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A Comparative Analysis of Personal Financial Literacy

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by

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Introduction

  Personal Financial Literacy (or PFL) is a subject of much research and discussion. The current state of PFL among college students in the United States is a subject of particular concern due to increasing school prices and continued leverage of student loan debt. Discussions of whether our students are financially capable of paying back their debts and acquiring sufficient net worth for retirement are commonly held among peers. Looking at the indebtedness and net worth of college graduates in the 1990s, the indebtedness and salary projections of modern students in another country and then comparing them to the indebtedness and salary projections of modern day college graduates, this thesis will analyze the necessity for our modern American college students to be aware of and understand PFL. If we are better situated than the previous generation of American students and better situated than students in similar countries, we need to be less aware of these matters. However, if we are in a more desperate position than the previous generation or than another nation, we need to be more aware of PFL matters to attain the same level of success.

  Over the course of this thesis, there are key phrases that will be frequently referenced. Understanding concepts of Personal Financial Literacy, Student Debt, Consumer Debt, and Net Worth is crucial to the arguments presented in this paper.

  Personal Financial Literacy has been defined as "the ability to read, analyze, manage and communicate about personal financial conditions that affect material well-being … the ability to discern financial choices, discuss money and financial issues without (or despite) discomfort, plan for the future, and respond competently to life events that affect every day financial decisions, including events in the general economy" (Kotze, 1). Based on this definition, PFL is arguably one of the most impactful areas of one's life. One's understanding of PFL affects not only that person, but all those around him/her, especially his/her immediate family. Knowing what to do with money and when to do it is vital to sustaining quality of life in the modern world.

  Student Debt in the context of this paper refers to debt that students take on in order to aid their payments for higher education. From community college to Ph.D. programs, student debt is money accepted from a public or private lender that helps a student to pay for expenses like tuition, books, class materials, housing, and food. Student Debt does not include money given to students by parents to help pay for schooling, unless those parents are expecting to be paid back. Total student debt represents the sum of all student debt taken on during schooling, while outstanding student debt represents the sum of student debt that still must be repaid. As of March 2014, the total of outstanding student debt is above $1 trillion (Smith, 1). As tuition costs continue to increase, it logically follows that leverage of student debt will inevitably follow.

  Consumer Debt here represents the sum of all debts that a person holds except for Student Debt. This includes mortgage debt, other real estate debt, credit card debt, lines of credit in use, etc. Approximately 75% of individual consumer debt in the United States is made up of primary residence mortgage debt (Mantel, 196). However, the subjects of this thesis are primarily college students and recent graduates, most of whom do not yet own real estate. Consumer debt in relation to college students generally refers to credit card debt outstanding. In 2002, it was reported that college students held individual outstanding credit card debt of $1,770 (Norvilitis, Merwin, Osberg, Roehling, Young, Kamas). This is comparable to average outstanding credit card debt in established households in the US. But unlike most households, college students don't generally have full-time income to support the payments of this debt and may not be able to pay it off as quickly, resulting in more interest charges.

Oxford's Dictionary of Economics defines Net Worth as "The net value of an organization's assets, after deducting any liabilities" (Black, Hashimzade, Myles). Although this specific definition applies to organizations, it can easily be translated to the individual level. Net Worth can be described as a simple mathematical equation: The fair market value of what one owns minus the value of what one owes. The technical pieces get trickier to define. For this thesis, what an individual owns consists of equity built in one's real estate holdings, the sum of cash and other liquid assets, the value of one's bond and stock portfolio, and the value of other major miscellaneous assets. What an individual owes consists of student debt outstanding, consumer debt outstanding, and all other debts legally owed to public and private individuals and organizations.

Over the course of this thesis, we will consider how college students in the 1990s were educated, what their standing was with finances at graduation, and how those factors led to their current net worth standing. We will then compare their education and standing at graduation to current college students. Using this comparison, we will proceed to give a projection of future net worth for current college students. We will thus gain an understanding of if we need to be more aware of PFL matters than them or not.

After comparing modern graduates to graduates in the 90s, we will turn our attention to comparing modern graduates to graduates in another country. We will consider how college students in another country finance their education, what their status is at graduation, and their future salary projections. Using this comparison, we will gain an understanding of if we need to be more aware of PFL matters than them or not.

