March 2020

Addressing the Student Loan Crisis: Nudging Borrowers to Lower their Repayment Costs

Genevieve O. Dobson
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Addressing the Student Loan Crisis: Nudging Borrowers to Lower their Repayment Costs

by

Genevieve O. Dobson

A dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Business Administration
Muma College of Business
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Date of Approval:
February 24, 2020

Keywords: Default Option bias, Design Science Research (DSR), Elaborated Action Design (EADR), Status quo bias

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DEDICATION

I dedicate this research to all the student loan borrowers who went to college in hopes of living the American Dream and now suffer in silence. Please know that you are not alone. There are millions of other people just like you. Seek help from an expert on better ways to manage your student loan debt because there are solutions out there. Know that I fight this fight with you in hopes that one day we see true change.
ACKNOWLEDGMENTS

I wish to thank my committee for everything they have done to help me get to this place. I especially want thank Peter Kirtland, Joe Hodges, and Mark Giddaire for being there for me anytime I needed them. A huge thank you goes to Grandon Gill for being brilliant and wonderful in every way, always making me feel I was good enough and could succeed.

Not enough words can be used to describe how thankful I am for the entire 2019 DBA Cohort. What an amazing bunch of people I am so blessed to now call friends.

Most importantly, I want to thank my son who is the reason for everything I do so that he can one day have a life much more blessed than I could imagine. It has always been me and him and always will be. He is so amazing in so many ways, and I wonder how I got so lucky to be his mom.
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ABSTRACT

The Purpose of Research is to determine why student loan borrowers are making poor decisions regarding their repayment plan selection and how we could use the theory of nudge to get them to make better choices. This study evaluates three main biases found in decision making to determine which one is most likely to be utilized in making decisions. It also looks into ways a tool can be created to allow borrowers to make better choices.

I use the Elaborated Action Design Research Methodology to diagnosis, design, and implement an effective tool. In my study, I create an artifact that allows me to create nudges for better repayment selection and a secondary artifact that helps me to determine if the biases I believe to be affecting decision making are accurate. I also create a calculator to determine which repayment option that is available to the borrower is best based on their individual goals. An interview of 41 University of South Florida students is used to obtain their feedback on which selections they would make and why.

My research contributes to the student loan industry. Much discussion exists about issues within the industry regarding repayment of student loans and the number of borrowers who default. In my professional life, I have observed that many who default or struggle with repayment of loans do so because they simply are in the wrong payment program and do not get the right advice to select the appropriate option. The government puts everyone into a standard option automatically (Default Option), forcing them to determine what, if any, better options exist for them. If we could simply select the correct option for their needs and circumstances from the beginning, much of the issue with default and past due payments could be resolved.
I conclude there is evidence that supports those who are given a Default option tend to choose or stay with that option because of several factors. These factors include believing this option is best for them and making complex decisions can be overwhelming, causing some to make no decision at all. My findings also determine that Social Norm and Warning nudges can be very powerful when given a complicated choice to make.
CHAPTER ONE:
INTRODUCTION

Why are so many graduates suffering from paying back their student loans? This is a question many groups are asking including lawmakers, educators, borrowers, and researchers. Each of these individual groups has a different theory and suggestion on what the student loan problem is and how to potentially solve it. In this research, I delve into how nudging may potentially affect borrowers’ decisions on managing their student loan debt. I explored the current default payment options the government has put in place to pay back students loans and how changing that default could provide a positive financial effect on student loan borrowers. I also looked at how warning nudges and social norm nudges researched by Cass Sunstein (Sunstein, C. R., 2019) may also affect the decision of a student who is making a decision on how to best pay back their loans in the future. My research assesses the ability to nudge these borrowers into taking a different action then they may have done without the nudge and how effective each nudge is. Looking at the Theory of Nudge coined by Richard H. Thaler and Cass R. Sunstein, I determined if a borrower can make a different choice with the proper nudge. According to Nudge, (Thaler & Sunstein, 2009) active choosers may not make good choices. If I were given the ability to make policy changes, I would change the current default options on how to pay back student loans to one that is more financially advantageous both on a short-term and long-term basis and also encourage that new selection while still allowing the borrower to choose a different option if they preferred to.
I used a Design Science Research (DSR) Methodology (Hevner, 2007), specifically Elaborated Action Design (EADR) (Mullarkey & Hevner, 2019) to create an artifact to determine when nudged effectively will a borrower make a different decision from the status quo or original default option, will they heed the warning nudge to avoid an option or will they make a selection based on the selection their peers made (social norm). The goal of the research was to determine the possibility of an intelligent assignment to the best repayment plan for student loan borrowers that is user-friendly for the borrower to understand in making their selection. If elaborated action design research can be used to properly create artifacts allowing borrowers to be nudged into making better decisions regarding their student loans, this same process could be used in other financial industries.

**Background**

I began working in the Student Loan industry in 2005. This was a time when I had student loans myself and did not know how to handle them. It was a time when much was changing within the industry and graduating students were taking a stand against the bureaucracy. At the time, student loans were still being disbursed as variable rate loans (based on the prime or LIBOR rates of the time) however there was a big push for consolidation to lock in loans at an average of 2.875%. It was not a tough decision for those with student loans to be nudged into making a decision to consolidate their loans to lock in the lower rate. Many did so with little information on the process and a minimal understanding of the long-term implications of their decisions. Anyone who locked in their consolidation using the preferred lender and servicing company I was working for at the time could get additional rate reductions to drop their rate down by another 1% after making a certain specified number of timely payments (18-36
months depending on the situation) and they also were offered a .25% rate reduction for making automatic ach withdrawal payments.

After working with the student loan borrowers for 14 years I have become an expert in the industry and have a good understanding of the needs of the clients. I have worked with thousands of student loan borrowers and have determined the common practices among them. I have recognized mainly the defense mechanism of avoiding the chore of dealing with their student loans altogether unless an extreme situation occurs. Examples include wages being garnished, payments being too high to avoid default, and a negative effect on credit. In my book, “Failing Successfully: Life after Debt”, I called this “burying their head in the sand” (Dobson, G., 2012). As I recently began working on this research, I spoke with a young lady whose situation is very common to my experience within the industry.

**Client Experience**

I spoke with Victoria who called me looking for guidance regarding managing her student loans. Victoria is divorced with two kids working at a middle school. She had about $100,000 in student loans that were due 3 days prior to our conversation with a payment of about $850 per month. She had an income of about $60,000 per year. Victoria has been putting off making any payments on her loans for the last 3 years until recently when she determined she has no more forbearance time available. The government only allows for a total of 3 years of forbearance on loans which allows for postponement of any payments. It’s possible to gain an additional 3 years if you consolidate the loans, but Victoria already consolidated in 2015. At that point, she had no option but to make a payment, but she did not make enough money to afford such a large payment.
The $850 payment was the standard defaulted payment. It was the amount a borrower would pay on a consolidation loan over 30 years at the current fixed rate. Borrowers are put in a standard payment based on their loan type despite other repayment options available like Income-Driven Repayment. Researchers like Collier and Herman (2016) believe this practice was one of the main causes for delinquency and overall payment issues among borrowers. In Victoria’s case, the good news was that she qualified for a new student loan payment of $270 under the PAYE (Pay-As-You-Earn) program. Unfortunately, her lender failed to inform her of the PAYE program when she called inquiring about other options on paying back her loan. Reports of misinformation or a lack of information on repayment options is another common issue within the industry (Friedman, 2018)

What made Victoria’s case even more interesting was that Victoria worked at a state school and fits the other qualifying factors (algorithm based on income, student loan balances, family size, etc.) to qualify for Public Service Loan Forgiveness (PSLF). This means that after she makes timely payments on her loans for 10 years the remaining balance will be forgiven. Victoria has worked at the school for over five years and would have been halfway to gaining forgiveness if she had not waited until the day of our conversation to start the process. Her forgiveness is estimated to be over $100,000 (this included interest that would have accrued over 10 years). She would be pay about $44,000 towards the debt while the government will pay the remaining balance. So why did Victoria wait so long to start the process of PSLF? When asked she stated that she simply “was putting it off.”

She contacted my company because she felt she had no other option. She was past due and needed someone to manage the loan for her. By hiring my company, she shifted the responsibility of dealing with her lender and accompanying paperwork to my firm. She avoided
making any real decision about her student loans until being given no other choice but to do so. She paid my company $750 to avoid completing the necessary paperwork on her own although she was told she could do it herself if she chose. I informed Victoria that she had the option to work directly with her lender to change the repayment plan but she, like most cases, decided that she did not want to go it alone. She preferred to hire someone else to take the burden of managing their student loan debt off their shoulders. This could have been due to trying in the past to manage their debt with their lender with few positive results or she may have believed that working with me (an expert) was an easier choice for her than trying to sift through all of the government documents on her own.

Research shows that when choices are complicated most people avoid making decisions or make choices with ignorance. I have found this to be the case through my own experience working in the student loan industry over the last 14 years. I have found that people tend to select the standard option or status quo option, make a selection based on what they believe others would have chosen or don’t make any selection out of fear that it is not the right option due to information they received to warn them against making that selection. (Names have been changed to protect identity).

Motivation

The motivation of this research was to find effective research practices to create a balance between an artifact and a theory (Baskerville, et al, 2018). While focusing on Nudging as discussed by Thaler and Sunstein (2007) and using the Elaborated Action Design Research (EADR) methodology created by Mullarkey and Hevner (2019), I was able to show that proper tools can be created when diagnosing how people make decisions (determining their behavioral
barriers) and by following the multiple cycles of EADR (choosing proper design and evaluation of artifact) to ensure the successful creation of an online digital tool.

Research Questions

It is important to understand the different design cycles of Elaborated Action Design (Diagnosis Cycle, Design Cycle, and Implementation Cycle) to ensure the artifact I created was ultimately useful in assessing how effective nudging is on student loan borrowers. The three main research questions listed below allowed me to assess the goals of the research and the effectiveness of my tool throughout each stage:

RQ1. Why do individuals with student debt not make effective selections of repayment programs? What are the behavioral barriers that preclude good decision making? (Diagnosis cycle)

RQ2. What design for a decision-making artifact based on nudging theories could be effective to enable individuals to make better repayment decisions? (Design cycle)

RQ3. How would one build and evaluate a student loan repayment IS with nudges? (Implement cycle)

Hypotheses

For the research questions above, I constructed five hypotheses to test.

H1: An expert’s suggestion of the default option impacts a borrower’s selection of that option.

H2: A highlighted warning alone will not preclude respondents from selecting the highest total cost repayment option.

H3: Social norms do not impact a borrower’s repayment option selection.
**H4:** A greater number of respondents will select the Default option versus the other nudges.

**H5:** Building a Student Loan Information System (IS) using nudges provides an assessment tool for decision-making.

Hypotheses 1, 2, 3, and 5 will be tested based on qualitative analysis, while hypothesis 4 will be examined on quantitative analysis.
CHAPTER TWO:
INDUSTRY ANALYSIS

To better understand how I diagnosed what I believe to be the main issue facing those with student loans, it is important to understand how student loans work. This includes the history, policies and other factors pertaining to student loan funding and repayment.

In an earlier article I summarized the student loan industry including the history, current policies, types of loans and effects of student loans on borrowers as can be found in the details to follow (Dobson, 2019).

History

In 1958 The National Defense Education Act (NDEA) was created to encourage Americans to pursue degrees in science and mathematics to offset Russia’s advances in space exploration (Mohr, 2017). Because the NDEA worked so well the government decided to create the Higher Education Act in 1965 (Mohr, 2017). The Higher Education Act expanded the Guaranteed Student Loan program and included Stafford loans to allow poor students to finance their education. As discussed previously, with the start of the Higher Education Act the industry saw loans become more prevalent allowing for lower-income borrowers to also be able to go to school. The different Federal loan options were born to fit the needs of different borrowers. This new program started out under the FFELP (Federal Family Education Loan Program) however in 2007 were disbursed by the Department of Education (Collier & Herman, 2016). This meant private lenders no longer had the option to fund federal student loans and all funding came from The Treasury for these loans. It also meant student loans debt servicing was the
responsibility of the government (Collier & Herman, 2016). The government hired on four main servicers including Navient, Fedloans, Great Lakes and Nelnet to manage billing, repayment and customer service for borrowers.

There is significant importance in understanding the student loan industry to learn the best way to manage student loan debt. There is continued debate about which management options are the most advantageous and the government has gone to great lengths to assist borrowers in obtaining low-cost payment options by adding the new Income-Driven Repayment (IDR) programs. These programs came about due to a public uprising from borrowers defaulting on their student loans and those who were struggling to make payments. Unfortunately, student loan debt is the only debt that has extremely strict rules all but excluding bankruptcy causing some borrowers to default (Mohr, 2017). Consolidation options for borrowers also changed. FFELP (also known as FFEL) programs ended 2007 taking away borrower benefits like 1% rate reductions after so many timely payments. Income-Driven Repayment (payments based on income, family size and other factors) have been filling the gap and assisting in those who cannot afford a standard payment to make lower payments but also shown in Figure 1, only 28% of borrowers are taking advantage of these options.

![Figure 1. Payment Plan Selection Statistics (Permission from College Board, n.d.)](image-url)
The industry also added forgiveness options to the benefits of Federal loans. The programs started off with just two options: 1. Public Service loan forgiveness for those working for the State, Government or Non-Profit/501 (c)(3) organizations and 2. Income-Based Repayment (IBR) forgiveness for all those borrowers who qualified for income-driven repayment options. If borrowers paid for 25 years under this program the loans would be forgiven (Dobson, 2014). In 2014, the government initiated an additional income-driven repayment option called Pay-as-you-earn (PAYE). PAYE allowed for a borrower’s payments to be based on 10% of discretionary income rather than the previous 15% (Dobson, 2016). With this new repayment option came the additional forgiveness option. 3. PAYE forgiveness was added which allowed borrowers to have their loans that qualified for the PAYE payment plan to qualify for forgiveness in 20 years instead of 25 under the IBR forgiveness option.

**Types of Student Loans**

There are currently Federal and Private Student loans in which a student or parent of a student can borrow to cover the cost of higher education.

- Federal Subsidized loans are need-based loans that do not accrue interest while in school, in grace or in deferment
- Federal Unsubsidized loans are not need-based and accrue interest upon disbursement
- Grad Plus Federal loans are loans that are borrowed by those in a Graduate or higher degree program
- Parent Plus Federal loans are loans that are taken out by the parent for their dependent child to cover the cost of tuition, room and board, and other expenses and are the responsibility of the parent
- Perkins Federal loans are disbursed to those with exceptional need and are funded by the school at a fixed 5% rate
- HPSL (Health Professional Student Loans) Federal loans are disbursed to those enrolled in qualified health profession programs and show financial need with a fixed 5% rate
- Private loans are disbursed to eligible students and parents based on credit factors with rates generally based on the current Prime or Libor rates along with other qualifying factors

![Graph](image)

**Figure 2.** Total Student Loan Debt Over Time.

**Current Effects of Student Loans on Borrowers**

Regulation that should have helped borrowers to reduce their debt load and avoid default seemed to not work. According to Forbes, total student loan debt increased in the 4th quarter of 2016 by 31 billion dollars. New delinquencies also increased by 32.6 billion dollars in borrowers who were 30+ days delinquent and 31 billion by borrowers who were 90+ days delinquent (Friedman, 2017). The government owns and collects on student loan debt and therefore has “autonomy in creating new repayment plans” (Collier & Herman, 2016). Fixed payment options are rigid and don’t consider the societal or personal economic circumstances of a borrower while income-based programs are extremely under-utilized (Collier & Herman, 2016).
Student loan debt drastically affects students and graduates. The debt has tripled from 2004 to 2012 and has increased even more from 2012 until now (Johnson, O'Neill, Worthy, Lown, & Bowen, 2016). Tuition rose 55% from 2004 to 2012. This left graduates with reduced spending power, fewer funds to put towards retirement and a damper on a home purchase. Student loans have become the top debt only second to mortgages (Johnson et al., 2016). Some interest rates for student loans are at 6.8%, 7.9%, and even 8% compared to low mortgage and car loans averaging closer to 4%. To explain further, private lenders once were allowed by the Federal government to consolidate borrowers’ federal student loans under the FFEL program. Although the loans had to be consolidated based on the LIBOR rates at that time, these lenders had the ability to offer borrower benefits to clients that signed up to use their consolidation company versus competitors. This saved the borrowers massive amounts overall when utilized correctly.

Borrowers struggling with high payments also struggle with the financial crisis within the household, credit issues and long-term negative repercussions. As we recall the giant mortgage bubble that burst due to highly inflated costs with borrowers who could not afford to pay their loans, we can see the similarities in the student loan industry and the possibility of a similar crisis. Fox Business discusses how Sheila Bair, the Washington College President and former chair for the Federal Deposit Insurance Corp (FDIC), stated student loan debt could certainly be the “next financial crisis” (Fernandez, 2017).

Much more thorough research is needed to delve into the different policies that are currently in existence and how they could effectively assist students in gaining their degree without a large debt burden. Over the last 10 years, we have begun to see many people asking the question, “Is college tuition worth the cost?” (Gorey, 2016). Based on Gorey’s research, there is
a decrease of borrowers still having outstanding loans who have gained mortgages. Researchers and borrowers alike state this is partly due to the cost of their student loans. 71% of student loan borrowers who don’t own a home attribute it to having student loans (Gorey, 2016). They also tend to marry and have kids later in life. Those who are overwhelmed in student loan payments and are making large monthly payments are not able to buy homes or other items or may have to put off buying for several years. “For every 10 percent in student loan debt a person holds, their chance of home ownership drops 1 to 2 percentage points during their first five years after school, according to the Federal Reserve” (Nova, 2018). If loans were disbursed by private lenders and were competitive, we could see much lower interest rates and, in turn, lower payments. These lower payments could allow borrowers to have an easier time paying back their debt and avoiding default. This begs the question of how we can sustain the path we are on if we are unable to even buy a home which remains the best way to generate wealth. “Owning a home, the most common way Americans build wealth, can become a distant dream for many crushed by student debt” (Nova, 2018). In figure 4 it shows that as student loan debt peaked there was a subsequent decrease in mortgages. This could be due to several factors including the economic crash, but we should consider the possibility of the correlation between an increase in student loan debt and a decrease in mortgage debt.

![Mortgage and Student Loan Debt Over Time](image)

**Figure 3.** Mortgage and Student Loan Debt Over Time.
As Ostrowski (2015) discussed, there needs to be easier paths for borrowers who qualify to have their loans put into one of the repayment plans. With there being so many different plan options many borrowers don’t know which option is best for them. The new Prosper Act would streamline this process by only having one income-based repayment option and one type of loan. However, with no subsidized loans (loans that do not accrue interest during school, grace or deferment) the cost of loans for borrower who have a high financial need would rise. As the year goes on it will be interesting to see the direction the government takes with the regulation’s changes. The hope is they gather more research to determine the long-term effects of those potential regulation changes on borrowers and the community to make a decision that alleviates the debt load and burden.
CHAPTER THREE:
LITERATURE REVIEW

Summary of the Research

Much can be noted from the research available on Student loan debt. The student loan industry has rules and regulations that some researchers feel not only make it too complex for borrowers to manage their loans effectively but also may ultimately be negatively affecting borrowers and their future financial goals (Cho, et al., 2015). Discussions on student loan debt focus on how student loan disbursements are done and how the different repayment plans work (Mohr, 2017). There is also much discussion on the shift in regulations that affect a borrower’s ability to file bankruptcy on their debt along with the other changes in repayment options (Nica, & Mirica, 2017). A big concern is how to help borrowers deal with the burden of their loans. They have issues with making proper payments leaving some in serious delinquency and default causing negative credit, lack of ability to purchase homes and many times keeping them from starting families (Johnson, et al., 2016). There is research to suggest student loan debt can also cause serious anxiety and have a negative effect in many aspects of their life (Amronin & Emborley, 2016).

