The Impact of Financial-Aid Format on Students' Collegiate Financing Decisions

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This study explored how an alternative presentation of loan information affects financial-aid decisions among students (n = 204) at a large public university. Building from decision-aid literature and using an experimental design, we found that when financial-aid forms were formatted in a way that makes interest rates more accessible and salient, students tended to: (a) accept fewer high-cost private loans and (b) work more during the college years. Results indicate that minor revisions in financial-aid documentation can have a significant impact on students' financial-aid choices. Those working in the fields of higher education and financial counseling and planning can use this information to further educate borrowers prior to the encumbrance of student loan debt.

Keywords: financial aid, gender, higher education, student loans

With the cost of college skyrocketing and student loans reaching an average of $37,172 per graduating student in 2016 (Picchi, 2016), both students and institutions of higher learning are taking active roles to educate themselves and their constituents regarding the options available for financing higher education. Sallie Mae (2015) reported that 22% of higher education costs in 2015 were financed through loans (both parental and student), and another 11% were financed through student income. These methods of paying for higher education differ substantially in terms of overall cost to the student in both the short-term and the long-term (Hogan & Kroeger, 2005). Financial advocates have called for restructuring the student loan process to help students better understand the burdens they are incurring (Johnson & Roten, 2015; Petulla, 2011; Smith, 2012). The complexity of financial-aid materials can overwhelm and confuse students, who may not recognize the long-term implications of their financial decisions (Lobosco, 2016). With that said, the Department of Education and the Obama Administration suggested that institutions of higher education adopt a standardized format when providing financial-aid information to students (U.S. Department of Education, 2015).

This study investigates how alternative presentations of student loan information affect the amount of financial aid that is accepted by students. These presentations include displaying the cost of attending a university as either a point or a range, and then displaying the interest rate in multiple places or only in the financial-aid brochure. Our findings indicate that prominently displaying an interest rate next to each loan option, as opposed to providing the same information elsewhere, influences students to fund more of their education through work and less through high-cost private student loans. This finding supports previous research suggesting that simple changes in formatting can improve decision-making by reducing cognitive load (Rose, 2002). We found that the formatting change had a particularly strong effect on the financial-aid preferences of males, who were more likely to anticipate working to pay for their education and less likely to rely on costly private loans relative to their female counterparts. These results highlight

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how minor changes in financial disclosures reduce cognitive load and impact the amount and types of loans a student incurs. Our studysuggests that if colleges want to impact the magnitude of loans students take out, they should consider altering financial disclosures.

Background Information on Student Loan Debt

The College Board (2015) reported a 5-year, 17% increase in tuition and fees in public 4-year institutions for the year ending in 2014. It also reported a 21% increase for the 5-year period ending in 2010. Recent financial news reports documented a high level of student loan indebtedness that is unlikely to subside in the near future (Anonymous, 2013, 2014). The Federal Reserve Bank of New York (2016) estimated the student loan debt to be $1.23 trillion, surpassing both credit card ($882 billion) and auto loan debt ($370 billion). As college costs have increased, students have acquired increasing amounts of indebtedness to finance their university expenses. The average indebtedness of students increased 6% from 2015 to 2016, easily outpacing inflation.

In what has become a continuing series of "the most indebted class yet," Picchi (2016) reported on CBS News that graduates from the class of 2016 had an average of $37,172 in undergraduate student loan debt, which represented a rise from $35,000 in 2015 (Sparshott, 2015). The proportion of students taking out loans has also increased. Sparshott (2015) found that 71% of undergraduate students will graduate with some amount of indebtedness, an increase of 7% during the past decade. Debt of this magnitude has had an impact not only on students, but also on the economy, encouraging legislation to reduce the indebtedness of students with various programs and incentives. Government financial-aid programs have not kept pace with the above-inflationary-rate hikes of higher education, requiring students to determine how best to fund their educations by other means. Student financing options include self-financing (through savings or working while in college), family funding, or taking out loans (either private or governmental) to cover the cost of educational and personal expenditures while in school.

The desire to retain students to degree completion has led universities and their administrations to enact various retention initiatives. Staying in school and graduating on time is important for both progressing toward the goal of obtaining a university degree and minimizing the cost of one's education. Financial stress, however, can cause students to decrease their course load, leading to a greater risk of dropout and a longer time expended in higher education to obtain a degree (Britt, Canale, Ferratt, Stutz, & TibbetS, 2015; Jones, 2005; Joo, Durband, & Grable, 2008). Research has suggested that financial stressors are linked to academic performance (Grable & Joo, 2006; Joo et al., 2008; Joo, Grable, & Bagwell, 2003; Norvilitis et al., 2006; Perna, 2008), while extended time periods in institutions of higher learning come with increased costs that must be absorbed by students and their families to facilitate degree completion.

Given the potential negative impact of debt on their future alumni, many colleges are offering financial counseling and other services to students as a mechanism for increasing retention and reducing the financial stress caused by student loan debt. In addition to the negative impacts for borrowers noted above, the American Student Assistance Life Delayed Report (2015) included the inability to afford daily necessities; delaying car, home, and other major purchases; the inability to save for retirement; delay in marriage or starting a family; and/or delay in starting a business. This requires increasing the financial knowledge of students in terms of both money and debt management with the aim of enabling students to pay for their college educations in a manner that does not damage their long-term financial well-being. We posit that one cost-effective way colleges can improve the financial decision-making processes of prospective students is by examining how changes in the formatting of financial-aid documents affects students' preferences for various sources of funding. We next discuss two potential formatting changes that may influence students' financial-aid decisions.