If, after comparing our position with that of the previous generation and that of another country, we find that our position is in better standing than theirs, we know that our modern graduates are in position to have the same amount of success, or better. If, however, after comparing our position with theirs, we find that we are in worse standing than them, then we know that we must learn more about PFL matters than they did to have the same amount of success. If we are in a worse position and we want to have more success than them, then we must learn much more than they did with regards to PFL. The University of Arkansas could even emphasize PFL matters more than they do so Arkansan students would have more success.

"Emphasize more" could mean any number of things. However, this thesis, if the findings support the above, would recommend that the University allow Personal Financial Management (FINN 3003) to be offered as an elective to count toward any undergraduate student's degree requirements. Personal Financial Management offers students a base knowledge of PFL and exposes students to a wide variety of topics underneath the PFL umbrella. If PFL needs to be emphasized more at the University of Arkansas, this would be an easy step for administration to take to help students who aren't in the Walton College of Business to gain a deeper understanding and appreciation for how to manage the money they will make over the course of their lives. Topics like how to build a credit score, how to manage credit card debt, which insurance choice might be correct for certain situations, how to get a mortgage, and how to invest are all covered in depth and could give a huge advantage to a student who knows, for example, a whole lot about Chemical Engineering, but not a whole lot about what to do with the checks he's sure to receive in the near future.

Conversely, this thesis could reveal that modern students are in a better position than their parents' generation to succeed. We could discover that we're in a better spot with regards to debt and net worth. Along with the previous generation, we could discover that modern students are in a better position than international students with regards to student debt and salary projections, and thus don't need more emphasis in terms of PFL. If either of these findings are the result, there

would be no need for the University to further emphasize PFL any more than it currently is, and thus no evidence-backed recommendation for FINN 3003 to be offered to all majors. In fact, this would essentially be a best-case scenario finding. It would mean that students are in a better financial position than expected, and don't need more awareness of PFL overall to achieve the same success.

PFL of College Graduates During the 1990s

College graduates from 1990-1999 are a group roughly one to two generations behind current college students. These graduates are both recent enough regarding which to have ample data and old enough now to accurately estimate the course of their net worth and sum of their financial decisions. They are also a group close enough to modern day that comparisons shouldn't have too many confounding variables. Determining how they were educated, what their financial status was at graduation, and determining their resulting net worth will provide a good base for comparison to modern-day students.

Graduating college during the years 1990-1999 means that if our subjects are traditional students, and most them will be, then they were born generally in the 1970s. If we follow a traditional generational framework, then these subjects are part of "Generation X." Let us consider how educated Gen X was, how they paid for their education, and what the results of that education were with regards to net worth.

Generation X is a highly educated generation. "Just over 33 percent of [Generation X] have a bachelor's degree or more education, which makes them the best educated among the generations." In contrast, Millennials and Baby Boomers are both slightly less educated as a group, coming in at 32.8 percent and 30 percent with a bachelor's degree, respectively (New Strategist Publications, 34). It's interesting that Gen X has more education than the generation that came after them considering that more and more employers are looking for at least a bachelor's degree to hire employees. Could this be because of rising tuition prices and rising debt levels?

Not only is Gen X the most educated by number of completed degrees, but 60 percent of Gen Xers have at least attended some college before finishing a degree or dropping out. This is a staggeringly high number. More than half of Americans who are part of Gen X at least attempted some college education. However, since only 33 percent of Gen Xers actually completed a degree, nearly half of Xers who attended college dropped out before finishing (New Strategist Publications, 34). This high rate of dropout may be one reason why many consider Generation X "the slacker generation" (The Hutchinson Unabridged Encyclopedia).

Another crucial aspect of education is the cost of achieving that education. Seemingly everyone can agree that tuition costs have risen in recent years, but have they risen proportionally with incomes? If so, the increase in tuition cost is negligible in comparing Gen X graduates with modern day graduates. However, if the average cost of tuition has increased more than the average household income, that would mean it costs more to go to college now than in the 90s, relatively speaking. Determining a ratio of (Median Household Income / Average Tuition Cost) will give us an easy way to see this change over time. The higher the ratio, the easier it is for an average household to afford college tuition.

In 1991, Equifax reports that the median household income was just under $50,000 per year. During the same year, average tuition cost was $12,000. Our ratio here would be ($50,000 / $12,000), which comes out to approximately 4.17. All through the 1990s, cost of college and median household income both have gone up. In 1999, the same Equifax study reported that

median family income had risen to $56,000 per year, and tuition costs had risen to $15,000 per year (Equifax Study, 2). Our ratio in 1999 then comes out to approximately 3.73. So, by the end of the 90s, it's slightly harder for an average family to afford college than at the beginning of the decade.