My research also includes getting a better understanding of the concept of Nudge and how nudge can be used to assist those with student loans to make better decisions. I found that not every researcher believes that nudging can be used without manipulation and some found it to be an unacceptable way to create policy changes (Hansen, & Jespersen, 2013). However, from what I found, many researchers determined that nudging can be used responsibly as long as the
participant is given the option to do something different from the suggested nudge (Thaler & Sunstein, 2009).

It was also important for me to do a thorough review of biases associated with why borrowers may not be managing their loans appropriately. From my research, I found Status quo bias, those who simply select the default option, to be the main reason for many borrowers not being in the correct repayment program (Dean, Kibris & Masatlioglu, 2017). It was found that status quo bias is particularly common when an individual has a complex or complicated decision to make. Due to the uncertainty of whether changing from the default option will be advantageous, many tend to do nothing. One particular article studied neural pathways and determined that there is an “increase in subthalamic nucleus (STN)… when the status quo was rejected in the face of heightened decision difficulty” (Fleming, Thomas, & Dolan, 2009). This means it can take much more effort to change from a default option when in the midst of a difficult decision, therefore, there is a greater tendency to accept the default when the problem is difficult to decide on.

The best way for me to gather my research and gain results is by creating an artifact that borrowers with student loans will have the ability to use to decide on how they want to manage their debt going forward. I researcheded Design Science Research, Action Design Research and Elaborated Action Design Research so I could fully understand the best way to analyze the problem, design an artifact, implement the artifact and analyze and assess the results (Mullarkey & Hevner, 2019). This aligns with the research found on this methodology. Some stages and principles are slightly different but many of the concepts were similar. The elaborated action design research showed a new step explaining that the research could start at any stage and have several iterations of the artifact until it aligns with creating an effective solution.
As listed in Tables 1 to 3, there is a breakdown of key articles used to understand the student loan industry including policies and effects of student loan costs. Table 1 shows how the student loan industry works including policies and the effects of debt on borrowers. The researchers go into explanations of what they felt was the cause of the industry issues and how some of the issues could be resolved through repayment and policy changes. The key take-aways from this chapter was understanding how the current regulations has effected the increase in overall student loan debt and possible solutions.

**Table 1. Understanding How Student Debt Works/Current Policies/Effects**

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Components</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student loan finance</td>
<td>• Different federal loan types and regulations</td>
<td>(Johnston &amp; Roten, 2015)</td>
</tr>
<tr>
<td>Student loan options</td>
<td>• Payment options</td>
<td>(Rall, L. G., 2015)</td>
</tr>
<tr>
<td>Student loan debt effects</td>
<td>• Stress linked to student loans</td>
<td>(Amromin and Emborley, 2016)(Amromin &amp; Eberly, 2016)</td>
</tr>
<tr>
<td>Debt burdens on graduates</td>
<td>• Bankruptcy changes and private debt</td>
<td>(Nica, E., &amp; Mirica, C., 2017)</td>
</tr>
<tr>
<td>Shifts in government regulations</td>
<td>• Shift in education act and bankruptcy</td>
<td>(Grant, K. L., 2011)</td>
</tr>
<tr>
<td>Student loan decision making</td>
<td>• Increase in college cost and effects on retirement</td>
<td>(Johnson, C. L., O'Neill, B., Worthy, S. L., Lown, J. M., &amp; Bowen, C. F., 2016)</td>
</tr>
<tr>
<td>College loan debt effects</td>
<td>• Discussion on effects of loans on borrowers</td>
<td>(Archuleta, K. L., Dale, A., &amp; Spann, S. M., 2013)</td>
</tr>
<tr>
<td>Student loan regulation Changes</td>
<td>• Shift in loan options</td>
<td>(Best, J., &amp; Best, E., 2016)</td>
</tr>
<tr>
<td>Debt effects housing market</td>
<td>• Inability to buy homes due to debt</td>
<td>(Gorey, J., 2016)</td>
</tr>
<tr>
<td>Financial education and debt behavior of the young</td>
<td>• Study on financial shortcomings and ability to improve repayment behavior</td>
<td>(Brown, M., Grigsby, J., Klaauw, W., Wen, J., &amp; Zafar, B., 2016)</td>
</tr>
<tr>
<td>College Student Debt</td>
<td>• Repayment difficulty</td>
<td>(Fox, J. J., Bartholomae, S. Lefkiewicz, J. C., &amp; Montalto, C., 2017)</td>
</tr>
<tr>
<td>Attitudes towards debt</td>
<td>• Survey data on debt behavior</td>
<td>(Almenberg, J., Lusardi, A., Säve-Söderbergh, J. &amp; Vestman, R., 2018)</td>
</tr>
<tr>
<td>Student loan policies</td>
<td>• History and changes in policies</td>
<td>(Mohr, A., 2017)</td>
</tr>
<tr>
<td>Student loan rates</td>
<td>• Federal student loan interest rates</td>
<td>(Delisle, J., 2012)</td>
</tr>
</tbody>
</table>
Table 1 (Continued)

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Components</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student debt</td>
<td>• Systemic risk of student debt</td>
<td>(Glater, J. D., 2016)</td>
</tr>
<tr>
<td>Student debt crisis</td>
<td>• The next debt bubble</td>
<td>(Gregory, J. L., 2014)</td>
</tr>
<tr>
<td>Policy issues</td>
<td>• Economic perspective on student loans</td>
<td>(Dynarsk, S., 2014)</td>
</tr>
<tr>
<td>Paying student loans</td>
<td>• Borrowing and paying back student loans</td>
<td>(Hillman, N.W., 2015)</td>
</tr>
<tr>
<td>Student loan default</td>
<td>• Definitions and influences of default</td>
<td>(Gross, J. P. K., Cekic, O., Hussler, D., &amp; Hillman, N., 2009)</td>
</tr>
</tbody>
</table>

In Table 2, I researched Nudging and Digital Nudging. Although the concept of nudging has been around for quite some time we are more recently seeing nudging and digital nudging used in improving decisions and in public policy. The key to the research I reviewed was understanding the difference between nudging and manipulating. Nudging allows those making a decision to still have a choice. Digital nudging is a more modern concept with the technology age and change in how people connect. Therefore, how we nudge someone online or on an app may be different than in face-to-face settings.

Table 2. Nudging/Digital Nudging.

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Components</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nudging</td>
<td>• Nudging concept explained</td>
<td>(Hansen, P. G., 2016)</td>
</tr>
<tr>
<td>Putting nudges in perspective</td>
<td>• Introduction of behavioral insights into public policy</td>
<td>(Loewenstein, G., &amp; Chater, N., 2017)</td>
</tr>
<tr>
<td>Nudge</td>
<td>• Improving decisions through nudge</td>
<td>(Thaler, R. H., &amp; Sunstein, C. R., 2009)</td>
</tr>
<tr>
<td>Manipulation of choice</td>
<td>• Responsible use of the Nudge approach in public policy</td>
<td>(Hansen, P. G., &amp; Jespersen, A. M., 2013)</td>
</tr>
<tr>
<td>Student loan nudges</td>
<td>• Offers effect borrowing decisions</td>
<td>(Marx, B. M., &amp; Turner, L. J., 2019)</td>
</tr>
<tr>
<td>Digital Nudging</td>
<td>• Digital Nudge Design Method</td>
<td>(Mirsch, T., Lehrer, C., &amp; Jung, R., 2018)</td>
</tr>
</tbody>
</table>
Table 2 (Continued)

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Components</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice Defaults</td>
<td>• Experimental design and effects of defaults on targeted behavior</td>
<td>(Ghesla, C., Grieder, M., &amp; Schmitz, J., 2019)</td>
</tr>
<tr>
<td>Nudges for a Sustainable Society</td>
<td>• Nudge guidelines for the betterment of individuals and society</td>
<td>(Goepel, N., Rahme, M. R., &amp; Svanhall, F., 2015)</td>
</tr>
<tr>
<td>Ethics of Nudging</td>
<td>• Nudges as effective policy interventions</td>
<td>(Roberts, J. L., 2018)</td>
</tr>
<tr>
<td>Nudging gets third degree</td>
<td>• Concerns about nudging in policy</td>
<td>(Baldwin, R., 2014)</td>
</tr>
<tr>
<td>Ten main nudges</td>
<td>• Provides a list of the most important nudges for policy</td>
<td>(Sunstein, C. R., 2019)</td>
</tr>
</tbody>
</table>

In Table 3 below, I researched Status Quo or what is also called the Default Option Bias. From my research I determined this seems to be very common if not the most common form of bias, especially when it comes to how people make complicated decisions. It was important to understand that how our brain reacts to certain questions or processes has a big impact on the reaction or response to such questions or complex processes.

Table 3. Status Quo/Default Option Bias.

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Components</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status Quo Bias</td>
<td>• Understanding the reasons behind status quo bias</td>
<td>(Brent, B. O., DeAngelis, K. J. &amp; Harris, N. F., 2017)</td>
</tr>
<tr>
<td>Overcoming status quo in the human brain</td>
<td>• Increase in subthalamic nucleus (STN) activity found in brain when status quo is rejected</td>
<td>(Fleming, S., M., Thomas, C. L., &amp; Dolan, R. J., 2010)</td>
</tr>
<tr>
<td>Status Quo tendency in Decision making</td>
<td>• Decisions, feedback, and status quo tendency</td>
<td>(Silver, W. S., Mitchell, T. R., 1990)</td>
</tr>
<tr>
<td>Limited attention and status quo</td>
<td>• Decision makers will often choose the default option</td>
<td>(Dean, M., Kibris, O., &amp; Masatlioglu, Y., 2017)</td>
</tr>
<tr>
<td>Choice defaults and spillover Effect</td>
<td>• Overall effect of default nudges on socially desired behavior and what policymakers should consider</td>
<td>(Ghesla, C., Grieder, M., &amp; Schmitz, J., 2019)</td>
</tr>
<tr>
<td>Pre-set default option</td>
<td>• Field experiment on the effect of default options on experienced people</td>
<td>(Löfgren, A., Martinsson, P., Hennock, M., &amp; Sterner, T., 2011)</td>
</tr>
<tr>
<td>Effects of default on choice</td>
<td>• Evidence of the effect of default options on choice</td>
<td>(Herrmann, A., Goldstein, D. G., Stadler, R., Landwehr, J. R., Heitmann, M., Hofstetter, R., &amp; Huber, F.)</td>
</tr>
</tbody>
</table>
Table 3 (Continued)

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Components</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deciding by Default</td>
<td>• A review of how decisions are made</td>
<td>(Sunstein, C. R., 2013)</td>
</tr>
<tr>
<td>Consumer Rationality and Status Quo</td>
<td>• Status quo may limit economic rationality</td>
<td>(Hartman, R. S., Doane, M. J., &amp; Woo, C., 2001)</td>
</tr>
<tr>
<td>Status Quo Bias</td>
<td>• Resistance to Reform with uncertainty</td>
<td>(Fernandez, R. &amp; Rodrik, D., 1991)</td>
</tr>
</tbody>
</table>

Overview of Nudge Theory

It is believed that in many instances people will make a different decision based on the way the decision is presented to them. Many companies that sell products and services are well aware of the psychology behind decision making and therefore create advertising to persuade a potential client to decide to buy from them. This is not truly how nudging is used to influence behavior. Nudging, under the direction of Thaler and Sunstein (2007) still allows the person to make whatever choice (libertarian paternalism) they desire. In nudging, it is laying out the choices in a different way, called choice architecture.

We know that people make decisions based on the status quo bias and many times choose the default. We also know from research that people do this because they rather not make a decision at all or if they do make a decision many times make a poor one. Especially when it comes to complicated decision making. With nudging, there is a responsibility to allow the individual the opportunity to make a better choice by designing resources or tools to make it easier for them to do so.

According to Cass Sunstein (2019), not only is nudging all around us from the alarm we use to wake up to the app we use to monitor the type of food we eat, but it is also a necessary part of policy creation. Although there are many different nudges that exist and more created each day, Sunstein proposes there are ten nudges that are the most important. In my research, I chose to focus on three main nudges which includes 1) default options rules, 2) use of social
norms, and 3) warnings, graphic or otherwise. These three were chosen to be used as indicators for which nudge may work best in the student loan industry and are believed to be the most relevant for this research study.

I selected the default rules options because the research suggests that our brains select the default option when the question or decision we have to make is complex. Due to numerous options with many rules and regulations, student loan repayment selection would be a complex decision to make. Social norm was chosen because society and peers play a big part in how decisions are made on student loans. As we see more social media accounts of borrowers discussing their loans and issues with payment of those loans we also see more borrowers giving their own advice on what to do. It was important to me to determine if how someone’s peers makes a selection would affect how they would. This gives insight into how decisions are made and in turn how nudges can be created based on the social norm bias. The warning bias was also an important selection because we need to understand what ways we can warn people of their decisions. With the high default rate of 1 in 4 borrowers as mentioned before, I was curious to know what, if any, warning could be successful in helping a borrower to avoid a bad repayment plan decision. Looking at behavioral psychology more closely in the future may lead to ways to create specific biases and nudges to borrowers paying back student loan debt.

**Digital Nudging**

Digital nudging is an “attempt to influence decision-making, judgment, behavior in a predictable way by counteracting the cognitive boundaries, biases, routines, and habits that hinder individuals from acting to their own benefit in the digital sphere” (Mirsch, T., Lehrer, C., Jung, R., 2018). Digital Nudge Design (DND) is made up of four phases which include

1. **Digital Nudge Context**
2. Digital Nudge Ideation and Design

3. Digital Nudge Implementation and

4. Digital Nudge Evaluation

Figure 4. 4 Phases of Digital Nudge Design (Mirsch, & et al., 2018).

Expounding on Design Science Research, my goal was to create and analyze my artifact understanding the role of Digital Innovation (Bakersville, & et al, 2018). “DSR aims to add to knowledge of how things can and should be constructed or arranged…to achieve a desired set of goals” (Hevner, Brocke, & Maedche, 2019). As Figure 2 shows below, there are 5 Roles of Digital Innovation in DSR. The fist Role which is labeled as Role 0 is the point where you try to understand the problem space and how to possibly construct an artifact that will provide a solution. My current problem space has been identified by current ineffective tools to get student loan borrowers to take appropriate action on managing their student loans due to their status quo bias. Role 1, is the design of an artifact. I will need to create multiple reiterations of my web-based portal and evaluate the effectiveness of its ability to use the theory of nudge to influence borrowers away from the current default options to more financially advantageous options. It will require using the right nudging tools so the borrowers who use the web-portal can make a tough decision to move away from the default option in order to select something different. Role 2 is the deployment of the artifact after several iterations have been made and evaluated.
Deployment is when the tool goes from just being a design to being functional. Role 3 is to build and evaluate the integration of the artifact or multiple artifacts into the system to address any potential problems. This can include compatibility, integration and interface issues (Hevner, Brocke, & Maedche, 2019). I will need to test whether it works by having borrowers use the tool, monitor their responses and analyze how the selection they chose will affect their student loans. In Role 4, I will be learning and theorizing to grow a better understanding of the artifact for “future improvements and adaptations” (Hevner, Brocke, & Maedche, 2019). I reflect on this research project to explain my theories on why student loan borrowers mismanage their loans and whether it is possible to effectively nudge them to make a different decision beyond the default option. The knowledge gained by this potential solution is vital to my research contribution.

**Figure 5.** DSR Project Design Knowledge (Hevner, Brocke, & Maedche, 2019).

The 5th and final Role is to “Use the DI Artifact as a creativity tool in a DSR” (Hevner, Brocke, & Maedche, 2019) project. I will be able to build and create new tools in the future based off of this artifact. My future research will include an artifact that will have a visual web-based portal tool that will also be used internally to allow me to expand on other useful tools for
potential clients and be made potentially available for other financial institutions who too are trying to nudge borrowers into action on their debt to create similar tools.
CHAPTER FOUR:

METHODOLOGY

My research includes the ineffective repayment selections made by student loan borrowers and how they can be influenced to make better selections. The current process does not lend to making good choices. Instead, it can be confusing for borrowers and lead many to the selection of a presented option. In some cases, this confusion can result in making no decision. This chapter includes an explanation of how the Action Design Research and Elaborated Action Design Research methodology was applied in my research.

Methodology and Data Collection

Based on the Literature Review, the EADR process was identified as best suited for my research. This design takes principles from Design Science Research originating in the early 1990’s and ensures things are created to “serve human purpose” (Simon, 1996). In Design Science, an artifact cannot be created without considering how it will be used, what the benefits of the artifact are and the purpose of the artifact.

The three cycles in Design Cycle Research are: 1) Relevance, 2) Rigor and 3) Design (Hevner, 2007). In the Relevance Cycle, the key motivation is to improve the environment by creating new innovation through artifact creation. The Rigor Cycle ensures a vast amount of knowledge and information are researched from previous scientific theories and from existing processes and artifacts being used. This allows for the new artifact to be created using an arsenal of information to prove itself useful and creative upon implementation. The Design Cycle is the key to Design Science Research. During this process, the artifacts’ design is constructed,
evaluated and refined until the satisfactory design is created. Table 3 below includes research on Design Science Research, Action Design Research and Elaborated Action Design Research. The purpose of this research was to ensure I understood the best method to use in research. It aided in the formulation of my methodology and details how Elaborated Action Design Research differs from previous Action Design processes.

Table 4. Design Science Research/Action Design Research/Elaborated Action Design Research.

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Components</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Innovation</td>
<td>• Design and deployment of innovative artifacts</td>
<td>(Hevner, A., Brocke, J, &amp; Maudèche, A, 2018)</td>
</tr>
<tr>
<td>Design Science Research</td>
<td>• Practical and Scientific Rigor</td>
<td>(Baskerville, R. et al, 2018)</td>
</tr>
<tr>
<td>Elaborated Action Design Research</td>
<td>• 4 stage ADR process with Artifact Creation and added Abstraction principle</td>
<td>(Mullarkey, M. T., &amp; Hevner, A. R., 2019)</td>
</tr>
<tr>
<td>Design Science Research</td>
<td>• Three cycle view of DSR activities</td>
<td>(Hevner, A. R., 2007)</td>
</tr>
<tr>
<td>Design Science Research in Information Systems</td>
<td>• Advances in theory and practice</td>
<td>(Peffers, K., Rothenberger, M., Kuechler, B., 2012)</td>
</tr>
<tr>
<td>Digital Learning effects on college students</td>
<td>• Planned vs. actual payment behaviors</td>
<td>(Popovich, J. J., 2018)</td>
</tr>
<tr>
<td>ADR expansion of process Model</td>
<td>• Expanding on Action Design Research</td>
<td>(Sein et al, 2011)</td>
</tr>
</tbody>
</table>

**Action Design Research (ADR)**

Through the expansion of the ADR process model presented by Sein, Henfridsson, Purao, Rossi, and Lindgren (2011), Action Research (AR) by Susman and Evered (1978) and Design Science Research by Hevner, March, Park, and Ram (2004) commonality can be found. Action Design Research, although evolving, contains four stages:

1. Problem Formulation
2. Building, Intervention, and Evaluation (BIE)
3. Reflection and Learning
4. Formulation of Learning
The seven original guiding principles within the cycle include:

1) Practice – Inspired
2) Theory – Ingrained
3) Reciprocal Shaping
4) Mutually Influential Roles
5) Authentic and Concurrent Evaluation
6) Guided Emergence
7) Generalized Outcomes

Matthew Mullarkey and Al Hevner (2019) recognized problem spaces within the ADR process and presented the Elaborated Action Design. The consensus within the research is the need to embrace theory and practice. It is important in design science that the potential artifact is functional in practice. However, in creation, it also should utilize theory to back the design elements with research. The multiple stages and principles are key to the development of the artifact in each stage. Each stage ensures the introduced elements are practical to reach the final design phase and implementation.