Hypotheses

We examined whether small formatting changes on financial-aid documents provide a cost-effective approach for colleges to significantly affect students' financial-aid decisions. Specifically, we examined whether the provision of a range of cost estimates, rather than the point estimate that typically is provided by universities, decreased students' estimations of their educational costs. In addition, we examined whether increasing the availability and salience of interest rates decreased students' cognitive load when reviewing financial-aid documents, allowing students to make better decisions. Such a change should lead to a reduction in students' appetite for high-cost private loans

and encourage students to provide more of their support through employment.

Range Versus Point Estimate

Universities estimate their cost of attendance based on the reported experiences of previous students. Living expenses are highly variable depending on students' lifestyle choices. However, universities typically provide students with a point estimate (i.e., a single number) during the financial-aid process. Tversky and Kahneman (1974) demonstrated that individuals have a natural inclination to anchor on provided information, which may inhibit their ability to consider other, more appropriate values. These anchoring behaviors have been noted in a variety of contexts, including negotiation (Diaz, Zhao, & Black, 1999; Galinsky & Mussweiler, 2001), general knowledge (Blankenship, Wegener, Petty, Detweiler-Bedell, & Macy, 2008; Epley & Gilovich, 2001, 2005; McElroy & Dowd, 2007; Wegener, Petty, Detweiler-Bedell, & Jarvis, 2001), probability judgments (Chapman & Johnson, 2002; Plous, 1989; Tversky & Kahneman, 1974), valuation or purchasing decisions (Ariely, Loewenstein, & Prelec, 2003; Mussweiler et al., 2000; Wansink, Kent, & Hoch, 1998), and forecasting (Critcher & Gilovich, 2008).

We expected that providing students with a range of estimates (as opposed to a single point estimate) would help them consider the possibility that their cost of attendance would differ from that of the average student, effectively reducing anchor effects by intimating that lifestyle choices influence the cost of their educations (Whyte & Sebenius, 1997). We believed that students who received a range of cost estimates would have lower estimated attendance costs than those who received a point cost estimate. This would result from the students' realization that they could choose to limit their variable expenditures. We formally state our first hypothesis as follows:

H1: Students who receive a range estimate of costs will anticipate a lower cost of attendance than students who receive a point estimate of costs.

Increasing Availability and Salience of Interest Rates

Students are bombarded with copious amounts of information during the financial-aid process. It is easy to understand how they might feel inundated by the amount of data and forms inherent in the process. Such a process can lead to cognitive overload (Sweller, 1988), which occurs when an individual's cognitive-processing capacity is overwhelmed, reducing one's decision-making abilities. Specifically, cognitive load refers to the burden placed on active memory (Sweller, 1988); the myriad of documents used by universities to provide financial-aid information may worsen this cognitive burden. Loewenstein, Sunstein, and Golman (2014) discussed how simpler forms (i.e., more concise) could allow for effective decision-making. Theoretically, the simplification of the financial-aid documentation should improve novice decision-making abilities by reducing cognitive overload. One of the simplifications that could be easily implemented to the financial-aid forms would be the inclusion of interest rates to the loan decision form rather than requiring students to find this information on a separate form. Theory suggests that if students' efforts to search for interest rates are minimized, their cognitive load will be reduced and their decision-making ability will improve. For example, Rose and Wolfe (2000) demonstrated that changing the location of information to improve information access effectively reduced cognitive load. Kozup and Hogarth (2008) suggested that in addition to providing the appropriate level of information, the information must be displayed in an appropriate manner. Based on the literature that investigated the nutritional displays on food, Russo, Staelin, Nolan, Russell, and Metcalf (1986) suggested that effort-reducing displays are effective for having individuals select the optimal choice in food products. In regards to the selection of payday loans, individuals made better decisions when there was a more obvious display of the costs, fees, and interest rates (Bertrand & Morse, 2011). Furthermore, Stango and Zinmer (2011) found that most people underestimated annual percentage interest rates when attempting to intuitively calculate the amount rather than having the actual amount displayed in lending documents. It follows, then, that adding interest rates to the loan decision form will also provide the benefit of increasing the salience of how the interest rates of various types of financial aid differ, which emphasizes the true cost of student debt.

We expected that including the interest rates on financial-aid acceptance forms would decrease cognitive load and enable students to better understand the true cost of financial aid. We also anticipated that students with access to interest rates on financial-aid forms would elect lower-cost options

to fund educational expenses. We formally hypothesized the following:

H2: Including interest rates on financial-aid acceptance forms will result in students planning to fund less of their education through private loans.

H3: Including interest rates on financial-aid acceptance forms will result in students planning to fund more of their education through student employment.

In addition to the formatting changes discussed earlier, previous research suggests that other factors (i.e., gender and financial knowledge) may influence student indebtedness. Though we do not specifically hypothesize how these factors will influence the results of this study, we briefly summarize why it is important to consider them.

