | Definition                                                                 | Range     | % or M |
|--------------------------------------|-----------------------------------------------------------------------------|-----------|--------|
| Finance support (in 1,000 dollars)   | The amount of money a student received from different sources for paying college costs | 0–200     | 37.05  |
| Parents support                      |                                                                             | 0–200     | 6.47   |
| By self                              |                                                                             | 0–200     | 1.41   |
| Financial aid                        |                                                                             | 0–200     | 11.24  |
| Student loans                        |                                                                             | 0–200     | 0.57   |
| Other resources                      |                                                                             |           |        |

(e) Aspirations for graduate education attendance, and the control variable

| Institutional characteristics        | Two primary types of institutions, including public and private institutions. |          | 33.3   |
| Public institutions                  |                                                                             |           | 66.7   |
| Private institutions                 |                                                                             |           |        |

Dependent variable

Aspirations for graduate school

| Definition                                                                 | Range     | % or M |
|-----------------------------------------------------------------------------|-----------|--------|
| The indicator that as an undergraduate a student expects to undertake graduate education. | 0–1       | 66.39  |

Note. A total of 20,187 students enrolled in 2003.

credits were significantly associated, positively or negatively, with the probability of pursuing graduate education. For example, having a minor was associated with about 1.57 times greater odds of aspiring for graduate education. Finally, participation in student clubs, peer relations, and working hours per week were significantly associated with students’ predisposition to pursue graduate education. Notably, a one-unit increase in peer relations was related to about 1.27 times greater odds of aspirations for graduate education.

Mediation Analyses

In response to the second research question, two additional mediation models for post-hoc exploratory analysis were analyzed. Two important mediating factors emerged as associated with the odds of aspirations for graduate education: SES ($\chi^2 = 143.84; df=3; p < .001$) and educational expectations ($\chi^2 = 537.39; df=4; p < .001$). See Supplemental Appendices A and B for details. The magnitude of educational expectations exceeded that of SES in the model, suggesting the degree to which college expectations and experiences are congruent, which is related to the commitment to the institution that influences college integration and success (Pascarella & Terenzini, 2005; Tinto, 1993). Interestingly, other things being equal, the effect of financial aid was not significantly associated with students’ predisposition for pursuing graduate education. Taken together, these findings provide support for the idea that students’ predisposition for graduate education can be established and reinforced throughout their undergraduate education.

Discussion and Policy Implications

In this project, a longitudinal dataset from a nationally representative sample was analyzed to capture the complexities and subtleties of undergraduate experiences that might shape students’ aspirations for continuing their education beyond the baccalaureate level. Given the size of the sample and duration of data collection, the results are more generalizable than those of studies focused on smaller populations or seeking qualitative outcomes. Given the cultural differences within Taiwan society, we further broadened the range of factors associated with college experiences and social integration to examine their effects on the odds of students’ pursuing graduate education with the aim of helping institutional leaders and stakeholders better understand how the quality of college experiences are associated with motivation to advance to the graduate level. This research reveals that college experiences and institutional quality are of particular importance to students’ predispositions for pursuing graduate education. These findings resonate with Becker’s (1975) theory of human capital and college choice theory (Kolman et al., 1987; Meyer et al., 2020), acknowledging the complexity of the choice process at each stage of education as individuals negotiate their aspirations by weighing the costs and benefits of their options. Accordingly, providing students with knowledge resources within an institution enabled them to accrue the human and social capital necessary for developing educational aspirations. In sum, the quality of college experiences contributed to students’ development of sufficient academic, social, and cultural capital to pursue in advanced degrees (Roksa et al., 2018). The results have implications for educational practices.

First, students’ socioeconomic status and family financial support are salient factors affecting their educational aspirations. Students whose parents have higher educational attainment are more likely to pursue graduate education, suggesting the importance of parental models and financial support for developing high educational aspirations (Breen & Jonsson, 2000; Pather & Chetty, 2016; Smith, 2019). Thus, it is crucial to invest institutional resources and establish supporting mechanisms for students from low SES background, particularly those who demonstrate high achievement motivation (Stage & Hossler, 1989; Xu, 2016; Zhang, 2005b). In addition, financial aid (whether grants, work-study, or loans) acts as a strong incentive for students to consider an advanced
### Table 2. Results for the HGLM Analysis.

| Variable name | Coefficient | Odds ratio |
|---------------|-------------|------------|
| **(a) Student demographics** | | |
| Student characteristic | | |
| Gender: Female | −0.652 | 0.521*** |
| Admission types (Reference: National examination) | | |
| Individual application | 0.066 | 1.069 |
| Recommendations | −0.316 | 0.729*** |
| Others | −0.206 | 0.814 |
| Minority students | −0.214 | 0.808** |
| Housing status: On-campus residence | 0.064 | 1.066 |
| **SES proxy** | | |
| Family income (in 1,000 dollars) | +0.000 | 1.000** |
| Father’s education attainment: High school or below | −0.427 | 0.653*** |
| Father’s education attainment: Graduate school or above | 0.685 | 1.983*** |
| **College choice** | | |
| Significant others | −0.137 | 0.872*** |
| Reputation | 0.188 | 1.207*** |
| Environments and campus culture | −0.038 | 0.962 |
| Financial assistance | −0.147 | 0.863*** |
| Employment | 0.045 | 1.046 |
| Scores-decided | −0.007 | 0.993 |
| Distance | −0.113 | 0.893*** |
| Individual Interest | 0.132 | 1.141*** |
| **Academic preparation** | | |
| High school type: Private | −0.112 | 0.894** |
| High school GPA ranking (in PR) | 0.002 | 1.002** |
| **Educational expectations** | | |
| Plan to transfer | 0.073 | 1.076*** |
| Plan to do more course-taking options | 0.122 | 1.130*** |
| Plan to take civil servant exams | 0.327 | 1.386*** |
| Plan to study abroad | 0.196 | 1.217*** |
| **(b) College experience domain** | | |
| Academic engagement | 0.039 | 1.039*** |
| Minor | 0.450 | 1.568*** |
| Double major | 0.405 | 1.499** |
| Transfer | 0.096 | 1.101 |
| License and certificate program | 0.317 | 1.373*** |
| Satisfaction with college major | 0.032 | 1.033 |
| Facilities and environment satisfaction | −0.052 | 0.949 |
| # of credit hours failed in college | −0.013 | 0.987*** |
| Cumulative credit hours | 0.002 | 1.002*** |
| **(c) Social integration** | | |
| Faculty-student interactions | 0.021 | 1.021 |
| Student club | 0.131 | 1.140*** |
| Peers relations | 0.236 | 1.267*** |
| Work study (# hours/week) | −0.004 | 0.996** |
| **(d) Financial factors** | | |
| Financial dependency status (Reference: Fully supported by families) | | |
| None | −0.088 | 0.916 |
| Partially supported by families | −0.031 | 0.969 |
| **Finance support (in 1,000 dollars)** | | |
| Parents support | 0.003 | 1.003*** |
| By self | −0.002 | 0.998 |
| Financial aid | 0.006 | 1.006* |
| Student loans | −0.002 | 0.998 |
| Other resources | 0.005 | 1.005 |