**Elaborated Action Design Research (EADR)**

Elaborated Action Design Research expands ADR through the addition of an explicit cycle to the BIE stage. This expansion would be more relatable to practitioners and leave fewer interpretation gaps (Mullarkey & Hevner, 2019). The new insight is that within each ADR cycle, there are eight principles and five activities, as shown in Figure 6. The eighth principle is new to the EADR process and the previous seven originate from ADR.
Figure 6. Principles of Elaborated Action Design Research (EADR) (Mullarkey & Hevner, 2019).

The Guided Emergent, Iterative Intervention Cycle consists of five segments:

1. **Problem Formulation**

   This stage is important for the practitioner or the researcher to determine the problem. Based on my 14 years of experience and research on the subject, I have determined one of the biggest issues faced by student loan borrowers managing their loans correctly is due to not having the right information to make an informed decision. Hence, borrowers agree to pay back their loans based on the defaulted selection made for them by the government (even when this is not the best or lowest payment option available to them).

2. **Artifact Creation**

   Once the problem is determined, it is necessary to create an artifact appropriate for changing the problem. My artifact was created to specifically test my theory that borrowers would make a better selection if they were nudged more effectively. My artifact determines what nudges work best for those making complicated decisions, like selecting the best repayment option for their student loans. It also assesses how people make their decision and if there is a predictable pattern.
3. **Evaluation**

An important part of the Elaborated Action Design process is evaluation. Once an artifact is created it must be tested to determine if it functions as intended by those who would be using the new innovative artifact. This evaluation process can happen multiple times until the artifact is found to fit its intended purpose.

4. **Reflection**

The reflection process allows for the researcher or practitioner to reflect on the previous stages, from the initial problem to creating the artifact, and evaluating the finished artifact to analyze if changes should be made or what more could have been done differently throughout the process. The reflection time leads to the learning process.

5. **Learning**

The learning process allows the researcher or practitioner to learn from the process and note any changes for future research. This process also can lead to the creation of an artifact to assist in solving the problem they set out to solve or by solving an extended problem that is part of the bigger issue they are trying to solve.

The first stage of the new proposed ADR process is Diagnosis. The second is the Design stage. The third stage is Implementation and the final stage is Evolution, as shown in Figure 7 below.

![Figure 7. Cycles within EADR (Mullarkey & Hevner, 2019).](image-url)
The new design allows researchers and practitioners to enter at any stage of the process. This addition can occur within any of the stages, even if an artifact has already been implemented. It can be researched to determine the problem within this stage, change or update the artifact, evaluate and reflect on the process within the stage.

Another addition is the 8th Guiding Principle: Abstraction. This principle states, “every ADR intervention cycle will introduce an artefact at the appropriate level of abstraction for the stage of project activity and goals” (Mullarkey & Hevner, 2019).

Determining the desired user behavior, goals, characteristics and decision-making behavior in the analysis phase requires using industry experience to create a tool to offset my theory on their bias to select the default option. This tool required having 41 students use the select the option they felt was best when entering repayment and then analyze their decisions. Once they used the tool, it was important to determine what motivated them to use the tool. I assessed if the tool nudged them to select an option that was not the default option even when the decision was complicated or if they were nudged based on other factors.

Based on the EADR process, my research incorporated the three cycles within the EADR processes of Diagnosis, Design and Implementation. The details of this process are included in the following three chapters. In the Diagnosis chapter, I explain how I came to diagnosis the problem within the student loan industry from my experience and from the diagnosis of other researchers. I also explain my contribution to resolving the problem and the goal of my research. In the Design chapter, I explore how my research and the design of my artifact improves or influences the current process within the student loan industry by looking at one key function and testing whether my artifact influences change. The Implementation chapter shows how I created my artifact, what tools were used to test the artifact and the outcome of the
research study. It shows how rigor was demonstrated in each process of the research implementation and why the interviews and surveys were used to gain key insights from the participants to lead to a new solution to the problem.
CHAPTER FIVE:  
DIAGNOSIS CYCLE

I targeted my research to students at the Muma College of Business. I created an artifact that analyzed an improved repayment option for borrowers based on my expertise and available research. After studying different nudging strategies, I was able to diagnosis some behavioral barriers among those who make student loan repayment selections. As I discussed in my first book, “Failing Successfully: Life after Debt” (Dobson, 2012), borrowers tend to bury their heads in the sand and try to avoid dealing with their student loans. This method is not much of a strategy and causes many borrowers to be delinquent or even end up defaulting on their loans. Research suggests this behavior is Status Quo behavior or “Yeah Whatever” Heuristic, according to Thaler and Sunstein (2009). This situation is not to say borrowers do not know they should take some action. When the payment automatically defaults to a standard payment, many tend to stick with that plan even if it is not the best option or some do not pay because they cannot afford to do so. Borrowers tend to assume the default option is the best or only option available. Also, if the government sends borrowers a bill reflecting the standard payment, they may believe that is what they should pay.

Numerous allegations of student loan debt mishandling have appeared in the news. Some allegations surmise servicing companies have been purposely mismanaging student loan accounts by not providing accurate instructions to borrowers. “Servicing companies are essentially hired by the Department of Education to ensure borrowers pay back their debt. They also rely on servicing companies to make sure the borrower is aware of all of their options so that
they are getting a payment they can afford under the government regulations. But according to numerous lawsuits, this may not be the case” (Cowley & Silver-Greenberg, 2017). As of May 2019, the Chief of the Consumer Financial Bureau said, “the Trump Administration Education Department is getting in the way of efforts to police the student loan industry” (Arnold, 2019). Although a need exists for supervising these servicing companies, policies obstruct this from happening. Millions of borrowers (99%) who expected to qualify for Public Service Loan Forgiveness (PSLF) in 2017 did not qualify due to misinformation.

When using the diagnosis cycle, it was important to understand what biases existed and how they affected decision making among student loan borrowers.

![Figure 8. Student Loan Stakeholders.](image)

The model in Figure 8 above shows the initial steps required to take out student loans and the stakeholders involved in the process. These steps include the student first working directly with the college to determine cost and eligibility. The college must determine the cost of attendance for a student and provide their school code so the school can be listed on the FAFSA (Federal Application for Federal Student Aid), which is the next step. Any student needing loans, grants or other funding must complete the FAFSA. The details from the FAFSA is then sent back to the college and submitted to the U.S. Government. The Government ultimately disburses student loans to the school to fund the education and sends the remaining to the student if they
have chosen that option. They also assign a loan servicer out of the designated companies, including Navient, Great Lakes, AES, Fedloan Servicing and Nelnet. These companies handle all loan repayment notifications, bills and communication with the borrower. Additional stakeholders involved in student loan repayment are the financial aid office, parents and experts. Each group is uniquely involved in assisting the student to pay back the debt. The financial aid office is involved by offering the student information and advice concerning their options or who to contact for more information. Parents are often involved in paying the loans or contacting the servicing company to sift through all the options and help the student enter the correct repayment plan. There are times when students or parents have done all they can to come to an affordable agreement with the servicing company but are unsuccessful, so they contact an expert to help. Generally, this contact is a last resort.

**Expertise in Diagnosing the Problem**

Over the last 14 years, I have worked with thousands of student loan borrowers who needed assistance in paying back their loans. Many had no understanding of their student loans while others had a basic understanding but could not identify which options would save or cost more money. When initially entering the industry, the company I previously worked for was effective in nudging borrowers to use a new consolidation option by showing the difference in savings from the original lenders. We had thousands of clients sign up because of the lower rates and overall long-term savings. However, if not for those nudges, many borrowers would have missed out on historically low rates that are since absent in the industry. In the current industry, it is very common, for borrowers to select the defaulted option or not make any decision regarding their student loans.
The reason this problem exists is due to the complex nature of student loan management. Specifically, federal loans can be hard for borrowers to understand because of multiple repayment options that may or may not be beneficial depending on the borrower’s situation (an algorithm that takes into consideration, income, student loan balances, interest rates, family size and other factors). Research shows the human brain can have a difficult time selecting outside of the default option when the question is complex or complicated to understand (Fleming, Thomas, & Dolan, 2010). When in doubt, people tend to follow the status quo or default option, assuming the person or company who selected the default option knows what is best for them. Sometimes, this option may be best, but for federal student loans, it is not most of the time.

Status quo/Default option bias is a heavily researched phenomenon in which those presented with the opportunity to make a change stick with the current plan or original option (Brent, DeAngelis, & Harris, 2017). Evidence shows there is a tendency to maintain the status quo even when the alternative is a better option.

Since available research matches what I have seen within the industry, I was fairly confident that the key biases included the Default option (selecting the default to potentially avoid making a decision or assuming the expert knows best), hesitating or avoiding an option due to a warning and social norm bias that assumes if their peers made a selection, that was the best option. Other biases exist, but I chose to concentrate on those three as I felt they were the most likely to have an effect on decision making within the student loan space.

During the research procedure, I knew from my experience in the industry:

- Several potential biases exist that keep people from selecting effective student loan repayment selections
• Research is available on nudging strategies that could prove effective in changing the biases or using them to the advantage of the subject

• If I could determine the most popular bias, I could implement processes/tools that could ensure people made better choices in the future when selecting their repayment options

**Current Repayment Plan Flow**

Below in Figure 9 is a model that shows how the repayment plan options currently work. This model reflects how the servicer sends out a standard bill to everyone. All standard repayment option bills sent to a borrower are standard repayment plan options calculated based on the interest rates, the principle balance and the loan term. The borrower is sent a standard bill to repay. They then must decide on how they will pay the bill. As the model shows, they generally make one of three decisions, which yield a specific result.

The servicing companies do not assess the best option but enter each borrower into a standard repayment plan based on their loan term. Once the borrower receives the bill, they generally take three steps in managing the bill. For some, they can afford to make the standard payment or are willing to struggle as needed to make the standard payment and pay the bill. Unfortunately, if they are struggling it usually means they are in the wrong repayment program. For others, they cannot or do not want to make the payment listed on the bill, so they contact the servicer for additional options. Most servicers will provide details on different options available including the option to postpone the payment through a forbearance to decide later. However, this option is provided after the borrower contacts them for guidance. Many times, borrowers are not given the best option for their situation so some leave feeling confused about their options or what they should do to handle their debt effectively. Finally, some borrowers review the statement and realize they cannot afford the payment and do not pay. This behavior causes
delinquency that leads to the default of the loans. It also causes additional late fees and collection fees to be added to the balance.

Figure 9. Repayment Plan Flow.
CHAPTER SIX:

DESIGN

In this section, I attempted to create two main artifacts. The elicitation script and survey questions created as part of the first artifact allowed me to see what the participants believed to be the right options, why they selected each option and how the nudges effected their decision making. It also allowed me to determine their understanding of their loans and whether certain biases influenced their repayment selection. Below are the initial interview questions given to each student.

Artifact 1 (Elicitation Script)

To determine if the participants had student loans and to gather details that would allow me to determine their eligibility for different repayment options, they were asked to answer the following questions:

1. How did you/are you financing your education at USF?
   a. Parents
   b. Scholarship/Grants
   c. Student loans
   d. Cash/Paying out of pocket

2. Are you currently working?
   a. No
   b. Yes/Part-time
   c. Yes/Full-time
These eligibility questions were asked through the participants’ school portal and the answers were provided to me prior to the interviews. To be clear about the answers, the questions were asked again during the interview process and prior to going into the elicitation script.

The elicitation script was made of nine questions to gather enough details to assess which repayment plan was best suited for the participant. This information is the needed details to calculate if a borrower would qualify for one of the income-driven repayment options or would be better suited for one of the other options available to them. The elicitation script was followed by 13 survey questions conducted through polling software. This method was designed to determine participant qualifications and assess their reason for their repayment plan selections.

**Interview**

Each interview began with the same opening statements and questions as shown below:

“Hi, _____________, thank you for agreeing to interview with me today. Before we begin I would like to record this interview so I can capture all your answers accurately. Will that be okay?”

*Begin Recording*

*Ask the following questions:*

i. Prior to going through the interview and having you answer the survey questions, can you confirm you have read and give consent to participate in this survey?

ii. Do you have any questions or concerns regarding the consent form?

1. How did you fund your education?

2. Are you currently working?

3. Do you expect to have to take out student loans in the future?

   *For those with student loans, the following questions were asked:*

39
4. What is the estimated Federal loan balance on your student loans?

5. What was your most recently filed adjusted gross income (AGI) or estimated income?

6. Do you work at (paycheck comes from) a private, government, state, or non-profit institution?

7. What is your filing status (married, filing separate, single, etc.)?

8. What is your family size?

   *Questions 1-5 will be used to determine the participant's repayment options throughout the remainder of the questionnaire

9. Based on the information, I have selected four main options to choose from. Which repayment option would you choose based on these options?

Once we moved past the preliminary questions and determined a participant initially did not have student loans, they were asked three additional questions:

1. How much does your education cost per year?

2. Do you believe you may have to take out student loans in the future?
   
   a. If so, how do you think you will handle paying them back when it comes time?

3. In your opinion, do you believe there should be some changes to the current student loan regulations?
   
   a. Why or why not?
   
   b. If yes, what changes would you suggest?

   This question concluded the interview for those with no student loans. However, once I determined there were not enough participants that had student loans, I redesigned my script to allow for input from those without student loans to assess which options they would select if given the choice.
Survey Questions

(The survey questions are part of the interview. The participants answered the survey questions in real time while on the interview and results were gathered immediately)

Survey Questions 10-21 given to participants through Poll Everywhere to capture responses

10. How much of an effect did the automatically selected option highlighted in green have on your selection?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

11. Did you think the alternative option was a good choice? Scale of 1-5. Select 1 for not a good choice at all and 5 being the best choice.

<table>
<thead>
<tr>
<th>Bad Choice</th>
<th>Weak Choice</th>
<th>Neither good nor bad</th>
<th>Good Choice</th>
<th>Best Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

12. How much of an effect did the option in red warning you against making that selection effect your decision?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

13. How much of an effect did knowing that most people with student loans choose the last option in blue effect your decision?
<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

a. If you did not choose that option, would you select it as an option if the option you chose was not listed.
   1. Yes
   2. No,
   3. Maybe
   4. Not applicable

14. Who helped you in the selection of your most recent repayment schedule selection?
   a. No one
   b. Financial aid office
   c. Parents or other loved one
   d. Online research
   e. Hired an expert or sought help from financial advisor/planner
   f. Other

15. What was the biggest factor in choosing the repayment plan you selected in this questionnaire for your student loans?
   a. Currently, my loans are past due/in default, but I want to start paying
   b. Could not afford some of the options so needed to select an option that fit my financial needs
   c. Felt the default option made the most sense for my situation
d. Didn’t care if had to pay over a longer period time if the monthly payment would be lower

e. Rather pay off the balance faster and get it over with

f. Wanted a zero-dollar payment for now

g. Wanted to pay the debt as fast as possible but still get an affordable payment for me

16. What factors did you consider when making your decisions?

a. The monthly payment plans

b. How quickly I could have the debt paid off

c. The plan that seemed easiest to apply for

d. Whatever the standard default option was

e. Don’t want to make a payment

f. The option that other borrowers selected

17. What was the reason for the choice you made?

a. The person who helped me in the past seemed like an expert and influenced me in making my choice

b. I felt it was the only choice available

c. I believed it was the best choice for my needs

d. Although I chose the default option, it was the best choice for me

e. I trust the researcher who chose the default option to know what is best for me

f. None of these

18. (Only for those who chose the Default option) Why did you select the default option (Option 1)?
a. I assumed it was the best choice because it was pre-selected
b. I trust the researcher to know the best option for me
c. I didn’t know which option to select so I went with the default option
d. The default option gives me an affordable payment
e. Other

19. (Only for those who did not choose the warning option highlighted in red) Why did you not select this option (Option 3)?
   a. It did not seem like the best option compared to the other options
   b. I was warned it could cost me more in the future if I selected it
   c. The option I chose instead was advised to me by someone else in the past
   d. I rather make payment than have a zero payment
   e. Other
   f. Not applicable

20. (Only for those who chose the Social Norm option highlighted in blue) Why did you select this option (Option 4)?
   a. I assumed it was the best choice because most borrowers choose this option
   b. I did not know which option to select, so I went with the option my peers select most often
   c. I do not know enough about the other options to make the decision on my own
   d. I can afford the payments under this option and believe it was the best choice
   e. This option doesn’t require me to do anything to get it so it is easier than the other options
   f. Other
21. How knowledgeable would you consider yourself regarding student loan repayment plan options?

<table>
<thead>
<tr>
<th>Not Knowledgeable 1</th>
<th>Slightly Knowledgeable 2</th>
<th>Somewhat Knowledgeable 3</th>
<th>Fairly Knowledgeable 4</th>
<th>Very Knowledgeable 5</th>
</tr>
</thead>
</table>

The survey questions allowed me to determine why participants made certain selections. Also, it assisted with determining if the participant had been educated on student loan options in the past and how knowledgeable they were regarding their options.

**Artifact 2 (Student Loan Decision Model)**

The Student Loan Decision Model is the artifact created to test the nudges created to assist a borrower in making a better decision on their repayment option.

**Creating Artifact**

To create the artifact, I determined which options were available to students and how those options were calculated. I also gathered additional information including their loan balances, family size, income details, filing status and utilized the government calculator which is located online at [https://studentloans.gov/myDirectLoan/repaymentEstimator.action](https://studentloans.gov/myDirectLoan/repaymentEstimator.action). This calculator allowed me to decide the payment for each repayment option, including whether a participant would qualify for the Income-Driven Repayment option. I also used an Amortization Calculator to calculate the total cost of a loan that is put in forbearance for three years. These details were needed to create the Student Loan Decision Model.

The additional elements to the artifact were determining what nudges I would test. Therefore, I included different options in the artifact that would test the Default Option theory,
the Warnings Rules theory and the Social Norm theory. The option I believed to be the most financially advantageous default option with not only a low payment amount but also with the option of forgiveness (where applicable) was highlighted in green. The participant was informed it was the recommended option (Option 1). This default option was given to the participant while allowing him/her to still choose the other options. When determining the likelihood of participants selecting the default option, I hypothesized that most borrowers would select that option. As the default option was selected by an expert, most would assume this option was the best.