Gender Differences

The findings about whether or not gender impacts the financial decision-making of students are mixed. Norvilitis et al. (2006) found no significant gender effects regarding student credit card indebtedness. Archuleta, Dale, and Spann (2013), however, suggested that gender was associated with financial anxiety related to overall student indebtedness from student loans and credit cards, with females reporting higher overall levels of financial anxiety than their male counterparts. Earlier studies reported that females had less financial knowledge than their male counterparts (Hayhoe, Leach, Allen, & Edwards, 2005; Jones, 2005; Lyons, 2004). Hira and Mugenda (2000) found that women were less satisfied than men with their financial conditions. Goldsmith and Goldsmith (2006) suggested that, while there were gender differences regarding financial knowledge as far as women knowing less about financial matters than their male counterparts, instruction in this area helped to close the knowledge gap between the genders. Fry (2014) found that the percentage of women graduating college with some form of indebtedness was 71%, compared to 67% for their male colleagues. The National Debt Relief (2015) found that 63% of females between the ages of 18 and 24 carried a credit card balance, compared to that of their male colleagues, which was less than 33%. Similar findings were indicated by Armstrong and Craven (1993) and Lundam et al. (2012). These mixed findings indicate that women are more likely to take out loans rather than work full time to finance their college education, as is demonstrated by their propensity to use other forms of debt. At the same time, women may have an increased desire to complete their college education in order to earn increased wages throughout their lifetimes, a factor that is likely to be considerably more significant given the well-documented U.S. gender pay gap (American Association of University Women, 2016).

Other Factors

Brown, Grigsby, van der Klaauw, Wen, and Zafar (2016) suggested that young Americans rely heavily on debt and present clear financial literacy inadequacies. Within academic institutions, research suggests that students' levels of financial knowledge vary, and that lower levels of financial knowledge can cause suboptimal decisions when choosing how to finance college expenses (Norvilitis et al., 2006). Brown et al. (2016) suggested that mathematical and financial educations would decrease the general (i.e., nonstudent) level of indebtedness and would improve repayment behavior. Alternative research studies have suggested that financial education (in secondary schools) does not impact financial acumen (Bernheim, Garrett, & Maki, 2001; Cole, Paulson, & Shastry, 2016). Research studies have investigated how personality factors and financial knowledge combine to influence a student's choice on incurring credit card debt; however, the results are mixed. Norvilitis, Szabllicki, and Wilson (2003) indicated that, while the vast majority of college students possessed at least one credit card, those who requested and received credit cards from on-campus sources incurred more debt than those who obtained their credit cards from other providers. Kim, Chatterjee, and Kim (2012) found that communicating with parents reduced the likelihood that a student would borrow. In addition, parental resources also reduced the likelihood that a student would borrow (Britt et al., 2015). By definition, first generation college students have less experience with the administrative process of applying for college and the importance of utilizing familial resources during this time. Accordingly, we seek to determine whether or not first generation status will impact the manner by which a student finances their college education. Likewise, we seek to determine whether or not a parent's educational level impacts the decision construct due to the fact that more experience with financial-aid applications and the ramifications of choices may impact a student's decision making. In addition, parental input is also frequently an important factor in a child's financial decision making (Cude et al., 2006; Norvilitis & MacLean, 2010; Shim, Xiao, Barber, & Lyons, 2009).

Method

Participants

To test our hypotheses, we conducted an experiment employing undergraduate business students attending a large public university. The 353 participants, enrolled in introductory managerial and cost accounting classes, were offered one point of extra credit to take part in the experiment. Participants were e-mailed a link to the survey site Qualtrics, where they could complete the survey. A total of 271 participants began the survey, and 204 completed the survey, leading to a response rate of 57.8%. To account for nonresponse bias, a comparison of 30 early respondents and 30 late respondents was conducted. The results indicate no significant differences.

Design

Data was gathered through an experiment that utilized a 2 × 2 between-subjects random design (Figure 1). We manipulated two variables: (a) the presentation of the cost of attendance at the university (i.e., whether the cost estimate was a point or a range estimate) and (b) the prominence of the display of interest rates during the financial-aid process (i.e., whether the loan rates were included in both the financial-aid brochure and the financial-aid acceptance form, or only in the financial-aid brochure).

During the experiment, participants were asked to assume the role of an incoming freshman at a university. The experiment consisted of four parts. First, participants were asked to read a brochure that detailed the various forms of financial aid available at the university. The brochure (Figure 2) explained the differences between various types of financial aid and disclosed the interest rates associated with each type. All participants were allowed to refer to the brochure throughout the entire experiment. In order to ensure external validity, the design of the brochure was based on actual financial-aid information provided by a university to incoming students.

In the second part of the experiment, subjects were provided with information regarding the cost of attending the university (including tuition, books and supplies, transportation costs, and room and board). Again, for purposes of external validity, we interviewed several financial-aid officers to gather information about the cost of attending a university. Half of the subjects were provided a point estimate of the additional cost of attendance ($11,800), while the other half were provided with a range estimate of the additional cost of attendance ($7,300–$16,300). The additional cost of attendance included costs for room and board, books and supplies, transportation, and personal expenses not included in university tuition and fees. All subjects were asked to estimate how much it would cost for them to complete 1 year of school at the university.

In the third part of the experiment, participants were provided with a mock financial-aid award. This award consisted of varying amounts of financial aid that is consistent with the federal limits in each of the prospective loan categories. A second manipulation was provided at this level that either explicitly showed the rate associated with each loan category or did not show the rate (although all subjects had access to the rates in the provided brochure). The

Figure 1. 2 × 2 Experimental design matrix.

Conditions	Percentage Rate	No Percentage Rate
Point Cost Estimate	Additional cost estimates are provided as a single estimate for each category. On the loan acceptance page, a loan percentage rate is shown.	Additional cost estimates are provided as a single estimate for each category. On the loan acceptance page, a loan percentage rate is not shown. Respondents still have access to the loan rate.
Range Cost Estimate	Additional cost estimates are provided as a range of estimates for each category. On the loan acceptance page, a loan percentage rate is shown.	Additional cost estimates are provided as a range of estimates for each category. On the loan acceptance page, a loan percentage rate is not shown. Respondents still have access to the loan rate.