Although the ratio did decrease during the 1990s, consider its interpretation and implications for our Gen Xers who are trying to afford to go to college. Their household makes between 3 and 4.5 times what they need to pay in tuition each year for them to go to school. For the sake of simplicity, if the average family used their entire income to send children to college, they could send between 3 and 5 children per year to an average public university.

Was this ratio considered affordable? Evidently so. As mentioned previously, 33 percent of Gen X has achieved at least a bachelor's degree. Not only that, but Gen X was the first generation in which women surpassed men in the pursuit of higher education (New Strategist Publications, 40). If higher education had not been widely perceived as both necessary and accessible to the common person, such figures would not have been observed.

Now, let us turn our attention to more recent graduates in comparison. We'll use figures from students who graduated between 2010-present, recognizing that some studies haven't incorporated the most recent few years due to their publishing dates. In 2010, Equifax reports that median household income was about $52,000 per year. During the same year, average tuition cost was nearly $19,000. Our ratio here would be ($52,000 / $19,000), which comes out to approximately 2.74. The most recent data that Equifax reports is for the year 2012, where average household income decreased to $51,000 per year and average tuition rose to just over $20,000, making our ratio ($51,000 / $20,000) or approximately 2.55 (Equifax Study, 2).

The interpretation of these ratios compared to the ratios we developed for 90s graduates paints a slightly more challenging picture of affordability. For modern graduates who wish to afford college, the average household makes approximately 2.55-2.74 times what they need each year for tuition. Again, for the sake of simplicity, this means that if the average family spent their entire annual income on sending kids to college, they could send between 2 and 3 kids each year. This fact, in contrast with the 3 to 5 students that could be sent during the 1990s, means that it's significantly more of a challenge for the average family to send a student to an average university during modern times.

Throughout the 2010s, cost of college rose more than average household income. In fact, average household income decreased while college prices continued to increase. What does this mean for indebtedness and PFL of our more recent college grads? Graduates in the modern day must do one of several things: rely more on their parents' income than before to fund their education (which is even more difficult to do due to falling average family income), take out more student debt, drop out of pursuing a degree, or find more creative ways to fund their education if they still wish to pursue it. These situations all point to one truth for modern graduates: they need more knowledge of PFL than the last generation to have a comparable amount of success with regards to affordability of college.

Moving on from price of education to actually paying that price, let us now turn our attention to how Gen X financed their educational endeavors, and then compare their sources of funding with modern graduates. What kind of student debt did they take on to afford classes? And if debt was taken on, how quickly was it paid back? Or is it still not paid back?

The available data show that despite education being reasonably priced, Gen X did use a significant amount of student debt to fund their educational endeavors. Data from government sources such as the National Postsecondary Student Aid Study (NPSAS) give us a good idea of

just how much educational funding the average student in the 1990s took on to fund their education. NPSAS is "an approximately quadrennial survey of students attending Title IV institutions (those eligible for federal aid) that is conducted by the National Center for Education Statistics. The nationally representative cross-sectional survey is designed specifically to gather information on how different students pay for higher education. It provides student-level information on financial aid provided by the federal government, the states, postsecondary institutions, employers, and private agencies, along with student demographics and enrollment characteristics" (Hershbein, 4).

Using NPSAS data, we can get a clear estimate of how much debt was taken on by the average Generation X and modern college student. However, since the data is quadrennial, meaning it only is collected every 4 years, we'll have to extrapolate the data past our intended range just slightly. The three data pulls that will be analyzed from NPSAS are for the academic years 1992-1993, 1995-1996, and 1999-2000. Since the intended range is 1990-1999, we'll only have confounding data from one extra year that should be fairly similar to the year before it.

In addition to NPSAS data being quadrennial, we should account for the time value of money. To have a true understanding of student debt amounts in the past, we must adjust the monetary values to reflect the present. To do this, data from the past will be input into the Bureau of Labor Statistics' Consumer Price Index Inflation Calculator. This calculator, found online at https://data.bls.gov/cgi-bin/cpicalc.pl, has official United States inflation data from January 1913 to January 2018. Using this most recent data available, we'll translate NPSAS statistics from the 1990s to reflect January 2018 buying power.

Each data pull estimate will need to be brought to modern buying power through the CPI Inflation Calculator and subsequently multiplied by four to reflect that most students are spending four years of aid at the college level. After multiplying each of the three inflation-adjusted data pulls by four, we can perform a collective average of the three to get an idea of the average amount of total aid received by college graduates in the 1990s during their four years in college. This average can then easily be compared to current graduates.