The next best option (shown as Option 2) was in yellow. Although there was no distinct nudge for the Alternative option, this option being an alternative can be seen as a nudge in itself. It is not the best nor the worst option. It is a safe option and if selected, provided enlightening data to explore. I did not hypothesize that anyone would select this option.

The option that was not recommended (Option 3) was in red and bold. This option was used to nudge the participant away from selecting that option based on the Warnings Rule theory. When assessing the power of the Warning theory, the participants were told not to select the option in bold and this selection was highlighted in red. However, I hypothesized there would be a small percentage of participants who would still choose that option despite the warning. Based on research, it is noted that people can sometimes discount the warnings. They do not believe there is a risk for them to not follow suit and instead may believe the warning is for others. “There is a risk, however, that people will respond to warnings by discounting them (‘I will be fine’)…” (Sunstein, 2019). The main reason for their selection was the option to have a zero payment for three years, assuming they would make more money in the future and be able
to pay off the debt at a later date. However, with the additional explanation of the warning and the appealing criteria of the default option, most would adhere to the warning.

Option 4 had the entire row highlighted in blue and the participant was informed it was the most common option selected by their peers, which coincided with research previously shown in Figure 1. Although social norms can play a role in decision making, most would not allow the “peer pressure” of social norms to affect the options they select due to the higher repayment options and lack of forgiveness. I hypothesized that no one would choose this option because of the other options available. Additional questions asked after participants made their selections indicated the possibility that participants may have felt the social norm option is a better option. Although they did not select the social norm as an option, most of their peers have currently chosen that repayment option for their student loans.

Below is the final design of the Student Loan Repayment Plan Option artifact the clients were given to select the option they felt was best:

**Figure 10. Student Loan Repayment Option Selection.**

This model was manipulated for the first four participants who had student loans, as can be seen in 7.1.1-7.1.3; however it was left as seen above for the final 19 interviews.
Utilizing the Nudge theory proved as an effective tool to determine which ways a borrower can be “swayed” into a decision and allowed me to explore how I could create an improved tool to aid borrowers in making a better decision.

**Different Repayment Options Used in Artifact**

Many student loan borrowers are not aware of their numerous options. However, for some the options may be too much, causing them to not make a good choice or any choice. A great effect to this research is the education it provides on some of the options available. Although each participant was only given four options to choose from, the initial repayment calculator includes all of the options below:

- **Option 1:** Standard/Level Repayment. Payments are calculated based on a 10-year repayment term times the balance times the rate. This is the current government default option.

- **Option 2:** Graduated Repayment. Allows for the first two years to be interest only payments with the remaining payments of interest and principle to still be paid off in 10 years.

- **Option 3:** Extended Graduated. Allows for the first two years to be interest only payments with the remaining payments of interest and principle to be paid off in 25 years.

- **Option 4:** Federal Consolidation. Consolidates loans together giving a term of up to 30 years (for loan balances over $60,000).

- **Option 5:** Private Consolidation. Consolidates loans with a private company giving up all federal options but potentially gaining a lower interest rate.
- **Option 6**: IBR Payments (Income-Based Repayment). Payment amounts based on 15% of discretionary income taking into consideration family size and filing status. 20-year term. Cap on payment amount.

- **Option 7**: PAYE (Pay-As-You-Earn) Payments. Payments based on 10% of discretionary income taking into consideration family size and filing status. 20-year term. Cap on payment.

- **Option 8**: REPAYE (Revised-Pay-As-You-Earn). Payments based on 10% of discretionary income taking into consideration family size and filing status. 25-year term. No Cap on payment amount. If married must include spouse income even if file separately.

- **Option 9**: ICR (Income-Contingent Repayment). Payments based on 20% of discretionary income taking into consideration family size and filing status. 25-year term. Can cap payment to the amount of a 12-year term.

- **Option 10**: Forbearance. Allows for zero payments for various reasons including financial hardship for 12 months at a time for up to 3 years.

When reviewing each option, I decided to provide a specific statement given to the borrower to give them insight on each option. The statement is part of the nudge to clarify the meaning of each option and why participants should or should not select the option while still giving the freedom to choose. Liberal Paternalism, which allows for such freedom of choice, is a fundamental part of nudging (Thaler, 2009).

**Statement to Borrower to Assist with Nudge**

**Default Option**: "The first option in all green is the automatically selected option based on the information you provided"
**Alternative option**: "This option is a good alternative option due to being able to pay off the loans in 10 years rather than 20"

**Warning**: "This option would be the most costly option over the life of the loan however it does allow for a $0 payment for 3 years"

**Social Norm**: “This is the option that is most likely selected by other people with student loans according to government statistics” (This is based on the research from the government shown in Figure 1, which highlights most borrowers are in a Standard/Level repayment plan vs. the other payment plan options)

The statement to the borrower was used to give the participants some understanding of each option without giving away too much to not lean more towards a disclosure nudge. Essentially, each statement allowed me to use key words to test each bias and see if their bias would prevail or if they would make a different selection. The alternative option was utilized in this case as a placebo effect, as there was no bias embedded into the option.

**Decision Model**

There are specific decisions involved in determining how a borrower will qualify or be given the option to select one of the 10 different repayment options. This decision process can be seen in the decision model in Figure 11.

Before any decisions can be made using the decision model in Figure 11 on the next page, it is important to understand that the income, balance and additional financial details discussed above are necessary for making the decision. Those who qualify for the Income-Driven plans had additional options. Those options were selected first unless the borrower had a much higher expected income. They could then choose to pay off the debt faster with a standard repayment plan. However, if they wanted to have the loans for their lifetime, they could select a
consolidation, graduated, extended graduated or forbearance plan, which would mean they would pay more over the life of the loan so it would not be an option they would be suggested to select. Their defaulted option was one of the Income-Driven repayment plans, depending on which one had the lowest monthly payment in combination with loan term and any potential forgiveness. For those who did not qualify for an Income-Driven repayment option, their options were based on their answers to the factors shown in Table 5. Upon their answer, the best repayment plan that they would be defaulted to was the one that costs the least amount monthly or over the life of the loan. The amount is based on how borrowers want the loans to be paid (paid off faster or slower). A borrower’s income and ability to pay back the debt plays an important role in the decision process.

Figure 11. Decision Model for Repayment Options.
The responses to the three initial questions, student loan balances, income and family size were the key details used to decide the best options to provide to the participant. To qualify for any income-driven repayment option, which includes IBR, PAYE, REPAYE and ICR, these factors must be gathered and calculated to determine if they qualify. I calculated the potential payment by plugging in all these details and assuming an interest rate of 6% (I made this assumption because most borrowers do not know their exact rate or have multiple rates. The options are not drastically affected by the rate being slightly different). These calculations are done by using the governments’ calculator, which is found online at https://studentloans.gov/myDirectLoan/repaymentEstimator.action#.

**Figure 12.** Federal Income-Driven Repayment Plan Payment and Term Details.

The decision I utilized to determine the four options for participants to choose from was similar to the Decision Model used to access the ten options available despite slight differences. I considered the Forbearance Warning each time due to the capitalized interest that gets added to the loans and the larger overall cost to the loan. The Forbearance also has a larger payment that borrowers can expect after they postpone their payments for three years. The Social Norm was also always the Standard Repayment plan in this study, as it is statistically the most selected
option. So, the decision came down to selecting the Default and Alternative option shown in Figure 13.

As shown above, the Defaulted option was first selected from the Income-Driven Repayment options. For those who did not qualify, the decision was made by choosing one of the other options based on the decision model. All possible Default Options are shown with a green arrow. Those best suited for the alternative option are shown in Yellow. As stated, the Warning option is always the Forbearance option shown in Red and the Social Norm option, which is the Standard Repayment option, is shown using the Blue arrow.
A specific algorithm was used to determine which of the options shown in green or yellow would be selected based on the borrower’s needs, shown in Figure 15 below, upon plugging the details into the Income-Driven Repayment plan. This calculator is how I decided which option would be the default option and the alternative option. This calculator was used alongside the government calculator (the government calculator is where I determined the details for each option including eligibility). As shown in my previous decision model, once I determined what options were available upon key decisions that needed to be made, I broke down the options based on what the borrower was eligible for. A prime example is seen by reviewing interview 0014 (found in section 7.1.2). I selected the REPAYE option because of the total cost, monthly payment and loan term. As seen on the decision selection calculator in Figure 14 below, I equally weighed all three items while the final payments did not matter, so they were given a weight of 0. The REPAYE is given as the best option.

![Table and Graph]

**Figure 14.** Decision Selection Calculator Example 1.

When determining the alternative payment for this participant, I changed the weight of the initial payment and final payment to one while giving the total cost and loan term a weight of zero. The calculator reflected the best option to be the ICR payment option. In this case, it is important to only look at the payment the participant will make. By concentrating on the
payment, the participant can see a discount but generally will not see a lower term or total cost.

This option is not great compared to weighting those options into the calculations. The calculator shows ICR as the best alternative as shown in Figure 15 below:

![Figure 15. Decision Selection Calculator Example 2.](image)

This Decision Selection calculator can be adjusted based on the biggest concern from the borrower. A good example is if the borrower is equally concerned with the initial payment, the loan term and the total cost. In this case, I weighed the initial payment as 1, the total loan cost as .5 and the loan term as .5. The calculator displays the best option is the REPAYE. Though the payment is higher, the second biggest concerns are better options. The initial payment is higher at $94 versus $71. However, the total cost is lower at $13,600 vs. $17,158 and the loan term is shorter at 103 months to pay in full versus 215 months to pay in full, making REPAYE the better option.
<table>
<thead>
<tr>
<th>Additional/Concerns</th>
<th>Total Loan Cost</th>
<th>Loan Term</th>
<th>Initial Payment</th>
<th>Final Payment</th>
<th>Total Loan Cost</th>
<th>Loan Term</th>
<th>Initial Payment</th>
<th>Final Payment</th>
<th>Total Loan Cost</th>
<th>Loan Term</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>ICR</td>
<td></td>
<td></td>
<td></td>
<td>IRR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimum Initial</td>
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<td>Minimum Final</td>
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</tr>
<tr>
<td>Minimum Total</td>
<td>N</td>
<td>N</td>
<td>N</td>
<td>Y</td>
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<td></td>
<td>X</td>
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<td>X</td>
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</tr>
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<td>1.323945863 X</td>
<td>1.208089076 X</td>
<td>X</td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

*Weight amount changes based on which criteria is biggest concern.*

**Figure 16.** Decision Selection Calculator Example 3.
CHAPTER SEVEN:
IMPLEMENTATION

With assistance from Jung C. Park, Ph. D., I invited 41 Muma College of Business students to participate in the research study. All students from the FIN3604-001 International Finance class were included and given the opportunity to participate. Those who wished to participate were given ten credit points towards their upcoming exam. I tested if a nudge to choose repayment options I had selected (available through the federal programs) would show that a participant with student loans would make a selection based on a nudge. The participants took a pre-screening to assist me in determining which survey and interview questions to ask. The pre-screening questions were made available to them in their class module once they consented to participate in the study. There were two different interview options depending on the responses to the pre-screening. Those who did not have student loans were limited to only three questions and were not provided with survey questions or artifacts. Those with student loans had a total of 21 interview and survey questions along with the artifact that was provided to assess their options (See Appendix A and Appendix B). All participants were provided with a link to the consent form and the system stated that by continuing to the pre-screen document and scheduling an interview indicated they had read and agreed with the terms of the consent form (See Appendix c). The participants were then directed to schedule an interview time by using a Schedule Once system link provided to the participants in the classroom module. They were informed to bring their student loan balance and income details to the interview (if applicable).
The participants needed to have internet access at the time of the interview and were told to expect the interview to take approximately 30-45 minutes.

At the time of the interview, participants with student loans were asked details about their loans, including their estimated student loan balances along with their most recently filed yearly income and/or expected income for the year and their family size (including their tax filing status). They were also asked whether the company they work for was a non-profit, government or state organization or if they work in the private sector. This information was used to determine their potential eligibility for public service loan forgiveness. None of the descriptive details that connected a participant to the survey and interview questions was kept after the call. The only retained data was the participants’ artifact and answers to survey/interview questions. The participants were asked questions that included different types of nudges based on the nudge theory. These questions incorporated different aspects that tested how the participant made their decisions based on the options made available to them using 3 of the 10 common biases (Sunstein, 2019). These biases include:

1. Default Rules
2. Warnings (Bold/Large Font)
3. Social Norms

It is important to note that since the participants were current students and not in repayment on their student loans, their future options and repayment amounts differed from the options given during the survey, which is due to balance increases, family size and filing status changes along with income changes once they enter repayment. The repayment programs are also subject to change based on government regulation changes. Therefore, there is no possible harm to the participant or potential future harm due to the selections made in this research study.
The participants were interviewed on Zoom while answering live survey questions through the Poll Everywhere software tool where the survey questions were presented. A descriptive analysis was used to determine the percentage of those who were nudged based on one of the three biases. I was able to determine which nudge was most effective, leading to a better understanding of how student loan borrowers make decisions and whether this decision is consistent with other types of borrowers who make financial decisions. The descriptive analysis was calculated by using t-statistics to determine the simple mean difference. A qualitative assessment was also completed that examined each nudge that was selected or not and why the participants believed they made their selection, therefore basing the analysis on their assessment of their behavior (Hypothesis 1-3). The qualitative assessment was helpful in determining not only what the participants understand about their debt, but also what they perceived their needs to be regarding payment of debt.

Detailed information was gathered from the borrower and was plugged into the Federal government’s public calculator (found at https://studentloans.gov/myDirectLoan/repaymentEstimator.action), which provided me with the various repayment options the participants qualified for (See Sample calculator in Appendix F). I presented the different options to the participants by using the Zoom software system that allowed me to share my screen and give them time to review the options available to them.

Figure 17. Testing Biases and Nudges.
Model 3 shown in Figure 17 above shows there are three main decision biases that I have determined cause borrowers to make ineffective repayment selections on their student loans. Because of these biases, they tend to select options that cost them more money over the life of the loan. These biases include the Default Option bias, Warning bias, and Social Norm bias. Because we recognize these biases exist, there is a way to utilize the bias through nudging to gain a more advantageous result. This model shows that we looked at three main biases and determined which bias was used more than others. This insight allows us to decide how we could change the way we nudge borrowers into making a more effective repayment plan selection. Because the Default Option nudge was the most commonly used way to nudge the borrower into a better plan, it would be suggested to be used to generate a bill to the borrower instead.

**Interview with Student Loans**

Initially, it was expected the selected participants from the International Finance class would have a higher percentage of students with student loans. It was also expected that each student loan balance would exceed $10,000. My additional assumptions were that most students would select the Default option either because it was the lowest payment or it was the option selected by the expert. I also believed that the warning option would not be selected, but not because it was warned against. Finally, I did not feel the social norm factor would be influential in the decision-making process.

With these initial expectations and hypothesis in place, I created a process to collect the necessary data from the participants. This process started by announcing an opportunity to gain ten credit points in Professor Jung Park’s class if the student was willing to participate. I went to the class and made this announcement myself by giving a basic background of student loan debt
in this country and the importance of the study. First, before they could participate, each student had to read the consent form provided through their online school portal. They were then given two preliminary questions to answer which included:

1. How did you/are you financing your education at USF?
   a. Parents
   b. Scholarship/Grants
   c. Student loans
   d. Cash/Paying out of pocket

2. Are you currently working?
   a. No
   b. Yes/Part-time
   c. Yes/Full-time

Once these questions were answered, they were saved in a spreadsheet that was downloaded and shared to me from Professor Park. The students were also able to move on from that point and click on my calendar scheduling link to schedule their interview at a convenient time for them.

On the day of the scheduled appointment, I emailed the student with the Zoom login and password, so they were prepared for the interview. They could use their mobile device or laptop for the interview. They did not have to have the camera on if they chose not to, and it was not asked of them if it was not mentioned or on at the time of the interview. Each interview began with going over the previously asked preliminary questions to ensure I had the correct information, which is where I first determined a glitch in the question link. Participants were only given the option to select one choice for question one, but I determined they may have had several options for that answer. One student stated they chose the option they utilized the most, although they still had student loans which did not reflect in the data. This issue was brought to the attention of Professor Park who fixed the option by allowing for multiple selections.
There were four initial interviews with students with student loans; they were provided with real options based on their responses. Below is an example of three of the four interviews that include the responses to the qualifying factors, the options provided to them, their selection and their responses to the survey questions.

**Interview 0012**

- This participant has $7,740 in Federal student loans.
- They are currently working PT with a current income of $15,000 and expected income of $33,002 when graduated.
- They are single with no kids.

Based on the information provided above, they were given the following options:

- Default Option: $121 Monthly Payment/$9,143 Total Cost/64 month Loan Term
- Alternative Option: $57 Monthly Payment/$12,371 Total Cost/197 month Loan Term
- Warning: $0 Monthly Payment/$12,203 Total Cost/123 month Loan Term
- Social Norm: $86 Monthly Payment/$10,312 Total Cost/120 month Loan Term

**Option Explanation**

- Option 1 is the REPAYE program which was selected because of the low monthly cost, total cost and short term.
- Option 2 is the ICR (Income-Contingent Repayment) option that was selected because of the even lower monthly payment; however, it was chosen as the alternative due to the higher total cost and longer loan term.
- Option 3 is the forbearance option that allows for zero payments for 3 years; however, it has a high total cost.
Option 4 is the Standard repayment option that is calculated based on the balance times the rate times ten years.

Options 1 and 2 always varied depending on what the borrower qualified for; they varied from IBR, PAYE, ICR and occasionally Graduated Repayment based on the income, family size and student loan balance factors. For this participant, I selected the Repay option over the ICR option because the loans would be paid off faster with a smaller amount paid over the life of the loan. Since the payment amount to gain these two benefits is still reasonable by most standards, it was the best choice. The ICR option was a close second in comparison to the other options available and was selected as the alternative option.

Options 3 and 4 were always selected for each participant because the Forbearance option is generally a high cost option due to no payments being made for three years with the interest then capitalizing on the balance and new higher payments (being higher than what they initially would have been) after entering repayment. Because of Option 4 being the social norm option, the standard repayment option was always chosen because that is the most selected option by student loan borrowers based on current data.

Participant 0012 selected Option 1. The participant stated this selection was made because, “…it's a grand difference between that and the second lowest” (Participant 0012, personal communication, October 17, 2019).

In the survey responses, it was shown that he/she believed the Default option was the best choice for his/her needs, but also felt that it being the default had some effect. The participant also believed knowing other borrowers made the social norm selection impacted how he/she made their decision. Finally, the Warning nudge was impactful enough to keep the participant from making that selection.
Interview 0014

Participant 0014 did have student loans, so I was able to assess their options based on the details they provided.

- This participant has $10,300 in Federal student loans.
- They are currently not working so have an income of zero and an expected income of $30,000.
- They are single with no kids.

Based on the information provided above, they were given the following options:

- Default Option: $94 Monthly Payment/$13,600 Total Cost/127-month Loan Term
  ($14,740 in potential forgiveness)
- Alternative Option: $71 Monthly Payment/$17,158 Total Cost/215-month Loan Term
- Warning: $0 Monthly Payment/$16,239 Total Cost/123-month Loan Term
- Social Norm: $114 Monthly Payment/$13,722 Total Cost/120-month Loan Term

Option Explanation

- Option 1 is the REPAYE program, which was selected because of the low monthly cost, total cost and short term. This option also allows for forgiveness of the loans because of the current income of zero.
- Option 2 is the ICR (Income Contingent Repayment) option that was selected because of the even lower monthly payment; however, it was chosen as the alternative due to the higher total cost and longer loan term.
- Option 3 is the forbearance option that allows for zero payments for three years, however, has a high total cost.
Option 4 is the Standard repayment option that is calculated based on the balance times the rate times ten years.