Figure 2. Financial-aid brochure.

TYPES OF FINANCIAL AID

GRANTS – based on the expected family contribution (EFC) and do not have to be repaid.

Federal Pell Grant
The Pell Grant award is based on the EFC and the number of credit hours for which you are enrolled. The amount listed on the award letter is normally based on full-time enrollment. The enrollment will be adjusted for less than full-time enrollment as determined at the end of the official add/drop period. Pell Grants are available to undergraduates who have not previously earned a bachelor's degree.

State Grants
State grants awards are determined by individual state agencies. Check with your state agency or high school counselor for additional information and deadline dates for your state. Formal notification of eligibility is sent by the appropriate state agency and is subject to change.

SCHOLARSHIPS – based on academic merit and/or expected family contribution (EFC) and do not have to be repaid.

College Scholars Program
If you receive a scholarship through the College Scholars Program, it is estimated on your awards letter. The scholarship will be applied directly to your charges.

State Scholarship
State Scholarships are awarded by the State Education Commission to full-time University students who meet certain academic criteria. Award will not exceed $4,750 each year.

LOANS – money which must be repaid usually with interest.

Federal Direct Stafford Loans
(Subsidized and Unsubsidized)
Direct Stafford Loans are available to students enrolled at least half-time. Award amounts vary based upon the grade level reported on the FAFSA. Freshman can borrow a maximum of $5,500 annually in subsidized/unsubsidized loans. An important distinction between a subsidized and unsubsidized loan is that interest accrues on an unsubsidized loan and must either be paid during in-school periods or deferred and capitalized (added to the principal of the loan). The federal government pays the interest on the subsidized loans during periods of at least half-time enrollment. The interest rate is 6.8%. First time borrowers must complete a Master Promissory Note and Entrance Counseling on-line at www.studentloans.gov before funds will be released.

Private Loans
Private loans are credit-based loans available to students who are enrolled at least half-time. If you wish to pursue a private loan, you may do so. Eligible students may borrow up to the maximum cost of attendance. This loan can be deferred until 6 months after the student graduates or drops below half-time status. The interest rates for private loans are variable (change based on the Prime Index). Private loans have an interest rate of 12%.

*Note***.** EFC = expected family contribution.

total amount of eligible loans was, however, insufficient in meeting the student's estimated cost of attendance for the upcoming year. Participants were then asked to determine which grants and loans they would accept and estimate what amount of their contributions from work would fund the cost of their attendance. In the final part of the experiment, participants were asked a series of questions to gather demographic information. Screenshots of the experiment are available from authors upon requests.

Independent Variables

Cost Estimate Presentation. The first independent variable (*POINT ESTIMATE*) relates to whether a participant's cost-of-attendance estimate was displayed as a point estimate (*POINT ESTIMATE* = 1) or a range estimate (*POINT ESTIMATE* = 0). In the point condition, the additional costs of attendance showed a single dollar value for books and supplies, room and board, transportation, and personal expenses. Subjects were told that the amounts provided were averages based on student estimates. In the range condition, the additional costs for the same items showed high and low estimates that were 20% above and below the point estimate, respectively. Subjects were told that the ranges were based on student estimates.

Interest Rate Visibility. The second independent variable (*INTEREST RATE*) related to the prominence or visibility of interest rate information. When *INTEREST RATE* = 1, interest rate information was provided on the financial-aid acceptance form in addition to the student-aid brochure provided in the experiment (see Figure 1). When *INTEREST*

RATE = 0, interest rate information was provided in the student-aid brochure only.

Dependent Variables

Additional Cost Estimate. The first research question examines how the university's presentation of the cost of attendance (i.e., point vs. range) affects subjects' cost-of-attendance estimates. In the point condition, participants were provided with the estimated cost of room and board, transportation, books, fees, and personal expenses. Consistent with the actual financial-aid brochure and the presentation of the cost-of-attendance information, the point condition participants were told that the information provided was based on prior student surveys. The range condition provided the same items but instead of a single dollar point estimate, a range of dollar estimates from 20% below to 20% above the single-point estimate was shown. Participants then chose an amount of additional funds that they would need in order to attend the university (*ADDITIONAL FUNDS REQUIRED*).

Private Loans Estimate and Work Estimate. After making a decision regarding their desired funding level, the participants were asked to select how to fund both their college tuition and their additional cost estimates. Their funding options included grants (*GRANT)*, subsidized federal loans (*SUBSIDIZED LOANS*), unsubsidized federal loans (*UNSUBSIDIZED LOANS*), private loans (*PRIVATE LOAN*), and an estimated contribution from working (*ESTIMATED WORK*). We expected that most subjects would take advantage of the low-cost funding options, such as scholarships and government grants. Thus, we focused on the costs of college that were funded through private loans (*PRIVATE LOAN*) and work estimates (*ESTIMATED WORK*) as our dependent variables. However, H2 and H3 predicted that increasing the availability and salience of interest rates (by including the rates on the financial-aid form instead of only the financial-aid brochure) will affect the amount of high-rate private loans subjects accept, as well as the funding the subjects intend to obtain through employment. In addition, *PRIVATE LOAN* and *ESTIMATED WORK* are also dependent variables. Across all cases, participants retained access to the financial-aid brochure, which contained the rate information. We programmed our survey so that students were required to indicate how they would fund their entire cost estimate (through some combination of grants, loans, and employment).