*p < .10. **p < .05. ***p < .01.
education (Callender & Melis, 2022). Therefore, universities and colleges can structure their aid programs to nurture low-income students’ aspirations. It is also worth noting that the magnitude of this relationship is greater for males than for females, highlighting a gender difference in educational aspirations. Further research is recommended to differentiate among gender and other possible institutional factors to inform administrators regarding institutional policies that promote students’ pathway to the next level of education (DesJardins et al., 2019).

Third, educational expectations and the college experience domain constitute the second source of influence on students’ educational aspiration; that is, in addition to socioeconomic status, and educational experiences are mediating factors in students’ educational aspirations. This suggests the importance of a purposeful and rewarding university experience and development of strong connections to the institution to a robust goal orientation (Guler, 2017). In particular, academic engagement and social integration strongly influence students’ aspirations to pursue the next level of education. Indeed, the undergraduate experience is shaped by complex interactions among the academic, cultural, social, and political environments within an institution (Swail et al., 2003; van der Zanden et al., 2019), and the quality of a student’s undergraduate education has a significant influence on his/her intention for graduate education. To raise educational attainment at the national level, policy makers and college educators need to be attentive to the different transition points at which students make decisions about next steps. Thus, there is a need to work with students and their families to provide transparent information regarding financial assistance and institutional practices so that they can make informed decisions for the next stage of education.

Lastly, this study contributes methodologically to the conceptual framework of student success in higher education by including the pursuit of continued education beyond graduation and institutional effects in a longitudinal process. Such an approach may reveal the ways in which key aspects affect the formation of students’ aspirations in the longer run. The present study adapts multi-level analysis by incorporating multiple years of both student and discipline-level variables as predictors to not only deepen conceptual understanding of the issues, but also lead to more thorough investigations in the future. To extend these findings, future research should examine these factors in relation to different types of postsecondary institutions by adding cross-level interactions to uncover how students’ aspirations are formed at a different transition time points during college and why. In sum, this study contributes to the larger discussion of the nexus of undergraduate experiences, aspirations for graduate education, and educational outcomes. The results can inform the development of institutional policies and practices that integrate various types of academic and social activities to increase the overall level of educational attainment of the nation.

Conclusions
The results of this study provide a comprehensive view of many factors that affect students’ aspirations for graduate education. Males are more likely to pursue graduate education than females, perhaps to postpone mandatory military service approximately a year after graduation. Also, students who are admitted to college based on school recommendations are less likely to pursue graduate study than their counterparts, although they maintain a consistent level of academic performance. Thus, it may be reasonably inferred that contextual matters affect Taiwanese students’ post-baccalaureate aspirations. When most degree aspiration-related variables and discipline levels (as random effects) in the model are taken into account, the likelihood of pursuing graduate education is greater for students enrolled in very selective public institutions, at which they are highly likely to be encouraged to pursue higher degrees. These findings are both statistically and practically significant as they demonstrate the importance of the quality of college experience, including help in assessing the quality of graduate programs, on students’ predispositions to pursue advanced degrees (Zhang, 2005b).

Beyond the influence of the contextual factors, students’ SES, academic preparation, financial support, financial aid packages, and educational expectations were significantly associated with the probability of attending graduate school (Callender & Melis, 2022). From the perspective of college choice theory, there was a significant influence of institutional reputation and individuals’ interests on decisions of where to attend higher education (Baker et al., 2022). The findings also suggest that while the domain of college experience comprised a variety of kinds of integration on campus, academic involvement is still the central factor associated with students’ aspirations for the pursuit of advanced degrees. For example, the number of credit hours a student failed in college was found to be significantly linked to his/her intentions to attend graduate school. However, the level of faculty-student interactions was not significantly related to aspirations for graduate education, which is contrary to results obtained in the U.S. context (Goodlad et al., 2018; Pascarella & Terenzini, 2005), perhaps because Asian college students are less likely than U.S. students to interact with faculty about course-related matters, revealing the contextual nature of the effects faculty-student interactions (Lin, 2016; Wu & Bai, 2014). On the other hand, peer relations, participating in student associations, and work study involvement did have impact on students’ aspirations, revealing that social integration helps shape the meanings students make of their collegiate experiences (Braxton & Lien, 2000; D. F. Chang, 2015; Kuh et al., 2006; van der Zanden et al., 2019).

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