For this participant, I selected the REPAYE option over the ICR option because the loans would be paid off faster with a smaller amount paid over the life of the loan. Since the payment amount to gain these two benefits is still reasonable by most standards, it was the best choice. Factoring in the ability to gain forgiveness makes the REPAYE option the most appealing. The ICR option was a close second in comparison to the other options available and was selected as the alternative option if the borrower wanted to choose it for the lower payment.

Options 3 and 4 follow the same standards as Interview 0012.

Participant 0014 selected Option 4, which was the Social Norm option for their choice. Based on the survey question, the participant felt the Social Norm option was the best option for his/her needs. The participant wanted to pay his/her debt off faster and felt the Social Norm option was the best because most borrowers select that option.

**Interview 0016**

Participant 0016 did have student loans, so I was able to assess their options based on the details they provided.

- This participant has $11,000 in Federal student loans.
- They are currently working full time making $80,000 per year.
- They are single with 1 child.

Based on the information provided above, they were given the following options:

- Default Option: $511 Monthly Payment/$11,600 Total Cost/23 month Loan Term
- Alternative Option: $116 Monthly Payment/$14,732 Total Cost/120 month Loan Term
- Warning: $0 Monthly Payment/$17,343 Total Cost/123 month Loan Term
- Social Norm: $122 Monthly Payment/$14,655 Total Cost/120 month Loan Term

Option Explanation

- Option 1 is the REPAYE program, which was selected because of the low total cost. Although the payment was higher, the high income of the participant made it a reasonable option. It also was a great option because the balance could be paid in full in 23 months.

- Option 2 is the ICR (Income Contingent Repayment) option that was selected because of the even lower monthly payment; however, it was chosen as the alternative due to the higher total cost and longer loan term.

- Option 3 is the forbearance option that allows for zero payments for three years, however, has a high total cost.

- Option 4 is the Standard repayment option that is calculated based on the balance times the rate times ten years.

  Participant 0016 selected Option 1, which was the Default option for their choice. The interview responses showed the defaulted option had some effect on his/her decision; however, the participant felt it was the best choice. This participant believed that his/her peers making a selection had no effect on his/her decision. The participant did not select the Warning option because he/she was warned that it would be more costly to do so.

Participant Demographics

There is a possibility that the gender of a participant can influence whether they take out loans or not. It also seems possible that whether the student was working or not could lead to taking out loans or paying cash out of pocket. Since we know all the participants are in the
International Finance class, it could be possible that their knowledge of finance affects whether
the student took out loans or not.

Table 5. Participant Demographics.

<table>
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<tr>
<th>Participants</th>
<th>Gender (M/F)</th>
<th>Student Loans (Yes or No)</th>
<th>Currently working (Yes or No)</th>
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<tr>
<td>5</td>
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</table>
As shown in the Demographic Table 5 above, a total of 25 males and 16 females were interviewed. Only nine of the participants had student loans with 32 not having any student loan debt. Twenty six of the participants worked at least part time with 15 not currently working.

**Redesign of the Experiment**

I learned during the first 22 student interviews only four of the participants had student loans. One of which had under $10,000, and although the other three were over $10,000, it was not by much. Also, the income of each student borrower played a significant factor in the repayment options available. Their income either made their payment options very low because their income was low or, in one case, did not allow many reduced payment options due to a higher than average income. In light of this information, it was vital that I adjust how I gathered information going forward to get clearer, usable results.
The Elaborated Action Design was useful because it was important to go through an additional design cycle of my artifact for gathering data to get results that would be valid for what I was researching. This need was determined after my first artifact of gathering data was created, and as I began the interviews, I was able to analyze the reality that the initial design would not provide the needed results. It would not be unreasonable for it to take several iterations for the proper artifact to be created in this scenario.

Based on the limited amount of student loan borrowers, I decided it was best if I allowed each participant to make selections from the Mock Artifact. Because of the ever-changing balances the student would potentially see in the future, the research was not adversely affected if the participant made a selection based on what they would do if they had such balances and repayment options (in a hypothetical sense). In fact, it allowed for more accurate data as all the options remained the same for each participant going forward, which allowed me to test on clear fixed data without the concern that different amounts for each option could provide for a different reason of selection for each participant. For example, if one participant is given a $50 default payment option, a $60 alternative payment option, a $0 warning payment option, and a $110 social norm payment option, there would not be enough of a difference in the monthly payment to be a factor, which could mean the participant made a choice based on a different criterion, like total cost or the loan term (how long it would take to pay the debt off). However, someone given the default payment option of $200, the alternative payment option of $50, a $0 warning option, and a $400 social norm payment option may find the monthly payment criteria more important than the previous participant. Changing the process of how I gathered the research data fixed this problem.
The 19 new participants were asked the preliminary questions again to ensure I understood if they had student loans or not. I also asked how much their education cost per year. I was given a wide variety of answers with many participants unsure of the answer. I also asked if they were working. In Zoom, my screen was shared with them showing the Mock Artifact (shown in Appendix E Participant Artifact). This artifact used the same repayment options for each participant.

Option 1 is the PAYE option, which is a new option made available in 2012. It allows for a borrower to pay back student loans based on 10% of his/her discretionary income after considering loan balances, family size and the poverty line. This payment plan has a cap regardless of how high the income is. It also allows for forgiveness after ten years for those who work in the Public Sector (i.e. government, state, non-profit) and forgiveness for everyone else after 20 years.

Option 2 is the Graduated payment plan. This plan allows for interest-only payments for the first two years followed by a standard repayment that still has the loan repaid in a 10-year time frame. It is an easier option to achieve than option 1 because it only requires a phone call with no additional income verification or a yearly renewal process.

Option 3 is a Forbearance for three years. Although this options allows for zero payments for the first three years, it costs the borrower more in interest. This plan is best for someone investing in paying back higher interest debt or building a wealth structure that will have a higher yielding return and supersede the interest cost on the student loans.

Option 4 is a Standard repayment plan. This plan is currently the most utilized option (see Figure 1). I believe this is due to the plan being the automatic option the borrower is entered into when they must begin repaying their loans. It is not based on income factors nor does it allow for
forgiveness. It is a simple interest payment based on the balance, rate and term of the loan. The Standard repayment plan is the plan all students are defaulted to upon graduating.

During the interview process, the participants were given a minor description of each option and were requested to answer the question based on how they would make their selection if in repayment. Once they told me which choice they preferred, they were given a different link called The Student Loan Repayment Selection Survey II, which had all multiple-choice questions. The multiple-choice questions allowed me to determine the reason for their selection and whether the nudges influenced their decision.

**Research Expectations**

Going into the study, I had certain expectations of the participants and their selections. As previously mentioned, a big expectation was that more students would have student loans and their balances would exceed $10,000. I expected most students to select the Default option (Hypothesis 4). I believed they would select that option because of the lower monthly payment plan and forgiveness potential. I also expected the participants would select the option because it was pre-selected for them as the Default option by an expert (Hypothesis 1). I believed the Warning option would be avoided with the expectation that a few people would still select it as it gave the option to allow three years with no payment (Hypothesis 2). However, I did not believe it would be avoided because of the warning. I also did not expect participants to select the Social Norm option simply because most people with student loans tend to do so. Therefore, they would avoid that option because the monthly payment amount was so much higher than the other options (Hypothesis 3).
CHAPTER EIGHT:
RESULTS AND IMPLICATIONS

My research poses many implications to research, policy (government) and practical use within my industry. My hypothesis allowed me to research and answer key research questions that looked at how student loan borrowers make decisions on their repayment selection and how nudging could be used to aid them in making better repayment selections. By utilizing an EADR process and creating two key artifacts, I was able to test and determine these implications.

Research Implications

Although no research exists that shows nudging used to assess the likelihood of a better repayment selection for student loans borrowers, my results support this theory as a suitable one to understand the student loan phenomenon. Much research has been done to explain decision bias and nudging strategy but also can be used to assess what many consider to be a very serious financial issue within the United States. If nudging can be used to contribute to better results in repayment selection, a drastic decrease in default and repayment hardship can be seen in later years. When the Elaborated Action Design Research (EADR) Methodology is incorporated, a process to diagnose, design and implement a new means of getting student loan borrowers to make better repayment selections is created. As this process is utilized, much can be learned from each stage of the cycle and our design can be adjusted to incorporate new findings. The important consideration of using the EADR methodology is the ability to bridge the gap between the practitioner’s process and utilizing academic theory to gain insight for better results.
My hypothesis results laid out below can show how research questions can be developed to utilize the EADR process and Nudging theory when researching student loan repayment issues and options for making positive change in policies and procedures.

**Hypothesis 1 Results**

Based on the results, Hypothesis 1 (Expert suggestion of the Default option would impact a borrower’s selection of that option) was supported by the research Survey question number 8 asked, “What was the reason for the choice you made?” 5% of participants stated it was because they trust the researcher who chose the Default option to know what is best for them. However, similar to question 8, question 9 was, “Why did you select the Default option?” When given the option of it being due to trusting the researcher to know what is best, 0% made that selection. This result leads me to think there may have been a slight belief that because I chose the first option, it was the best option, but more research would be needed to provide a more definitive answer to this question.

**Hypothesis 2 Results**

In Hypothesis 2, I believed a highlighted warning alone would not preclude a respondent to select the option as the best option for them. However, my research did not support this hypothesis. Most participants who did not make the selection believed the warning was the reason for not doing so (42%). Because there was an opportunity to postpone payment, I believed a few people would make that selection. During the interviews, one participant claimed he/she would potentially make the selection, but he/she selected Option 4 as the first choice.

**Hypothesis 3 Results**

My third Hypothesis was that Social Norms (what other borrowers in repayment select) would not impact the decision process. Although only 11% of the participants who selected
Social Norm stated they assumed it was the best choice because most borrowers choose that option, the research does not support my hypothesis and rather shows there was some impact of social norm.

These first three hypotheses answer RQ1 which is, “Why do individuals with student debt not make effective selections of repayment programs? What are the behavioral barriers that preclude good decision-making?” As discussed throughout this research study, some major behavioral barriers to good decision-making is people make decisions based on other factors that may not have anything to do with the question at hand. This approach can include making a selection because it is the Default option, not selecting something because they were warned against doing so or selecting an option because others in a similar situation have made the same selection. In the first three hypotheses, I determined if any of these barriers could be found being used to make a selection. All three of these biases were seen to be used in making selections, which could be barriers to making effective selections. These biases can also be used to help borrowers to make better selections by generating choices that are in their best interest (choice architecture).

**Hypothesis 4 Results**

In my fourth Hypothesis, I believed a greater number of respondents would select the Default option, and the research supported this hypothesis. Nine of the participants selected the Default option while only five selected the Alternative option; zero selected the Warning option and only five selected the Social Norm option.

The testing of the fourth hypothesis also helped to answer RQ2, “What design for a decision-making artifact based on nudging theories could be effective to enable individuals to make better repayment decisions?” What can be learned from this research is the Default option
remains the most selected option, which is currently also the case in the student loan industry. Research has proven people have a tough time making complicated decisions. Although the Default option was a good decision based on the terms and potential savings, a fair percentage of participants stated their decision was affected by the automatically selected option.

Upon having given the 19 participants the mock artifact to evaluate, they were told to select what they believed to be their best option. They had four main options as discussed above to choose from: 1) Default option 2) Alternative option 3) Warning option and 4) Social Norm option.

It is research worthy to note that only nine out of the total 41 (22%) USF students I interviewed had student loan debt, which is below the average at USF. According to recent statistics, 52% of USF students have taken out student loans with the average student borrowing $21,565 (Lendedu, 2019). Therefore, the students I interviewed do not match the average student at USF. Also, the few with student loan balances stated balances much lower than the school’s average borrowed amount of $21,565. Because of the unexpectedly low number of students with student loans to perform the planned assessment, it was necessary to give all of the remaining scheduled interviewees the opportunity to provide their feedback on which options they would select as if they were in that situation.

It is also interesting to note that of the four borrowers who were given actual revised options based on their information for their student loans, two selected the Default option. Just like the hypothetical participants, this option was most selected. There was one selection for the alternative option and one selection for the social norm option. Again, like the hypothetical group, no one chose the Warning option, which is the Forbearance option allowing for three years of no payments but higher overall costs.
Table 6. Results for Participants with Student Loans.

<table>
<thead>
<tr>
<th># Selected by Participants</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Default option</td>
</tr>
<tr>
<td>1</td>
<td>Alternative option</td>
</tr>
<tr>
<td>0</td>
<td>Warning option</td>
</tr>
<tr>
<td>1</td>
<td>Social Norm option</td>
</tr>
</tbody>
</table>

T-Test Result

In this section, I conducted a quantitative analysis to explore two questions. First, I examined whether each option chosen by respondents is statistically meaningful. Assumably, each of four options in the pool took an equal weight (25%). Consequently, the proportion of each option was compared to the expected proportion. Second, as addressed in H4, most respondents were expected to select the Default option over other nudges. To test the hypothesis, I examined whether the proportion of Default option was statistically greater than those of other options.

As previously stated, among 19 students, nine students chose the Default option, and the proportion (47%) was substantially higher than 25% as reported in Table 7. In a one-tailed t-test where the tested hypothesis was that the proportion of Default option (47%) was greater than 25% in the sample of 19 students, the null hypothesis (i.e., 47% ≤ 25%) was rejected with a 96% possibility.

Table 7. T-test of Default Option (STATA Result).
Both Alternative and Social Norm options were chosen by five students. The proportion (26%) was close to the equally distributed portion (25%) and the difference was statistically trivial and can be ignored (see Table 9). The third option (Warning) was not tested because no students picked.

Table 8. T-tests of Alternative Option and Social Norm Option (STATA Result).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td>social-m</td>
<td>19</td>
<td>.263158</td>
<td>.103790</td>
<td>.452414</td>
<td>.045101  .4812144</td>
</tr>
</tbody>
</table>

mean = mean(socialnorm)

Ho: mean = 0.25
degrees of freedom = 18

Ha: mean < 0.25
Ha: mean != 0.25
Ha: mean > 0.25
Pr(T < t) = 0.5497
Pr(|T| > |t|) = 0.9005
Pr(T > t) = 0.4503

Next, in order to test H4, the proportion of Default option was compared to those of other options. Note that two tests between Default option and two other options (Alternative and Social Norm) were identical because these options were picked by five students. In Table 9, the difference in two proportions (47% vs. 26%) was statistically significant at the 10% level in the one-tailed t-test, indicating that a greater number of respondents would select the Default option versus the other nudges.

Table 9. Mean Difference Tests between Default Option and Other Options (STATA Result).

<table>
<thead>
<tr>
<th>diff</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. Err.</th>
<th>Std. Dev.</th>
<th>[95% Conf. Interval]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>19</td>
<td>.473684</td>
<td>.117688</td>
<td>.512989</td>
<td>.226431  .7209371</td>
</tr>
<tr>
<td></td>
<td>19</td>
<td>.263158</td>
<td>.103790</td>
<td>.452414</td>
<td>.045101  .4812144</td>
</tr>
</tbody>
</table>

combined | Obs  | Mean   | Std. Err. | Std. Dev. | [95% Conf. Interval] |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>38</td>
<td>.368421</td>
<td>.079302</td>
<td>.488851</td>
<td>.207739  .5291025</td>
</tr>
</tbody>
</table>

diff = mean(x) - mean(y)
t = 1.3416
degrees of freedom = 36

Ha: diff < 0
Ha: diff != 0
Ha: diff > 0
Pr(T < t) = 0.9005
Pr(T > t) = 0.0941
Hypothesis 5 Results

My final hypothesis 5, “Building a Student Loan IS using nudges provides an assessment tool for decision-making,” was answered throughout the creation of both artifacts. This result answered RQ3, which questioned how a student loan repayment Information System (IS) would be built and evaluated with nudges. The first artifact was utilized to answer this question by creating a process to gather data and evaluate how borrowers potentially make selections and what behavioral barriers exist in their selection process, which was done through the nudges created and survey questions asked to determine which of the bias nudges proved to be effective in some way. The additional artifact (Decision Model) allowed for a way to analyze and assess what decisions go into the repayment selection that is best for them.

Interpreting the Results

Of the 19 Hypothetical interview results, nine participants selected the Default option. Nine participants selected the Alternative option. Zero participants chose the Warning option. Five Participants chose the Social Norm option.

Table 10. Results for Hypothetical Participants.

<table>
<thead>
<tr>
<th># Selected by Participants</th>
<th>Options</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Default option</td>
</tr>
<tr>
<td>5</td>
<td>Alternative option</td>
</tr>
<tr>
<td>0</td>
<td>Warning option</td>
</tr>
<tr>
<td>5</td>
<td>Social Norm option</td>
</tr>
</tbody>
</table>

The survey questions each participant was given after making each selection provided more background and explanation into why they made the selection they did. The full results can be found in Appendix H. Some key points I want to address is why they made their selections and what factors were involved in their decisions. Twenty six percent of the participants believed
the Default option made the most sense, and 61% based their decision on how quickly they could pay off their debt. I originally expected a higher percentage of participants to choose the Default option simply because it was the Defaulted option, but 74% of participants stated they choose it because it was the best choice for them. Only 42% felt there was some effect to the option being automatically selected.

An interesting determination was that those who chose the Social Norm option did so because they were told most people with student loans choose that option. Twenty six percent felt that reason had some effect, and 21% felt it had a major effect on their decision. Forty seven said they would have chosen the Social Norm option if the option they selected was not available. Seventeen percent of those who choose the Social Norm option stated they did so because they could afford the payment and felt it was the best option; however, the payment of $1,110 far exceeds the payment for the Default of only $261 and the Alternative option of $635.

No one selected the Warning option, and surprisingly, 37% of the participants stated this non-selection was because they were warned it would cost more. The Warning option showed a much larger total cost over the life of the loan at $157, 664 compared to only $118, 034 with the Default option, $142, 120 with the Alternative option and $133, 225 with the Social Norm option. However, in my experience many graduates take up to three years of time off from making payments on their loans after graduating, which could be due to procrastinating and partially due to being unaware of the increased total cost they will amass. It also may be from being unprepared to start making payments after graduating because of other household expenses or debt. Additionally, it could be an acceptable option for those who know their income will be much higher in the future.
**Practical Implications**

Viewing this research from a practitioner standpoint, the data collected shows an opportunity to solicit to student loan borrowers by creating a similar nudge tool that allows them to see the best repayment option while allowing the practitioner to implement the repayment plan on their behalf. This structure would remove the extra steps required to gain some of the options available, including the Defaulted option used in the Mock Artifact. If borrowers were more aware of the different repayment terms, they would be more willing to make the necessary changes. From working within the industry, I found that although most borrowers are aware of the repayment program they should be in, they are reluctant to apply because of the time it requires to get into that repayment program, which leaves practitioners with the ability to market to those in need to not only provide the tools (as researched in this study) to determine the best repayment option for their needs, but also to draw them in by providing the required completed documents to lessen the burden on the borrower. In consideration of this opportunity, my research can be used in development and training sessions with other practitioners along with seminar sessions to aid practitioners in using this research to advance their businesses. This information also gives them new marketing strategies and ways to entice new clients to use their services, from showing clients the best repayment strategy to giving them a solution to achieve that strategy.