Control Variables

Several control variables were measured to account for the outside factors that may play a role in the financial aid decision-making process. To test for potential significant covariates, an initial MANCOVA analysis was performed wherein *POINT ESTIMATE* and *PERCENT* were included as independent variables, and *ADDITIONAL FUNDS, PRIVATE LOAN, ESTIMATED WORK, GRANT, SUBSIZIDED LOANS*, and *UNSUBSIDIZED LOANS* were included as dependent variables. The following were included as covariates: male or female (*GENDER*), first member of the subject's family to attend college (*FIRST COLLEGE ATTENDEE*), mother's highest level of education attained (*MOTHER'S EDUCATION*), living abroad for more than 1 year (*INTERNATIONAL EXPERIENCE*), year in school (*YEAR*), whether subject's parents experienced a financial crisis (*FINANCIAL CRISIS EXPERIENCE*), father's highest level of education attained (*FATHER'S EDUCATION*), amount of news watched (*NEWS WATCHED*), and how personal financial knowledge is obtained (*PERSONAL FINANCIAL KNOWLEDGE*). Significant covariates (those with a p-value < .10 for any of the dependent variables) were included in all subsequent analyses, which were *GENDER, WORK IN HIGH SCHOOL, INTERNATIONAL EXPERIENCE, FIRST COLLEGE ATTENDEE*, and *MOTHER'S EDUCATION*. Insignificant covariates were excluded from subsequent analyses.

Results

Descriptive Statistics

Table 1 presents descriptive statistics from the survey. Among the participants in the study, 61.30% were male, which is a higher percentage than the population at the university (52% male and 48% female). Also among the participants, 53.4% were not the first in their family to attend college. Participants indicated their mother's highest attained education level and the resulting percentages were as follows: bachelor's degree (38.2%), high school diploma (27.9%), associate degree (17.2%), master's degree (15.2%), and doctoral degree (1.5%). Participants indicated their father's highest attained education level and the results were as follows: high school diploma (34.8%), bachelor's

degree (33.8%), master's degree (12.3%), associate degree (11.8%), and doctoral degree (7.4%). A majority, or 66.7%, of the participants had high school work experience, while 92.6% had not spent more than 1 year abroad. Of the participants, 57.9% were freshman- or sophomore-level students. Only 13.2% of participants indicated their parents had experienced a financial crisis. Nearly half (49.5%) of the participants consumed an hour or less of financial news a week, and 42.6% of participants had gained personal financial knowledge through "personal experience."

Pairwise Correlations

Table 2 describes the correlations between the main sources of college funding and the variables are as follows: *ADDITIONAL FUNDS REQUIRED, PELL, ESTIMATED UNSUBSIDIZED LOANS, ESTIMATED SUBSIDIZED LOANS, PRIVATE LOAN*, and *ESTIMATED WORK*. As expected, *ADDITIONAL FUNDS* is significantly correlated with *PRIVATE LOAN*, indicating that as the additional estimate increases, the amount taken out for private loans also increases. *PRIVATE LOAN* and *ESTIMATED WORK* showed a negative correlation. This negative correlation indicates that funds provided through private loans and student employment are largely substitutes. *ESTIMATED WORK* is also negatively associated with *PELL, ESTIMATED UNSUBSIDIZED LOAN*, and *ESTIMATED SUBSIDIZED LOAN*, indicating that participants who fund their educations through working will require fewer grants and loans.

H1: Point Versus Range

H1 predicted that the range-estimate condition will result in lower additional cost estimates than the point-estimate condition. We tested H1 with an ANCOVA analysis that compared the *ADDITIONAL FUNDS REQUIRED* of students in the point and range conditions. Results of this analysis are shown in Panel A of Table 3. None of the control variables included in the model are significant. For the point condition, the mean (SD) additional-cost estimate was $9,499 ($4,455). For the range condition, the mean (SD) amount estimated was $10,077 ($4,547). Statistically, there is no difference in loan decisions for respondents exposed to a range of cost estimates versus a single median cost ($F = 0.91$; $p = .34$). Thus, H1 is not supported. One possible explanation for our finding is that the subjects in the range condition produced the average (mean) of the high and low range points, which, by design, was equal to the point estimate in our experiment. *ADDITIONAL FUNDS REQUIRED TO ATTEND UNIVERSITY* is included as a covariate in subsequent tests of hypotheses.

H2: Rate and Private Loans

H2 states that displaying a rate next to the loan choices will cause the subject to request a lesser amount through private loans. To test H2, the *PRIVATE LOAN* in the rate and no-rate conditions were compared. Results of this analysis are shown in Panel B of Table 3. *ADDITIONAL FUNDS REQUIRED* showed significance ($F = 44.22$; $p < .001$) as did *FIRST COLLEGE ATTENDEE* ($F = 4.45$; $p = .04$). As expected, there was a positive correlation between the additional estimate students think they need and the amount of private loans they expect to borrow. No other control variables in the model were significant. The mean amount of *PRIVATE LOAN* was significantly smaller in the rate condition ($F = 3.88$; $p = .05$). This indicates that when the rate is included on the financial-aid acceptance form during the acceptance phase of the tuition process, respondents choose to take less private loans (Mean [SD] = $17,481 [$9,779] with the rate present versus $19,844 [$8,573] with no rate). According to these findings, H2 is supported.