Based on the results from my research analysis, I suggest a new way to create and produce student loan repayment bills to borrowers. This new flow considers the importance of the Default Bias while utilizing the different government regulated options to ensure a borrower is given the best Default selection.
Figure 18. Suggested Repayment Plan Flow.

As shown above in Figure 18, my suggested repayment plan flow includes the servicing company gathering the financial details from the borrower first and then sending them a bill with the new defaulted option selected, which would be one of the ten options based on the income, family size and student loan balances of the borrower (the government already has a calculator available to determine which options they qualify for as well as the payments and terms). If borrowers pay the bill as is, they will be in the best payment plan available for them. If they decide to view additional options, they could still do so by contacting their servicing company and would be given the alternative option; they would be warned about a costly option and given an option based on what the majority of their peers have selected. This option could even be given to borrowers at the bottom of their statement, allowing them to change from the Default option to select one of the other options if they chose to do so. Borrowers would still be able to ignore the bill completely and could end up delinquent on the loans. With the Default option already being the ideal option for their situation, I suspect it would be less likely.

Implications for Decision Selection Algorithm Calculator

Incorporating the use of the Decision Selection Algorithm Calculator further enhances the decision process for the repayment selection of student loans. My suggestion for the calculator would be to use it alongside running the calculations to determine the plan for which a
borrower qualifies. When borrowers are close to graduating, they should be provided with a form requesting information that would include the financial details to see if they would qualify for one of the income-driven repayment plans or forgiveness. Their qualifying options would be entered into the Decision Selection Algorithm Calculator. They also would be asked to rank the current importance (their immediate needs) of the following options:

- Reducing the Monthly Payment
- Paying off the Loan Faster
- Saving on the Total Loan Cost

They would have the ability to state they are not concerned with one or all the options. Also, they could rank some or all the options as having the same importance. An example of how their selections would be calculated could be if a borrower who believes that reducing the monthly payment is the current concern, he/she could list that option as one, and it would be entered as one in the Decision Selection Algorithm Calculator. If borrowers did not have any concern for the other two options, they could enter zero, and it would be entered as zero in the Decision Selection Algorithm Calculator. If they felt paying the loan faster was not a concern but the total loan cost was a secondary concern, they could enter two. An entry of two would be calculated as .5 in the Decision Selection Algorithm Calculator. The best result based on the findings then would be provided to the borrower as the defaulted option. The additional (second and third best option) also would be included to allow borrowers to make the selection they feel is best for them.

**Policy Implications**

The government can use a similar process to assess the best way to nudge student loan borrowers into making better selections. Much backlash exists from borrowers and citizens
claiming that the government is fraudulently mismanaging student loan accounts. So, by extending my research, the government can look at an Elaborated Action Design to nudge the more than 44 million borrowers into much better repayment plans than they are in currently. This nudge can effectively save a borrower’s money and keep some out of default when more advantageous options are available. Current research shows that one in four student loan borrowers default on their loans (Min, 2019), which could be avoided if borrowers understood their repayment options and made a better selection. The government’s use of such an artifact as laid out in this research would allow for these better selection opportunities.

The current model of sending out standard repayment statements should be changed to automatically consider borrowers’ qualifying details following the decision model in this research. Providing borrowers with a statement that allows for the best repayment plan option for them makes the decision of which option would be best a more simplistic process. The statement would be more structured like a credit card statement. I suggest the following be reflected on the new student loan statement.

- Current balance, interest rate and term plainly visible
- Payment due (based on best calculated repayment plan)
- Instructions explaining requirements of repayment plan (i.e. if it is an income-driven plan, it would require tax documents to be submitted)
- Breakdown of other repayment options showing comparison of the monthly cost, total cost and loan term (length of time it will take to pay)
- Explanation of possible forgiveness and requirements for each forgiveness type (i.e. public service loan forgiveness would require the person work for the Government, State,
Non-Profit, etc. to qualify. They also would have to be in one of the Income-Driven Repayment plans)

- Provide an option for borrowers to pay more than the required payment which will go towards principal (upon the total required interest amount for the month being paid)

The statement changes would be a policy change enforced by The Department of Education and required to be implemented by hired servicing companies. There would need to be stricter punishments for servicing companies that do not provide the new statement and do not properly calculate the best repayment plan for the borrower.

Changes to the statement sent to the borrower would not require any changes to the current repayment options but would ensure the borrower is given a better tool for entering the right repayment plan. However, it would require the servicing company to gather all the required information from the borrower prior to the payment being due, which could be done when the borrower completes his/her exit counseling. This counseling is required for each student to graduate who has student loans. Exit counseling is a quiz that gauges how much students understand about the loans they took out and the repayment options available. This juncture would be the perfect place to ask for tax information and additional details to calculate the best repayment plan and have the plan automatically implemented on the first bill.

Additional policies should be considered to add the Decision Selection Algorithm Calculator to the repayment plan selection process. Upon following the initial steps to gather borrower information and determine qualifications for the different repayment plan options, borrowers also should be asked what their biggest current concerns are with handling their student loans. When included in the government policies and requirements of the servicing company, the calculator can ensure a standard calculation exists for determining the default
repayment plan option. This policy change would be given to all federal loan servicing companies with hefty penalties for not training and utilizing the calculator as requested. Once the policy is fully implemented, student loan borrowers could be confident in knowing their statement reflects the most advantageous student loan repayment plan with their concerns in mind.
CHAPTER NINE:

CONCLUSION

In this research, I introduced the use of Elaborated Action Design research in creating an artifact to first gather data for my research and another artifact to test the effectiveness of nudging in the student loan repayment selection process. This research methodology offers great value to improving financial service models for student loan repayment processes that can be used within other debt repayment management industries and be a potential resource to government regulation changes in the future. My research sought to determine if there was a way to create a tool that could evaluate how student loan borrowers make their repayment selections and how a tool could be used to nudge them into making a better choice. Understanding the effect of biases on people’s decision making was important in helping to create the artifacts and nudge the participants.

I followed four main approaches to my research:

1. Testing students in the USF Muma College of Business to determine if a small nudge can be used to create a big impact

2. Creating a nudge that allows for large savings to the amount borrowers pay back on their student loans without taking away their other choices to make a different decision

3. Taking a Design Research approach to determine which nudge works and which does not by doing a quantitative assessment of the choices made and why
   
   a. Utilizing design principles that theorized which nudge tools would be most beneficial to the borrower
b. Creating a tool with different nudge options and determining how the user would react to the process of selecting the options on the tool and their candidness when answering interview and survey questions

c. Determining awareness of options to see which nudge(s) had an impact in influencing the option selected and why

4. Taking an Action Intervention Approach by analyzing whether the students understood and utilized the tool to make a more informed decision of their potential options and choose an option most financially beneficial to them

The nudging theory used to determine ways to get borrowers to make better choices was important in the process of this research. By learning how people can be nudged, it allowed me to create an artifact to not only test the nudge, but also to use the nudge to assist borrowers in making a more effective repayment plan selection.

It was also important to confirm the Default option was the most selected and was shown as statistically significant. Therefore, the nudge appears to be successful, which means this way is effective to nudge borrowers into a repayment plan selection as expected. Forty seven percent of participants made that selection, which was an Income-Driven Repayment plan while data shows only 28% of borrowers are in some type of Income-Driven Repayment plan. What was not expected was the lack of any participants selecting the option that they were warned against, despite it being appealing to postpone payment for three years. It was also surprising that some chose the Social Norm option despite the higher payment because their peers chose the option. This result shows the power in believing an option is a good one because other people in a similar situation chose the option. Twenty six percent of the participants chose the plan (which is a Standard Repayment plan) while the national average is 50%.

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This information can be used to ensure student loan borrowers make better repayment plan decisions in hopes to reduce the financial burden of paying back student loans and the number of student loan borrowers who default on the loans. Daily on the news are reports about the student loan crisis and the effects of 1.7 trillion dollars in debt. Borrowers rarely are provided with any practical solutions that can be used with very little changes to the regulations to fix the problem. Applying the borrowers with a Default option that considers their unique needs and qualifications could be a small step in making big changes within the industry.

The final stage of the Elaborated Action Design Stage is the Evolution Stage. In this stage, the artifact evolves “over time as the problem environment changes and the artefact solution evolves to meet these changes” (Mullarkey & Hevner, 2019). As was noted previously, I had to redesign my artifacts to recognize the limited number of student loan borrowers who participated in the study. It is also important to take the information I learned, and look at future changes that can be made to the artifacts and consider what those changes will look like. To further evolve, I need to assess the limitations and additional changes that I would want applied in my future research.

**Research Contribution**

Researching student loan borrowers to determine their reasons for being ineffective in making ideal repayment selections was a great first step in solving the problem of student loan delinquency. The goal of this research was to give future researchers the initial tools to solve a trillion-dollar problem.

By researching nudging within the student loan industry, much can be learned about how other financial institutions could use the theory of Nudge and the EADR Design Cycle to create an artifact to affect the behavior of other borrowers, especially those who have made financial
decisions based on a status quo or Default option bias. This new design principle could be a powerful tool in advancing the knowledge within the industry and bridging the gap between theory and practice.

My contribution in proposing a nudging artifact can play a significant role in looking more closely at biases and opportunities to nudge student loan borrowers into making effective choices on their repayment plans. Research has shown nudging can be used in many policy changes and decisions and other financial industries without any research on its effectiveness on student loan borrowers. Since this research study supports nudging as a viable option to aid borrowers in decision making, it is important to look further at what nudging could mean for how the government provides repayment options to borrowers. The other nudges are also important to consider as their effects are supported by the research.

The Decision Selection Algorithm Calculator created contributes to the way student loan repayment plan options are chosen to align better with the needs of the borrower. To make a loan repayment decision, the goals of the borrower must be calculated, which is not the current policy, making it challenging for some to pay their loans because of other factors not considered in the current repayment selection process.

As discussed in the previous chapter, using the Decision Selection Algorithm Calculator as part of the payment selection would be a policy change the government would need to require from servicing companies. This new policy change would ensure borrowers’ needs were considered but also ensure servicing companies had a defined calculator to allow them to decide on the best repayment plan without guessing or treating each borrower’s needs the same. This calculator is a major contribution to the servicing process and ensuring that borrowers’ needs are part of the repayment selection process.
Limitations

Due to interviewing only students at USF Muma College of Business who are not currently paying their student loans, it is possible they had no investment in the decision selected. They had nothing to worry about as the decision they made during the study would have no real effect on them or their decision in the future. Since most participants studied did not have student loans, I was unable to capture real-world details to adjust the Default option accordingly. I would need many more student loan borrowers who are in repayment to get a better view of what options are available to them and what decisions they have or would make.

Also, due to time restraints, not as many students were interviewed as was needed to gain a better statistical analysis. Much more research needs to be done to understand the psychological workings of those with debt and how they decide. A multitude of factors go into decision making that were not determined in this research.

Because all the students were in an international finance class, the study was limited in examining other degree programs or students in other classes to determine if that would influence their decision. Someone in a finance class may make better student loan repayment decisions than someone in a philosophy class. Also, freshman students possibly would make worse decisions than a senior who will soon be graduating. This difference could change the results of the research.

Limitations of the study include the age of the borrower. Those in their 20’s might make different decisions on how to manage their student loan repayment versus those in their 40’s or 50’s. This difference could have something to do with whether they have children attending college soon or high family costs, like mortgage payments and credit card debt. They also may have more experience with handling debt that comes from age and experience versus those in
their 20’s who may only have student loan debt. The younger borrowers may also have less experience with working and the opportunity to make money and pay bills.

Future Research

What I learned from my research lends to the creation of a new artifact through a second iteration. Several updates that would be used to create the new iteration include:

- Updating how the new design looks; removing details that seemed to not matter in the selection process
- Updating titles of each option to better ascertain which option is more likely to be selected
- Changing explanations of the options to help lend to more advantageous selection results
- Updating evaluation process to include additional survey questions to gain more insight into particular selection choices
- Seeking different participants with student loans to see if different options would be selected based on real world need
- Creating a digital version that may make it easier for participants and lend to more openness in selection and survey responses

It would be valuable information to include additional financial questions, including the borrower’s expectations and how they would like to pay off their debt. Sometimes, what I see in the industry is borrowers have a higher expectation of what they can or will accomplish in the near future versus the distant future, which can affect how they make decisions on repayment. The borrowers’ value system would be something to consider. For example, if they are a risk taker versus someone who values more security, they may be more aggressive on how they pay
back their loans and less aggressive depending on how secure they felt in the different decisions available to them.

Additional research is also needed to study other nudge approaches, like simplification, disclosure or pre-commitment strategies. These approaches are part of the 10 main nudges determined by Sunstein in her Harvard article (2019). Simplification can be effective in giving participants easier choices to allow them to decide. Since research states people choose the default option because the question is too complex, simplifying the options could allow them to make a decision that better fits their needs (Sunstein, 2019). The disclosure nudge would give more details, breaking down the exact option selected and how the selection of the option would affect them in the short and long term. Pre-commitment strategies looks at whether participants would change their choice after they have made it if a better choice presents itself. Research has found that many times, once a person has made a selection, they will not change their selection even upon determining they made the wrong selection or the selection could be more costly (Sunstein, 2019). If the research study had a borrower choose from different student loan repayment options and then after they made a selection gave them another option (explaining the option would save them more money in some way), it could be valuable to see if they change their mind or stick with their selection. Each of these nudge biases could shine light on other opportunities to nudge borrowers making decisions about how to repay their student loan debt.

The most important change in the research process would be to ensure an appropriate representation of borrowers with student loans. Those who have student loans and are actively trying to pay their loans back will have a much different perspective of that process than someone not currently paying or who does not currently have loans. The decision process for those with loans is valuable due to the needs of each borrower being different. Some borrowers
have families and may have less discretionary income than someone without a family. Some may have other major debt responsibilities, like credit card debt or a mortgage, that could take priority over their student loans. Also, since income is a big factor in the decision process, having borrowers actively working will affect the outcome of the research. Those with higher incomes may be concerned with the higher payment they are required to pay, which could make them decide to postpone payments until they feel ready to make such a high payment. Those with low incomes who look to qualify for forgiveness may pay the minimum to allow for a maximum forgiveness amount. The many factors in student loan repayment selection play a major role in how I would assess the best option for the borrower.

Important future research also can be specifically done on the design, implementation and overall use of the Decision Selection Algorithm Calculator. Upon determining the value in the calculator, much more research should be done to test the use of the calculator and its results. I would interview borrowers with student loans to determine which student loan repayment options they qualify for and have them rate the importance of certain factors, like the monthly payment, the amount of time it takes to pay off the loans and the total cost of the debt. My testing would allow me to determine if the calculator works in most situations to select the best repayment option and assess what changes would need to be made to make the calculator better, which could include adding additional concerns the borrower has to test if other concerns would provide an accurate repayment plan result.

One goal of my research is to lead the charge in making a small change that could lead to larger changes in the future. The continued rise in student loan cost and borrower repayment responsibility is certainly a complex problem to be resolved. There could be many ways to tackle resolving this issue, which could include total forgiveness of all debt, a reduction in interest
costs, a mandate to reduce college cost and much more. Many of these solutions would require big changes in government policy and regulations. My assessment of how a borrower can make a better repayment selection could prove to be a good solution on a small scale without the need for a major government change. It could mean the reduction in overall costs to borrowers along with the reduction in defaulted borrowers. Although it is not a perfect solution, my research should be used as a stepping stone to future research that eventually could solve the student loan crisis.
REFERENCES


APPENDIX A:

INTERVIEW AND SURVEY QUESTIONS SCRIPT FOR THOSE WITH STUDENT LOANS

Hi, ________________, thank you for agreeing to interview with me today. Before we begin I would like to record this interview so I can capture all your answers accurately. Will that be ok?

*Begin Recording*

Ask the following questions:

1. Prior to going through the interview and having you answer the survey questions can you confirm you have read and give consent to participate in this survey?

2. Do you have any questions or concerns regarding the consent form?

Interview/Questions (Determine Eligibility)

3. What is the estimated Federal loan balance on your student loans?

4. What was your most recently filed adjusted gross income (AGI) or estimated income?

5. Do you work at (paycheck comes from) a private, government, state, or non-profit institution?

6. What is your filing status (married, filing separate, single, etc.)?

7. What is your family size?

*Questions 1-5 will be used to determine the participant's repayment options throughout the remainder of the questionnaire

8. Based on the information I have selected four main options to choose from. Which repayment option would you choose based on these options?

Show them a Chart/Excel with the 4 Main Options

Give them the statement on each option
**Default Option:** "The first option in all green is the automatically selected option based on the information you provided"

**Alternative option:** "This option is a good alternative option due to being able to pay off the loans in 10 years rather than 20"

**Warning:** "This option would be the most costly option over the life of the loan however it does allow for a $0 payment for 3 years"

**Social Norm:** This is the option that is most likely selected by other people with student loans"

*(The survey questions are part of the interview. The participants will answer the survey questions in real time while on the interview and results will be gathered immediately)*

**Survey Questions 10-21 given to them through Poll Everywhere to capture responses**

9. How much of an effect did the automatically selected option highlighted in green have on your selection?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

10. Did you think the alternative option was a good choice? . Scale of 1-5. Select 1 for not a good choice at all and 5 being the best choice.

<table>
<thead>
<tr>
<th>Bad Choice</th>
<th>Weak Choice</th>
<th>Neither good nor bad</th>
<th>Good Choice</th>
<th>Best Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

11. How much of an effect did the option in red warning you against making that selection effect your decision?
12. How much of an effect did knowing that most people with student loans choose the last option in blue did that have an effect on your decision?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

a. If you did Not choose that option, would you select it as an option if the option you chose was not listed.
   1. Yes
   2. No
   3. Maybe
   4. Not applicable

13. Who helped you in the selection of your most recent repayment schedule selection?

   a. No one
   b. Financial aid office
   c. Parents or other loved one
   d. Online Research
   e. Hired an expert or sought help from financial advisor/planner
   f. Other

14. What was the biggest factor in choosing the repayment plan you selected in this questionnaire for your student loans?
a. Currently, my loans are past due/in default, but I want to start paying

b. Could not afford some of the options so needed to select an option that fit my financial needs

c. Felt the default option made the most sense for my situation

d. Didn’t care if had to pay over a longer period time if the monthly payment would be lower

e. Rather pay off the balance faster and get it over with

f. Wanted a zero-dollar payment for now

g. Wanted to pay the debt as fast as possible but still get an affordable payment for me

15. What factors did you consider when making your decisions?

a. The monthly payment plan

b. How quickly I could have the debt paid off

c. The plan that seemed easiest to apply for

d. Whatever the standard default option was

e. Don’t want to make a payment

f. The option that other borrowers selected

16. What was the reason for the choice you made?

a. The person who helped me in the past seemed like an expert and influenced me in making my choice

b. I felt it was the only choice available

c. I believed it was the best choice for my needs

d. Although I chose the default option it was the best choice for me
e. I trust the researcher who chose the default option to know what is best for me
f. None of these

17. (Only for those who chose the Default Option) Why did you select the default option (Option 1)?
   a. I assumed it was the best choice because it was pre-selected
   b. I trust the researcher to know the best option for me
   c. I didn’t know which option to select so I went with the default option
   d. The default option gives me an affordable payment
   e. Other

19. (Only for those who did Not choose the warning option highlighted in red) Why did you Not select this option (Option 3)?
   a. It did not seem like the best option compared to the other options
   b. I was warned it could cost me more in the future if I selected it
   c. The option I chose instead was advised to me by someone else in the past
   d. I rather make payment than have a zero payment
   e. Other
   f. Not Applicable

20. (Only for those who chose the Social Norm option highlighted in blue) Why did you select this option (Option 4)?
    a. I assumed it was the best choice because most borrowers choose this option
    c. I did not know which option to select so I went with the option my peers select most often
    c. I do not know enough about the other options to make the decision on my own
d. I can afford the payments under this option and believe it was the best choice

e. This option doesn’t require me to do anything to get it so it’s easier than the other options

f. Other

g. Not Applicable

22. How knowledgeable would you consider yourself regarding student loan repayment plan options?

<table>
<thead>
<tr>
<th>Not Knowledgeable 1</th>
<th>Slightly Knowledgeable 2</th>
<th>Somewhat Knowledgeable 3</th>
<th>Fairly Knowledgeable 4</th>
<th>Very Knowledgeable 5</th>
</tr>
</thead>
</table>
APPENDIX B:

INTERVIEW AND SURVEY QUESTIONS FOR THOSE WITH NO STUDENT LOANS

Non-student loan interview questions (Open-Ended Questions)

1. How much does your education cost per year?
2. Do you believe you may have to take out student loans in the future?
   a. If so, how do you think you will handle paying them back when it comes time?
3. In your opinion, do you believe there should be some changes to the current student loan regulations?
   a. Why or why not?
   b. If yes, what changes would you suggest?

Those who do not have student loans were still given the option to participate but were asked different interview questions.
APPENDIX C:

CONSENT FORM

Informed Consent to Participate in Research
Information to Consider Before Taking Part in this Research Study

Title: Nudging Student Loan Borrowers into Action through Elaborated Action Design

Pro # 0041936

Overview: You are being asked to take part in a research study. Research studies include only people who choose to take part. This document is called an informed consent form. Please read this information carefully and take your time making your decision. Ask the researcher or study staff to discuss this consent form with you, please ask him/her to explain any words or information you do not clearly understand. The nature of the study, risks, inconveniences, discomforts, and other important information about the study are listed below.

We are asking you to take part in a research study called:
Nudging Student Loan Borrowers into Action through Elaborated Action Design

Study Staff: This study is being led by Genevieve Dobson who is a student at USF Muma College of Business. This person is called the Principal Investigator. She is being guided in this research by her Faculty Advisors, Alan Hevner and Jung Park. Other approved research staff may act on behalf of the Principal Investigator.

Study Details: This study is being conducted online using Zoom to perform the interview on an online meeting platform and Poll Anywhere will be used to answer the additional survey questions during the interview.
The purpose of the study is to gain an understanding of how you funded your college education. Specifically for those with student loans, we are interested in understanding your knowledge on the subject and reviewing different repayment strategies. The entire study should take approximately forty-five minutes for a participant.

Participants: You are being asked to take part because you are a student at USF currently paying for tuition and additional school costs.
**Voluntary Participation:** Your participation is voluntary. You do not have to participate and may stop your participation at any time. There will be no penalties or loss of benefits or opportunities if you do not participate or decide to stop once you start. Alternatives to participating in the study include: An alternative assignment will be availability if you do not wish to participate. Your decision to participate or not to participate will not affect your job status, employment record, employee evaluations, or advancement opportunities. Your decision to participate or not to participate will not affect your student status, course grade, recommendations, or access to future courses or training opportunities.

**Benefits, Compensation, and Risk:** We do not know if you will receive any benefit from your participation. There is no cost to participate. You will be compensated 10 extra credit points for your participation. This research is considered minimal risk. Minimal risk means that study risks are the same as the risks you face in daily life.

**Confidentiality:** Even if we publish the findings from this study, we will keep your study information private and confidential. Anyone with the authority to look at your records must keep them confidential.

---

**Why are you being asked to take part?**

You are being asked to take part in this study so we can determine how students make decisions regarding their college costs.

**Study Procedures**

If you take part in this study, you will be asked to answer a series of interview questions and survey questions. This process will take about 45 minutes total with both open ended questions and multiple choice options. The data is collected anonymously and no identifying information will be used or disclosed in this research study. This interview will be online and will allow you to access remotely from a laptop or computer.

**Alternatives / Voluntary Participation / Withdrawal**

You do not have to participate in this research study.

Alternatives to participating in the study include: an extra credit assignment located in your classroom module on Canvas.

You should only take part in this study if you want to volunteer. You should not feel that there is any pressure to take part in the study. You are free to participate in this research or withdraw at any time. There will be no penalty or loss of benefits you are entitled to receive if you stop taking part in this study. Your decision to participate or not to participate will not affect your student status (course grade) or job status.

**Benefits and Risks**

We are unsure if you will receive any benefits by taking part in this research study. This research is considered to be minimal risk.
**Compensation**
You will receive 10 credit point compensation in the FIN3604-001 International Finance class at the Muma College of Business for taking part in this study.

**Privacy and Confidentiality**

We will do our best to keep your records private and confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Certain people may need to see your study records. The only people who will be allowed to see these records are: Genevieve Dobson, the Principal Investigator, Dr. Alan Hevner, the Faculty Advisor, Jung Park, the Faculty Advisor and the University of South Florida Institutional Review Board (IRB).

It is possible, although unlikely, that unauthorized individuals could gain access to your responses because you are responding online. Confidentiality will be maintained to the degree permitted by the technology used. No guarantees can be made regarding the interception of data sent via the Internet. However, your participation in this online survey involves risks similar to a person’s everyday use of the Internet. If you complete and submit an anonymous survey and later request your data be withdrawn, this may or may not be possible as the researcher may be unable to extract anonymous data from the database.

Data collected for this research will be stored in the USF Box, located at the University of South Florida in the United States.

Your personal information collected for this research will be kept as long as it is needed to conduct this research. Once your participation in the research is over, your information will be stored in accordance with applicable policies and regulations. Your permission to use your personal data will not expire unless you withdraw it in writing. You may withdraw or take away your permission to use and disclose your information at any time. You do this by sending written notice to the Principal Investigator at the following address: dobson2@mail.usf.edu

While we are conducting the research study, we cannot let you see or copy the research information we have about you. After the research is completed, you have a right to see the information about you, as allowed by USF policies.

If you have concerns about the use or storage of your personal information, you have a right to lodge a complaint with the data supervisory authority in your country.

**Contact Information**

If you have any questions, concerns or complaints about this study, call Genevieve Dobson at (813) 528-1102. If you have questions about your rights, complaints, or issues as a person taking part in this study, call the USF IRB at (813) 974-5638 or contact by email at RSCCH-IRB@usf.edu.
We may publish what we learn from this study. If we do, we will not let anyone know your name. We will not publish anything else that would let people know who you are. You can print a copy of this consent form for your records.

I freely give my consent to take part in this study. I understand that by proceeding with this survey that I am agreeing to take part in research and I am 18 years of age or older.
APPENDIX D:

PARTICIPATION ANNOUNCEMENT AND PRE-SCREENING INTERVIEW QUESTIONS

Nudging Student Loan Borrowers into Action through Elaborated Action Design
Genevieve O. Dobson
Participation and Pre-Screening

Pro # ___00041936________

Introduction to research participation

“We are asking you to take part in this research study for the purpose of gaining an understanding of how you have funded your education here at USF including how the tuition and costs were paid and what the expectation of cost and repayment options may affect you upon graduating. If you take part in this study, you will be asked to: Provide specific demographic details including student loan balance, income, tax filing status, whether the company you work for is a for-profit, non-profit, government or state organization, and your family size. This information will be used to calculate current repayment options. The Principal Investigator will select 4 main options for the participant to select. Once the selection is made, the participant will then be given a survey to analyze the reason for the selections they make.

The entire study should take approximately forty-five minutes for a participant.

Your participation is voluntary. You do not have to participate and may stop your participation at any time. There will be no penalties or loss of benefits or opportunities if you do not participate or decide to stop once you start. The answers that you provide are for informational and educational purposes only. You will receive 1 credit point compensation in this academic class at the Muma College of Business for taking part in this study.”

To sign up for participation the students will be instructed to log in to canvas and click on the link located in the module for the course. They will be asked to read and agree to the consent form prior to continuing. The next step will be to click on the scheduling link to make their appointment for their online interview.

Provide link to read and download Consent form Here

By continuing with the pre-screening survey questions you agree you have read and agree to the consent form provided.
Pre-screening survey questions

Research Participation Survey Questions

1. How did you/are you financing your education at USF?
   a. Parents
   b. Scholarship/grants
   c. Student loans
   d. Cash/Paying out of pocket

2. Are you currently working?
   a. No
   b. Yes/Part-time
   c. Yes/Full-time

Scheduling your interview:
Please go to www.meetme.so/GenevieveDobson to schedule a date and time to be interviewed no later than 10/1/2019. This interview will be done via Zoom or similar video meeting device and will last about 45 minutes. Please be sure to have your income, student loan balance (if applicable) with you during the time of your interview.
### Federal Student Loan Repayment Options (Sample Artifact)

**Option 1**
- **Monthly Payment**: $1,110.00
- **Total Cost**: $133,225.00
- **Loan Term (in months)**: 120
- **Forgiveness amount**: $0
- **Credit Requirements**: No
- **Additional steps to achieve**: None
- **Yearly renewal**: No

**Option 2**
- **Monthly Payment**: $635.00
- **Total Cost**: $142,120.00
- **Loan Term (in months)**: 120
- **Forgiveness amount**: $0
- **Credit Requirements**: No
- **Additional steps to achieve**: Phone or Online Request
- **Yearly renewal**: Yes

**Option 3**
- **Monthly Payment**: $500.00
- **Total Cost**: $210,289.00
- **Loan Term (in months)**: 120
- **Forgiveness amount**: $0
- **Credit Requirements**: No
- **Additional steps to achieve**: Phone or Online Request
- **Yearly renewal**: Yes

**Option 4**
- **Monthly Payment**: $600.00
- **Total Cost**: $215,838.00
- **Loan Term (in months)**: 360
- **Forgiveness amount**: $0
- **Credit Requirements**: Yes
- **Additional steps to achieve**: Application, Tax documentation
- **Yearly renewal**: Yes

**Option 5**
- **Monthly Payment**: $691.00
- **Total Cost**: $127,278.00
- **Loan Term (in months)**: 120
- ** Forgiveness amount**: $0
- **Credit Requirements**: No
- **Additional steps to achieve**: Phone or Online Request
- **Yearly renewal**: Yes

**Option 6**
- **Monthly Payment**: $261.00
- **Total Cost**: $203,754.00
- **Loan Term (in months)**: 266
- **Forgiveness amount**: $0
- **Credit Requirements**: Yes
- **Additional steps to achieve**: Application, Tax documentation
- **Yearly renewal**: Yes

**Option 7**
- **Monthly Payment**: $261.00
- **Total Cost**: $118,034.00
- **Loan Term (in months)**: 240
- **Forgiveness amount**: $0
- **Credit Requirements**: Yes
- **Additional steps to achieve**: Phone or Online Request
- **Yearly renewal**: Yes

**Option 8**
- **Monthly Payment**: $625.00
- **Total Cost**: $175,577.00
- **Loan Term (in months)**: 240
- **Forgiveness amount**: $101,966.00
- **Credit Requirements**: Yes
- **Additional steps to achieve**: Application, Tax documentation
- **Yearly renewal**: Yes

**Option 9**
- **Monthly Payment**: $0
- **Total Cost**: $158,619.00
- **Loan Term (in months)**: 300
- **Forgiveness amount**: $59,219.00
- **Credit Requirements**: Yes
- **Additional steps to achieve**: Application, Tax documentation
- **Yearly renewal**: Yes

**Option 10**
- **Monthly Payment**: $625.00
- **Total Cost**: $157,664.00
- **Loan Term (in months)**: 183
- **Forgiveness amount**: $0
- **Credit Requirements**: Yes
- **Additional steps to achieve**: Application, Tax documentation
- **Yearly renewal**: Yes

---

**Color Code Chart**

- **Most select this option**: Green
- **Ideal Criteria**: Blue
- **Reasonable Criteria**: Orange
- **Criteria Not Suggested**: Red

**Options given to participant to select based on their details**

**Default Option**: "The first option in all green is the automatically selected option based on the information you provided"

**Warning**: "This option would be the most costly option over the life of the loan however it does allow for a $0 payment for 3 years"

**Social Norm**: This is the option that is most likely selected by other people with student loans"
<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Option 1</td>
<td>Standard</td>
</tr>
<tr>
<td>Option 2</td>
<td>Graduated Repayment</td>
</tr>
<tr>
<td>Option 3</td>
<td>Extended Graduated</td>
</tr>
<tr>
<td>Option 4</td>
<td>Federal Consolidation</td>
</tr>
<tr>
<td>Option 5</td>
<td>Private Consolidation</td>
</tr>
<tr>
<td>Option 6</td>
<td>IBR</td>
</tr>
<tr>
<td>Option 7</td>
<td>PAYE</td>
</tr>
<tr>
<td>Option 8</td>
<td>REPAYE</td>
</tr>
<tr>
<td>Option 9</td>
<td>PAYE</td>
</tr>
<tr>
<td>Option 10</td>
<td>Forbearance</td>
</tr>
</tbody>
</table>

The sample artifact shown above will be the master key used to determine the various options each participant has. It will be used to create the artifact the participant will see, shown below:
APPENDIX F:

REPAYMENT CALCULATOR SAMPLE USED FOR ARTIFACT

Estimate Your Payments

Your Loan Information

- Use Your Loans
- Use Average Loan Balances

Your Loan Balance: $100,000
Interest Rate: 6%

More Information

Your Tax Filing Status

Select your tax filing status:

- Single

Your Family Size

The following questions will be used to calculate your family size. Do not include yourself or your spouse (if applicable) in your responses to these questions. If you and your spouse, as appropriate, are automatically included in your family size.

**Dependent Children**

How many children, including unborn children, are in your family and receive more than half of their support from you?

- 0

**Other Dependents**

How many other people, excluding your spouse and children, live with you and receive more than half of their support from you?

- 0
What is your marital status?

- Married
- Single

Based on your responses to these questions, your family size has been calculated as 1. Your family size will be used to calculate repayment estimates in the table below.

### Repayment Estimator

<table>
<thead>
<tr>
<th>Current Loan Balance</th>
<th>State of Residence</th>
<th>Adjusted Gross Income (AGI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$100,000</td>
<td>ALABAMA</td>
<td>50000</td>
</tr>
</tbody>
</table>

Show payment estimated under Public Service Loan Forgiveness (PSLF)?

- Standard
  - You will pay a total of $133,225 over 120 months
  - $1,110 - $1,110/month

- Graduated
  - You will pay a total of $142,120 over 120 months
  - $635 - $1,905/month

- Extended Fixed
  - You will pay a total of $193,290 over 300 months
  - $644 - $644/month

### Revised Pay As You Earn (REPAYE)

- You will pay a total of $175,577 over 300 months
- $261 - $1,068/month

<table>
<thead>
<tr>
<th>First Monthly Payment</th>
<th>Last Monthly Payment</th>
<th>Total Amount Paid</th>
<th>Projected Loan Forgiveness</th>
<th>Repayment Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>$261</td>
<td>$1,068</td>
<td>$175,577</td>
<td>$58,219</td>
<td>300 months</td>
</tr>
</tbody>
</table>

### Pay As You Earn (PAYE)

- You will pay a total of $118,034 over 240 months
- $261 - $808/month

<table>
<thead>
<tr>
<th>First Monthly Payment</th>
<th>Last Monthly Payment</th>
<th>Total Amount Paid</th>
<th>Projected Loan Forgiveness</th>
<th>Repayment Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>$261</td>
<td>$808</td>
<td>$118,034</td>
<td>$101,968</td>
<td>240 months</td>
</tr>
</tbody>
</table>

### Income-Based Repayment (IBR)

- You will pay a total of $203,754 over 266 months
- $391 - $1,110/month

<table>
<thead>
<tr>
<th>First Monthly Payment</th>
<th>Last Monthly Payment</th>
<th>Total Amount Paid</th>
<th>Projected Loan Forgiveness</th>
<th>Repayment Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>$391</td>
<td>$1,110</td>
<td>$203,754</td>
<td>$0</td>
<td>266 months</td>
</tr>
</tbody>
</table>
### IBR for New Borrowers
$261 - $808/month
You will pay a total of $118,034 over 240 months

### Income-Contingent Repayment (ICR)
$625 - $999/month
You will pay a total of $158,619 over 183 months

<table>
<thead>
<tr>
<th>First Monthly Payment</th>
<th>Last Monthly Payment</th>
<th>Total Amount Paid</th>
<th>Projected Loan Forgiveness</th>
<th>Repayment Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>$625</td>
<td>$999</td>
<td>$158,619</td>
<td>$0</td>
<td>183 months</td>
</tr>
</tbody>
</table>

More Information ♦

---

**Next Steps**

- Apply for Income-Driven Repayment Plans
- Apply for a Direct Consolidation Loan
- Contact your Loan Servicer
APPENDIX G:
ARTIFACT AND SURVEY RESULT FOR STUDENT LOAN BORROWERS

Interview 0012 Artifact

<table>
<thead>
<tr>
<th>Criteria to consider</th>
<th>Default Option</th>
<th>Alternative option</th>
<th>Warning</th>
<th>Social Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Payment</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Cost</td>
<td>$ 121.00</td>
<td>$ 57.00</td>
<td>$0</td>
<td>$ 86.00</td>
</tr>
<tr>
<td>Loan Term (in months)</td>
<td>$ 9,143.00</td>
<td>$ 12,371.00</td>
<td>$ 12,203.00</td>
<td>$ 10,312.00</td>
</tr>
<tr>
<td>Forgiveness amount</td>
<td>$ -</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Deferment options</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Credit Requirements</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Additional steps to achieve</td>
<td>Application, Tax documentation</td>
<td>Phone or Online Request</td>
<td>Phone or Online Request</td>
<td>None</td>
</tr>
<tr>
<td>Yearly renewal</td>
<td>Yes</td>
<td>No</td>
<td>Yes to achieve 3 years</td>
<td>No</td>
</tr>
</tbody>
</table>

* Payment amount increases after 2 years
** Assumes a consolidation rate of 5% fixed for 10 years
*** Further factors to consider if file jointly
**** Assumes 3 years of non-payment

Color Code Chart
Most select this option
Ideal Criteria
Reasonable Criteria
Criteria Not Suggested

Interview 0012 Survey

1. How much of an effect did the automatically selected option highlighted in green have on your selection?

<table>
<thead>
<tr>
<th>Reason for Selection</th>
</tr>
</thead>
</table>
2. Did you think the alternative option was a good choice? Scale of 1-5. Select 1 for not a good choice at all and 5 being the best choice.

<table>
<thead>
<tr>
<th>Bad Choice</th>
<th>Weak Choice</th>
<th>Neither good nor bad</th>
<th>Good Choice</th>
<th>Best Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

3. How much of an effect did the option in red warning you against making that selection effect your decision?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

4. How much of an effect did knowing that most people with student loans choose the last option in blue did that have an effect on your decision?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

a. If you did Not choose that option, would you select it as an option if the option you chose was not listed.