H3: Rate and Work Estimate

H3 states that showing a rate next to the loan choices will require subjects to work more to fund their education. We tested H3 with an ANCOVA analysis that compared the *ESTIMATED WORK* of students in the rate and no-rate conditions. Results of this analysis are shown in Panel C of Table 3. The control variable *FIRST COLLEGE ATTENDEE* was significant ($F = 4.28$; $p = .04$) while *MOTHER'S EDUCATION* was marginally significant ($F = 3.23$; $p = .07$). Our results suggest that an individual who is the first person in his or her immediate family to attend college is more likely to take out loans, rather than work, to finance higher education. Similarly, an individual is more likely to rely on loans to finance education if his or her mother's education level is lower. Familial experience in financing higher education experience appears to affect students' choices related to funding their own educations. No other control variables in the model are significant. The mean amount of *ESTIMATED WORK* was significantly larger for the rate condition ($M = $7,727; $SD = $9,822) than for the no-rate condition ($M = $5,346; $SD = $6,817;

TABLE 1. Participant Demographic Information

Variable	Category	Count	Percentage
GENDER	Male	125	61.3
	Female	79	38.7
FIRST COLLEGE ATTENDEE	Yes	95	46.6
	No	109	53.4
MOTHER'S EDUCATION	High school diploma	57	27.9
	Associate degree	35	17.2
	Bachelor's degree	78	38.2
	Master's degree	31	15.2
	Doctoral degree	3	1.5
WORK IN HIGH SCHOOL	Yes	136	66.7
	No	68	33.3
INTERNATIONAL EXPERIENCE	Yes	15	7.4
	No	189	92.6
YEAR	Freshman	24	11.8
	Sophomore	94	46.1
	Junior	56	27.5
	Senior	30	14.7
	Graduate	0	0.0
FINANCIAL CRISIS EXPERIENCE	Yes	27	13.2
	No	177	86.8
FATHER'S EDUCATION	High school diploma	71	34.8
	Associate degree	24	11.8
	Bachelor's degree	69	33.8
	Master's degree	25	12.3
	Doctoral degree	15	7.4
WATCH NEWS	0–1 hours/week	101	49.5
	1–3 hours/week	76	37.3
	3–5 hours/week	22	10.8
	5–10 hours/week	3	1.5
	10–15 hours/week	1	0.5
	15+ hours/week	1	0.5
PERSONAL FINANCIAL KNOWLEDGE	Through work	18	8.8
	Through school	55	27.0
	A financial planner	6	2.9
	Personal experience	87	42.6
	Not knowledgeable	38	18.6

Notes. FATHER'S EDUCATION = father's highest education level; *FINANCIAL CRISIS EXPERIENCE* = asked if the subject's parents had ever experienced a financial crisis; *FIRST COLLEGE ATTENDEE* = asked whether the subject was the first in the immediate family to enroll in college; *INTERNATIONAL* = asked if the subject has ever lived abroad for more than one year; *MOTHER'S EDUCATION* = mother's highest education level; *PERSONAL FINANCIAL KNOWLEDGE* = asked how the subject has acquired financial knowledge; *WATCH NEWS* = amount of news watched per week (hours); *WORK IN HIGH SCHOOL* = asked if the subject worked in high school.

TABLE 2. Correlation Matrix

Correlations	*M*	*SD*	ADDITIONAL FUNDS REQUIRED	PELL	ESTIMATED UNSUBSI-DIZED LOANS	ESTIMATED SUBSI-DIZED LOANS	PRIVATE LOAN	ESTIMATED WORK
ADDITIONAL FUNDS REQUIRED	9796.60	4500.1	1					
PELL	3889.39	2247.33	0.114	1				
ESTIMATED UNSUBSI-DIZED LOANS	1396.52	948.98	0.052	0.316**	1			
ESTIMATED SUBSI-DIZED LOANS	2411.64	1473.75	0.175*	0.475**	0.639**	1		
PRIVATE LOAN	18639.55	9260.96	0.431**	-0.128	-0.036	-0.017	1	
ESTIMATED WORK	6559.50	8546.47	-0.006	-0.182**	-0.238**	-0.257**	-0.816**	1

Notes. ADDITIONAL FUNDS = measures the additional estimated cost of attendance; *ESTIMATED SUBSIDIZED LOANS* = measures the subsidized estimated cost of attendance; *ESTIMATED UNSUBSIDIZED LOANS* = measures the unsubsidized estimated cost of attendance; *ESTIMATED WORK* = measures the estimated contribution through working; *PELL* = measures the amount of the Pell Grant for attendance; *PRIVATE LOAN* = measures the amount of private loans taken for attendance. Demographic variable definitions are located at the bottom of Table 1.
*Correlation is significant at the 0.05 level (2-tailed).
**Correlation is significant at the 0.01 level (2-tailed).

F = 4.356; p = 0.04). This difference indicates that, when the rate is placed next to various loan options on the financial-aid acceptance form, students estimate they need to work more to contribute to the cost of attendance, relative to when the rate is not placed next to loan options. Thus, H3 is supported.