1. Yes
2. No,
3. Maybe
4. Not applicable
5. Who helped you in the selection of your most recent repayment schedule selection?
   a. No one
   b. Financial aid office
   c. Parents or other loved one
   d. Online Research
   e. Hired an expert or sought help from financial advisor/planner
   f. Other

6. What was the biggest factor in choosing the repayment plan you selected in this questionnaire for your student loans?
   a. Currently, my loans are past due/in default, but I want to start paying
   b. Could not afford some of the options so needed to select an option that fit my financial needs
   c. Felt the default option made the most sense for my situation
   d. Didn’t care if had to pay over a longer period time if the monthly payment would be lower
   e. Rather pay off the balance faster and get it over with
   f. Wanted a zero-dollar payment for now
   g. Wanted to pay the debt as fast as possible but still get an affordable payment for me

7. What factors did you consider when making your decisions?
   a. The monthly payment plan
   b. How quickly I could have the debt paid off
   c. The plan that seemed easiest to apply for
d. Whatever the standard default option was

e. Don’t want to make a payment

f. The option that other borrowers selected

8. What was the reason for the choice you made?
   a. The person who helped me in the past seemed like an expert and influenced me in making my choice
   b. I felt it was the only choice available
   c. I believed it was the best choice for my needs
   d. Although I chose the default option it was the best choice for me
   e. I trust the researcher who chose the default option to know what is best for me
   f. None of these

9. (Only for those who chose the Default Option) Why did you select the default option (Option 1)?
   a. I assumed it was the best choice because it was pre-selected
   b. I trust the researcher to know the best option for me
   c. I didn’t know which option to select so I went with the default option
   d. The default option gives me an affordable payment
   e. Other

10. (Only for those who did Not choose the warning option highlighted in red) Why did you Not select this option (Option 3)?
    g. It did not seem like the best option compared to the other options
    h. I was warned it could cost me more in the future if I selected it
    i. The option I chose instead was advised to me by someone else in the past
j. I rather make payment than have a zero payment

k. Other

l. Not Applicable

11. (Only for those who chose the Social Norm option highlighted in blue) Why did you select this option (Option 4)?

a. I assumed it was the best choice because most borrowers choose this option
d. I did not know which option to select so I went with the option my peers select most often
c. I do not know enough about the other options to make the decision on my own
d. I can afford the payments under this option and believe it was the best choice
e. This option doesn’t require me to do anything to get it so it’s easier than the other options

f. Other

g. Not Applicable

12. How knowledgeable would you consider yourself regarding student loan repayment plan options?

<table>
<thead>
<tr>
<th>Not Knowledgeable</th>
<th>Slightly Knowledgeable</th>
<th>Somewhat Knowledgeable</th>
<th>Fairly Knowledgeable</th>
<th>Very Knowledgeable</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Interview 0014 Artifact

<table>
<thead>
<tr>
<th>Criteria to consider</th>
<th>Default Option</th>
<th>Alternative option</th>
<th>Warning</th>
<th>Social Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monthly Payment</td>
<td>Option 1</td>
<td>Option 2*</td>
<td>Option 3****</td>
<td>Option 4</td>
</tr>
<tr>
<td>$</td>
<td>$94.00</td>
<td>$71.00</td>
<td>$0</td>
<td>$114.00</td>
</tr>
<tr>
<td>Total Cost</td>
<td>$13,600.00</td>
<td>$17,158.00</td>
<td>$16,239.00</td>
<td>$13,722.00</td>
</tr>
<tr>
<td>Loan Term (in months)</td>
<td>127</td>
<td>215</td>
<td>123</td>
<td>120</td>
</tr>
<tr>
<td>Forgiveness amount</td>
<td>$14,740.00</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Deferment options</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Credit Requirements</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Additional steps to achieve</td>
<td>Application, Tax documentation</td>
<td>Phone or Online Request</td>
<td>Phone or Online Request</td>
<td>None</td>
</tr>
<tr>
<td>Yearly renewal</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
</tbody>
</table>

* Payment amount increases after 2 years
** Assumes a consolidation rate of 5% fixed for 10 years
*** Further factors to consider if file jointly
**** Assumes 3 years of non-payment

Color Code Chart

<table>
<thead>
<tr>
<th>Most select this option</th>
<th>Ideal Criteria</th>
<th>Reasonable Criteria</th>
<th>Criteria Not Suggested</th>
</tr>
</thead>
</table>

Interview 0014 Survey

1. How much of an effect did the automatically selected option highlighted in green have on your selection

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
2. Did you think the alternative option was a good choice? Scale of 1-5. Select 1 for not a good choice at all and 5 being the best choice.

<table>
<thead>
<tr>
<th>Bad Choice</th>
<th>Weak Choice</th>
<th>Neither good nor bad</th>
<th>Good Choice</th>
<th>Best Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

3. How much of an effect did the option in red warning you against making that selection effect your decision?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

4. How much of an effect did knowing that most people with student loans choose the last option in blue did that have an effect on your decision?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Selection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

   a. If you did Not choose that option, would you select it as an option if the option you chose was not listed.

   1. Yes
   2. No
   3. Maybe
   4. Not applicable

5. Who helped you in the selection of your most recent repayment schedule selection?

   a. No one
   b. Financial aid office
c. Parents or other loved one

d. Online Research

e. Hired an expert or sought help from financial advisor/planner

f. Other

6. What was the biggest factor in choosing the repayment plan you selected in this questionnaire for your student loans?

   a. Currently, my loans are past due/in default, but I want to start paying

   b. Could not afford some of the options so needed to select an option that fit my financial needs

   c. Felt the default option made the most sense for my situation

   d. Didn’t care if had to pay over a longer period time if the monthly payment would be lower

   e. Rather pay off the balance faster and get it over with

   f. Wanted a zero-dollar payment for now

   g. Wanted to pay the debt as fast as possible but still get an affordable payment for me

7. What factors did you consider when making your decisions?

   a. The monthly payment plan

   b. How quickly I could have the debt paid off

   c. The plan that seemed easiest to apply for

   d. Whatever the standard default option was

   e. Don’t want to make a payment

   f. The option that other borrowers selected
8. What was the reason for the choice you made?
   a. The person who helped me in the past seemed like an expert and influenced me in making my choice
   b. I felt it was the only choice available
   c. I believed it was the best choice for my needs
   d. Although I chose the default option it was the best choice for me
   e. I trust the researcher who chose the default option to know what is best for me
   f. None of these

9. (Only for those who chose the Default Option ) Why did you select the default option (Option 1)?
   a. I assumed it was the best choice because it was pre-selected
   b. I trust the researcher to know the best option for me
   c. I didn’t know which option to select so I went with the default option
   d. The default option gives me an affordable payment
   e. Other

10. (Only for those who did Not choose the warning option highlighted in red) Why did you Not select this option (Option 3)?
    a. It did not seem like the best option compared to the other options
    b. I was warned it could cost me more in the future if I selected it
    c. The option I chose instead was advised to me by someone else in the past
    d. I rather make payment than have a zero payment
    e. Other
    f. Not Applicable
11. (Only for those who chose the Social Norm option highlighted in blue) Why did you select this option (Option 4)?

   a. I assumed it was the best choice because most borrowers choose this option
   
   e. I did not know which option to select so I went with the option my peers select most often
   
   c. I do not know enough about the other options to make the decision on my own
   
   d. I can afford the payments under this option and believe it was the best choice
   
   e. This option doesn’t require me to do anything to get it so it’s easier than the other options
   
   f. Other
   
   g. Not Applicable

12. How knowledgeable would you consider yourself regarding student loan repayment plan options?

<table>
<thead>
<tr>
<th>Not Knowledgeable 1</th>
<th>Slightly Knowledgeable 2</th>
<th>Somewhat Knowledgeable 3</th>
<th>Fairly Knowledgeable 4</th>
<th>Very Knowledgeable 5</th>
</tr>
</thead>
</table>
### Interview 0016 Artifact

<table>
<thead>
<tr>
<th>Criteria to consider</th>
<th>Default Option</th>
<th>Alternative option</th>
<th>Warning</th>
<th>Social Norm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Option 1</td>
<td>Option 2*</td>
<td>Option 3****</td>
<td>Option 4</td>
</tr>
<tr>
<td>Monthly Payment</td>
<td>$ 511.00</td>
<td>$ 116.00</td>
<td>$0</td>
<td>$ 122.00</td>
</tr>
<tr>
<td>Total Cost</td>
<td>$ 11,600.00</td>
<td>$ 14,732.00</td>
<td>$17,343.00</td>
<td>$ 14,655.00</td>
</tr>
<tr>
<td>Loan Term (in months)</td>
<td>23</td>
<td>120</td>
<td>123</td>
<td>120</td>
</tr>
<tr>
<td>Forgiveness amount</td>
<td>$ -</td>
<td>$0</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Deferment options</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Credit Requirements</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Additional steps to</td>
<td>Application,</td>
<td>Phone or Online</td>
<td>Phone or Online Request</td>
<td>None</td>
</tr>
<tr>
<td>achieve</td>
<td>documentation</td>
<td>Request</td>
<td>Request</td>
<td></td>
</tr>
<tr>
<td>Yearly renewal</td>
<td>Yes</td>
<td>No</td>
<td>Yes to achieve 3 years</td>
<td>No</td>
</tr>
</tbody>
</table>

* Payment amount increases after 2 years
** Assumes a consolidation rate of 5% fixed for 10 years
*** Further factors to consider if file jointly
**** Assumes 3 years of non-payment

### Color Code Chart

- Most select this option
- Ideal Criteria
- Reasonable Criteria
- Criteria Not Suggested

### Interview 0016 Survey

1. How much of an effect did the automatically selected option highlighted in green have on your selection

<table>
<thead>
<tr>
<th>No Effect</th>
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<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Selection</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
2. Did you think the alternative option was a good choice? . Scale of 1-5. Select 1 for not a good choice at all and 5 being the best choice.

<table>
<thead>
<tr>
<th>Bad Choice</th>
<th>Weak Choice</th>
<th>Neither good nor bad</th>
<th>Good Choice</th>
<th>Best Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
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3. How much of an effect did the option in red warning you against making that selection effect your decision?

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<td>5</td>
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</tbody>
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4. How much of an effect did knowing that most people with student loans choose the last option in blue did that have an effect on your decision?

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</tr>
</tbody>
</table>

a. If you did Not choose that option, would you select it as an option if the option you chose was not listed.
   1. Yes
   2. No
   3. Maybe
   4. Not applicable

5. Who helped you in the selection of your most recent repayment schedule selection?

   a. No one
   b. Financial aid office
g. Parents or other loved one

h. Online Research

i. Hired an expert or sought help from financial advisor/planner

j. Other

6. What was the biggest factor in choosing the repayment plan you selected in this questionnaire for your student loans?

   a. Currently, my loans are past due/in default, but I want to start paying

   b. Could not afford some of the options so needed to select an option that fit my financial needs

   c. Felt the default option made the most sense for my situation

   d. Didn’t care if had to pay over a longer period time if the monthly payment would be lower

   e. Rather pay off the balance faster and get it over with

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7. What factors did you consider when making your decisions?

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8. What was the reason for the choice you made?
   a. The person who helped me in the past seemed like an expert and influenced me in making my choice
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   e. I trust the researcher who chose the default option to know what is best for me
   f. None of these

9. (Only for those who chose the Default Option) Why did you select the default option (Option 1)?
   g. I assumed it was the best choice because it was pre-selected
   h. I trust the researcher to know the best option for me
   i. I didn’t know which option to select so I went with the default option
   j. The default option gives me an affordable payment
   k. Other

10. (Only for those who did Not choose the warning option highlighted in red) Why did you Not select this option (Option 3)?
    a. It did not seem like the best option compared to the other options
    b. I was warned it could cost me more in the future if I selected it
    c. The option I chose instead was advised to me by someone else in the past
    d. I rather make payment than have a zero payment
    e. Other
    l. Not Applicable
11. (Only for those who chose the Social Norm option highlighted in blue) Why did you select this option (Option 4)?

   a. I assumed it was the best choice because most borrowers choose this option
   
   f. I did not know which option to select so I went with the option my peers select most often
   
   c. I do not know enough about the other options to make the decision on my own
   
   d. I can afford the payments under this option and believe it was the best choice
   
   e. This option doesn’t require me to do anything to get it so it’s easier than the other options
   
   f. Other

   g. Not Applicable

12. How knowledgeable would you consider yourself regarding student loan repayment plan options?

<table>
<thead>
<tr>
<th>Not Knowledgeable 1</th>
<th>Slightly Knowledgeable 2</th>
<th>Somewhat Knowledgeable 3</th>
<th>Fairly Knowledgeable 4</th>
<th>Very Knowledgeable 5</th>
</tr>
</thead>
</table>

134
APPENDIX H:

ARTIFACT AND SURVEY RESULT FOR WITH NO STUDENT LOAN BORROWERS

1. How much of an effect did the automatically selected option highlighted in green have on your selection?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Results:

a. No effect -16%
b. Slight effect -26%
c. Some effect -30%
d. Major effect -11%
e. Reason for selection -5%

18. Did you think the alternative option was a good choice? . Scale of 1-5. Select 1 for not a good choice at all and 5 being the best choice.

<table>
<thead>
<tr>
<th>Bad Choice</th>
<th>Weak Choice</th>
<th>Neither good nor bad</th>
<th>Good Choice</th>
<th>Best Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Results:

a. Bad choice -0%
b. Weak choice -26%
c. Neither good nor bad choice -16%
d. Good choice -47%
e. Best choice -11%

19. How much of an effect did the option in red warning you against making that selection effect your decision?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
<th>Reason for Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

Results:

a. No effect -5%
b. Slight effect -5%
c. Some effect -36%
d. Major effect -42%
e. Reason for avoidance -11%

20. How much of an effect did knowing that most people with student loans choose the last option in blue did that have an effect on your decision?

<table>
<thead>
<tr>
<th>No Effect</th>
<th>Slight Effect</th>
<th>Some Effect</th>
<th>Major Effect</th>
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<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
Results:

a. No effect -42%

b. Slight effect -11%

c. Some effect -26%

d. Major effect -21%

e. Reason for selection -0%

b. If you did Not choose that option, would you select it as an option if the option you chose was not listed.

1. Yes

2. No,

3. Maybe

4. Not applicable

Results:

a. Yes -47%

b. No -11%

c. Maybe -32%

d. Not applicable -11%

21. Who helped you in the selection of your most recent repayment schedule selection?

a. No one

b. Financial aid office

c. Parents or other loved one

d. Online Research

e. Hired an expert or sought help from financial advisor/planner
f. Other ____________________________

Results:

a. No one -63%

b. Financial aid office -0%

c. Parents or other loved one -26%

d. Online Research -5%

e. Hired an expert or sought help from financial advisor/planner -0%

f. Other -5%

22. What was the biggest factor in choosing the repayment plan you selected in this questionnaire for your student loans?

a. Currently, my loans are past due/in default, but I want to start paying

b. Could not afford some of the options so needed to select an option that fit my financial needs

c. Felt the default option made the most sense for my situation

d. Didn’t care if had to pay over a longer period of time if the monthly payment would be lower

e. Rather pay off the balance faster and get it over with

f. Wanted a zero-dollar payment for now

g. Wanted to pay the debt as fast as possible but still get an affordable payment for me

Results:

a. Currently, my loans are past due/in default, but I want to start paying -0%
b. Could not afford some of the options so needed to select an option that fit my financial needs -0%

c. Felt the default option made the most sense in my situation -26%

d. Didn’t care if had to pay over a longer period of time if the monthly payment would be lower -11%

e. Rather pay off the balance faster and get it over with -21%

f. Wanted a zero-dollar payment for now -5%

g. Wanted to pay the debt as fast as possible but still get an affordable payment for me -37%

23. What factors did you consider when making your decisions?

   a. The monthly payment plan

   b. How quickly I could have the debt paid off

   c. The plan that seemed easiest to apply for

   d. Whatever the standard default option was

   e. Don’t want to make a payment

   f. The option that other borrowers selected

Results:

   a. The monthly payment plan -33%

   b. How quickly I could have the debt paid off -61%

   c. The plan that seemed easiest to apply for -0%

   d. What the standard default option was -0%

   e. Don’t want to make a payment -0%

   f. The option that other borrowers selected -6%
24. What was the reason for the choice you made?

   a. The person who helped me in the past seemed like an expert and influenced me in making my choice
   b. I felt it was the only choice available
   c. I believed it was the best choice for my needs
   d. Although I chose the default option it was the best choice for me
   e. I trust the researcher who chose the default option to know what is best for me
   f. None of these

Results:

   a. The person who helped me in the past seemed like an expert and influence me in making my choice -0%
   b. I felt it was the only choice available -5%
   c. I believed it was the best choice for my needs -74%
   d. Although I chose the default option it was the best choice for me -5%
   e. I trust the researcher who chose the default option to know what is the best for me -5%
   f. None of these -11%

25. (Only for those who chose the Default Option ) Why did you select the default option (Option 1)?

   a. I assumed it was the best choice because it was pre-selected
   b. I trust the researcher to know the best option for me
c. I didn’t know which option to select so I went with the default option

d. The default option gives me an affordable payment

e. Other

f. Not applicable

Results:

a. I assumed it was the best choice because it was pre-selected -11%

b. I trust the researcher to know the best option for me -0%

c. I didn’t know which option to select so I went with the default option -0%

d. The default option gives me an affordable payment -32%

e. Other -11%

f. Not applicable -47%

10. (Only for those who did Not choose the warning option highlighted in red) Why did you Not select this option (Option 3)?

   a. It did not seem like the best option compared to the other options

   b. I was warned it could cost me more in the future if I selected it

   c. The option I chose instead was advised to me by someone else in the past

   d. I rather make payment than have a zero payment

   e. Not Applicable

Results:

a. It did not seem like the best option compared to the other options - 21%
b. I was warned it would cost me more in the future if I selected it - 37%

c. The option I chose instead was advised to me by someone else in the past -0%

d. I rather make payment than have a zero payment -16%

e. Not applicable 26%

11. (Only for those who chose the Social Norm option highlighted in blue) Why did you select this option (Option 4)?

   a. I assumed it was the best choice because most borrowers choose this option
   b. I did not know which option to select so I went with the option my peers select most often
   c. I do not know enough about the other options to make the decision on my own
   d. I can afford the payments under this option and believe it was the best choice
   e. This option doesn’t require me to do anything to get it so it’s easier than the other options
   f. Other
   g. Not Applicable

Results:

   a. I assumed it was the best choice because most borrowers choose this option -11%
   b. I did not know which option to select so I went with the option my peers select most often -0%
c. I do not know enough about the other options to make the decision on my own – 0%

d. I can afford the payments under this option and believe it was the best choice – 17%

e. This option doesn’t require me to do anything to get it so it’s easier than the other options - 0%

f. Other - 11%

g. Not applicable - 61%

12. How knowledgeable would you consider yourself regarding student loan repayment plan options?

<table>
<thead>
<tr>
<th></th>
<th>Not Knowledgeable 1</th>
<th>Slightly Knowledgeable 2</th>
<th>Somewhat Knowledgeable 3</th>
<th>Fairly Knowledgeable 4</th>
<th>Very Knowledgeable 5</th>
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