*Supplemental Analysis: GENDER * INTEREST RATE Interaction*

We conducted supplemental analyses to determine the additional nonhypothesized effects. We found that the interaction between *GENDER* and *INTEREST RATE* significantly affected both *PRIVATE LOAN* and *ESTIMATED WORK*. After adding the interaction term to the analysis shown in Table 3, Panel B produced a significant model (F = 2.30; p = .03; adjusted R^2 = 0.043; results untabulated). The *GENDER * INTEREST RATE* interaction is moderately significant (F = 3.40; p = .07). For males, including the private loan rate on the financial-aid acceptance form decreased *PRIVATE LOAN*. For females, the inclusion of the rate had an insignificant effect ($18,305 for those who received the rate and $18,894 for those who did not; p = .23). The *GENDER * INTEREST RATE* interaction also significantly affected the amount of money that subjects expected to earn by working through college. By adding the interaction term to the analysis in Panel C of Table 3, we found that the model (F = 2.66; p = .01; adjusted R^2 = 0.054) and the interaction term were significant (F = 4.77; p = .03). When males were provided with the private loan rates on their financial-aid acceptance forms, the amount of money they expected to earn through working increased from $4,197 to $8,745. For females, the mean amount of *ESTIMATED WORK* between rate and no-rate conditions was relatively consistent: $6,861 and $6,105, respectively ($p$ = .13). This information is represented graphically in Figures 3 and 4.

This finding is consistent with extant literature, which indicates that women take out more loans than men. Fry (2014) suggested that there is a gender difference in graduation

TABLE 3. ANCOVA Analyses

Factor	Adj-R^2	SS	*df*	MS	*F*	*p*-value
Panel A: ANCOVA Results for *ADD_EST*						
GENDER		1,961,923.11	1	1,961,923.11	0.10	.76
WORK IN HIGH SCHOOL		10,139,706.94	1	10,139,706.94	0.50	.48
INTERNATIONAL EXPERIENCE		45,833,319.96	1	45,833,319.96	2.26	.13
FIRST COLLEGE ATTENDEE		22,041,500.03	1	22,041,500.03	1.09	.30
MOTHER'S EDUCATION		704,014.18	1	704,014.18	0.04	.85
POINT ESTIMATE		1,8461,635.98	1	18,461,635.98	0.91	.34
Model Summary	0.00	122,581,358.63	6	20,430,226.44	1.01	.42
Panel B: ANCOVA Results for *PRIVATE LOAN*						
ADDITIONAL FUNDS REQUIRED		3,013,501,955.59	1	3,013,501,955.59	44.22	< .00
GENDER		470,334.05	1	470,334.05	0.01	.93
WORK IN HIGH SCHOOL		90,117,578.58	1	90,117,578.58	1.32	.25
INTERNATIONAL EXPERIENCE		39,721,774.30	1	39,721,774.30	0.58	.45
FIRST COLLEGE ATTENDEE		303,334,400.79	1	303,334,400.79	4.45	.04
MOTHER'S EDUCATION		163,024,692.75	1	163,024,692.75	2.39	.12
INTEREST RATE		264,117,245.22	1	264,117,245.22	3.88	.05
Model Summary	0.21	4,052,879,754.89	7	578,982,822.13	8.50	< .00
Panel C: ANCOVA Results for *WORK_EST*						
ADDITIONAL FUNDS REQUIRED		2,537,408.30	1	2,537,408.30	0.04	.85
GENDER		49,033.31	1	49,033.31	0.00	.98
WORK IN HIGH SCHOOL		134,080,478.95	1	134,080,478.95	1.90	.17
INTERNATIONAL EXPERIENCE		408,525.88	1	408,525.88	0.01	.94
FIRST COLLEGE ATTENDEE		302,745,233.90	1	302,745,233.90	4.28	.04
MOTHER'S EDUCATION		228,314,514.42	1	228,314,514.42	3.23	.07
INTEREST RATE		308,219,853.70	1	308,219,853.69	4.36	.04
Model Summary	0.031	960,069,720.58	7	137,152,817.23	1.94	.07

Note. ADDITIONAL FUNDS = measures the additional estimated cost of attendance; *ESTIMATED WORK* = measures the estimated contribution through working; *INTEREST RATE* = coded as 0 for no rate present during the loan selection and 1 with the rate present; *POINT ESTIMATE* = coded as 0 for the range condition and 1 for the point condition for the additional cost of attendance; *PRIVATE LOAN* = measures the amount of private loans taken for attendance. Demographic variable definitions are located at the bottom of Table 1.

Figure 3. The effect of rate and gender on funding source.

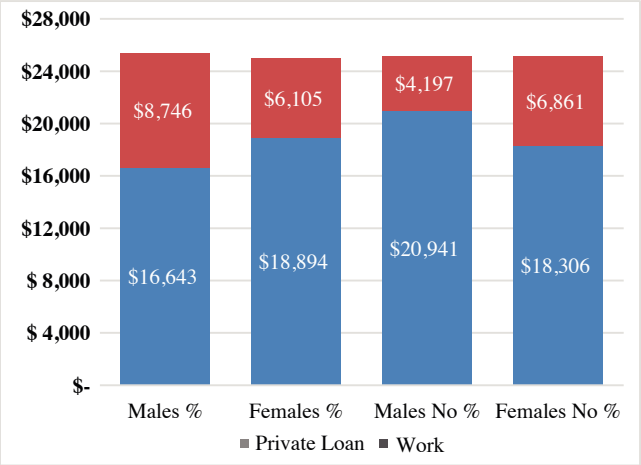

Figure 4. The interaction effect of rate and gender on spending (graph).

rates favoring women in college and that women have taken out more loans to facilitate their educational costs over the course of the last 20 years. In 2011, 71% of women graduated with some form of indebtedness compared to 67% of their male colleagues (Fry, 2014). Dwyer, Hodson, and McCloud (2013) stated that the reason for this increased indebtedness is the gender inequity of job prospects for college dropouts, which requires women to acquire a college degree to earn a good living. Therefore, the completion of the degree is mandated even if that requires taking more loans.

Demographic factors may also lead to a divergence in the gendered indebtedness rates. Research has shown that students from less robust economic circumstances take out more loans to facilitate their college educations and that the percentage of women from the lower socioeconomic strata has been increasing (Ewert, 2012). Our study does not show a gender difference in familial economic circumstances; therefore, based on past research, the reason women borrow more is likely due to a concern about the increased potential for failure associated with studying less and working more. This may lead to an increased risk of leaving school and therefore greater potential for a decrease in lifetime earnings. The U.S. Bureau of Labor Statistics (2013) suggested that, within the United States, women's earnings as a percentage of men's are 82% in the United States as a whole and there are state differences as well. In the state where we conducted our study, women's earnings fell 8% below the national average, making lifetime earnings an even more critical issue for women, who likely see education as one way for overcoming this difference.

Discussion

Due to the soaring costs of higher education, administrators and educators within educational institutions charged with assisting students with these issues should be cognizant of the factors influencing students' decisions to fund their educations. These decisions have a major impact on student retention, student well-being, and the future of the student's personal financial plan, and thus should be of interest to financial counselors, educators, financial-aid officers, and others. Furthermore, the magnitude of student loan indebtedness will impact students' abilities to afford other products later in their working careers and should be of interest to those setting policies in the legislation. Overall, we find that our cost-estimate presentations (i.e., point vs. range) have no bearing on the students' estimates of the cost of college attendance; however, range estimates may be more appropriate as they allow for some level of flexibility in the personal expenses incurred while in college.

Our results demonstrate that, when college aid forms emphasize the interest rates of various financial-aid options, students are more cautious about taking on costly loans and thus, show a greater inclination to work during college. These results align with prior theories regarding cognitive load (Rose, 2002; Rose & Wolfe, 2000). Placing the interest rate on the loan acceptance form simplifies the decision to accept aid and reduces cognitive load, which leads to better decision-making. Thus, our results suggest that the U.S. Department of Education should consider adding interest rates to the Financial-Aid Shopping Sheet. We also find in our supplemental analysis that this result is driven by male students, who plan to borrow less and estimate a higher contribution through work than their female counterparts. Given the stress associated with working while in school, it may be that women are selecting a mechanism to ensure short-term success in the classroom, since in this circumstance they will not be required to manage as rigorous a work schedule during their educations as their male colleagues. Men by contrast may be accepting short-term stress as the cost of lessened long-term stress in the form of lower loan payback amounts later in life. Given this difference, stakeholders should use different educational techniques depending upon the desired outcomes of work- versus loan-financed education when working with students. Overall, the study suggests that small changes in the student financial-aid process may lead to substantial cost savings for students.

Our article has several limitations. Ideally, the subjects would have been high school students, as they represent the population applying for financial aid with no individual experience. The actual subjects were college students who had applied for and accepted financial aid within the past few years. In our inquiry of these college students, we were not able to ask them to complete this survey using familial input that they might have otherwise sought. In our experiment, it is unclear whether college experience impacted the subjects' decisions and how familial inquiry might have impacted their responses. A second limitation is that the study investigated students' decisions on financial aid at only one institution of higher learning. Finally, the current study investigated financial-aid decision-making by manipulating two variables on the financial-aid form.

A future research study might consider using high school students to determine whether their sample differed from that of college students. This would illustrate whether high school students and college students are impacted in the same way by changes to the financial-aid form. Sources and extent of financial knowledge might be tested in coordination with decision making to determine whether these factors are important in selection of debt versus nondebt financing alternatives. Future researchers might also consider investigating student populations at a variety of institutions. While the current university has a diverse student population, future research might consider investigating decision-making either at geographically diverse institutions or at institutions with differentiated Carnegie classifications to determine whether students' financial-aid decisions are altered based on either of these factors.

Our research study examines two of many techniques to alter the financial-aid acceptance forms. Multiple other experiments could be conducted to show how any desired change in the form might change students' behavior when financing their educations. The form could be altered in terms of the type of information presented first and how the material is presented (electronically, on paper, electronic presentations with links to alternate forms and calculations, etc.). Within these permeations, there may be more effective ways to influence students' financial-aid decisions that could be examined further by future studies. Gender should be considered in all of the aforementioned areas to determine whether gender is a factor when providing financial-aid documentation. These areas of study constitute a rich base of potential research questions that could provide beneficial insights to those in higher education charged with assisting students on making the best decisions when financing their education both in the short and the long term.

Implications for Financial Education, Counseling, and Planning

Our study has implications for policy makers, students, and other individuals who provide financial assistance to students. The standard format for financial-aid information proposed by the Department of Education and the Obama Administration, known as the Financial-Aid Shopping Sheet, assists students in determining how they will pay for college by listing several available funding sources (U.S. Department of Education, 2015). The study provides evidence that the long-term cost of education would significantly decrease if the Financial-Aid Shopping Sheet included interest rates next to each potential funding source.

Even though interest rates are readily available on other forms, making the rates more noticeable would likely decrease cognitive load, improving students' ability to make optimal decisions. We believe policy makers should take note of this finding and consider the ease with which this simple change could be implemented. Perhaps more importantly, the results suggest that the format of the financial-aid forms plays an essential role in encouraging students to pay attention to interest rates rather than simply the dollar amounts of various funding sources. This may reduce the overall cost of financing their postsecondary education. Counselors and financial educators should take particular care in ensuring students they advise note the interest rates of the loans they are evaluating in their endeavor to finance their college education.

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