From 1992-1993, the average student took $3,266 of student loans (NPSAS 1992-1993, 10). Adjusted for inflation, this amounts to $5,676.95 in January 2018. Multiplied by four, the average graduate for this data pull graduated with approximately $22,707.80 in student debt in terms of today's dollars.

From 1995-1996, the average student took $4,010 of student loans (NPSAS 1995-1996, 9). Adjusted for inflation, this amounts to $6,437.48 in January 2018. Multiplied by four, the average graduate for this data pull graduated with approximately $25,749.92 in student debt in terms of today's dollars.

From 1999-2000, the average student took $5,173 of student loans (NPSAS 1999-2000, 7). Adjusted for inflation, this amounts to $7,596.07 in January 2018. Multiplied by four, the average graduate for this data pull graduated with approximately $30,384.28 in student debt in terms of today's dollars.

To calculate an overall average of leverage of student debt from graduates of the 1990s, the best we can do is average the above three totals. This average will already be adjusted for inflation. Averaging the above three, we come up with a rough estimate of what it cost a graduate in the 1990s to fund their education with debt: $26,280.67. Roughly speaking, the average student would take on about $26,000 of debt (in addition to scholarships and grants) to fund their higher education.

Now that we know the average Gen X student's leverage of student debt, let's consider comparing that leverage to modern students. Again, let's leverage NPSAS data from 2010-present. After receiving hard data, the data will be brought to January 2018 buying power through the Inflation Calculator previously used, and multiplied by four to obtain an average four year use of debt for modern graduates. Since NPSAS is quadrennial, the data pulls we'll use are from the academic years 2011-2012 and 2015-2016. Once we bring estimates up to modern prices and multiply by four, we can average the estimates to get a rough idea of how much student debt is leveraged by the modern college grad.

From 2011-2012, the average student took $7,100 of student loans (NPSAS 2011-2012, 8). Adjusted for inflation, this amounts to $7,764.13 in January 2018. Multiplied by four, the average graduate for this data pull graduated with approximately $31,056.52 in student debt in terms of today's dollars.

From 2015-2016, the average student took $7,600 of student loans (NPSAS 2015-2016, 8). Adjusted for inflation, this amounts to $7,951.30 in January 2018. Multiplied by four, the average graduate for this data pull graduated with approximately $31,805.20 in student debt in terms of today's dollars.

To calculate an overall average of leverage of student debt from modern graduates, the best we can do is average the above two totals. This average will already be adjusted for inflation. Averaging the above two, we come up with a rough estimate of what it cost a graduate in the present time to fund their education with debt: $31,430.86. Roughly speaking, the average student would take on about $31,000 of debt (in addition to scholarships and grants) to fund their higher education.

So, the average 1990 graduate used approximately $26,000 of student debt on top of their other scholarships, grants, jobs, and help from parents to fund their education. The average modern graduate is using approximately $31,000 of student debt to do the same. When adjusted for inflation, it costs the average student $5,000 more in debt to fund their education. This data shouldn't surprise, because we already know that rising tuition compared to average household income means that the price gap must be filled somewhere.

Again, we see that the PFL (this time regarding student debt and knowledge of how to use it effectively) of modern graduates needs to be at a higher level than their parents to have the same success. If modern graduates are to be expected to pay off debt, increase assets, and eventually send their own children to college amidst rising tuition costs, they must be more educated than the previous generation to obtain the same result. If they want to "get ahead" of their parents in terms of net worth, their knowledge and application of PFL must exceed their parents' knowledge.

Now that upbringing, educational attainment, and student debt of Generation X have been analyzed, we can turn our attention to the net worth that has presently been obtained by Gen X individuals. Do their assets exceed their debts? If so, by how much are they ahead on average? And what could this mean for modern graduates?

The average net worth of a Gen X household at the end of 2009 was $69,400 (New Strategist Publications, 298). Again, net worth is a picture of how much one owns minus the liabilities one owes. So, the average Gen X household at the end of the great recession owned nearly $70,000 more than they owed. One generation above them, the Baby Boomers have an average household net worth of $222,300 at the end of 2009 (New Strategist Publications, 298). One generation behind them, the Millennials have an average household net worth of $9,000 (New Strategist Publications, 298).

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What's observed is that as one grows older, one pays off debts (like student debt) and acquires assets (like a primary residence) and one's net worth grows as a result. What the data show is that this process just takes time. If we take into account the average $31,000 of student debt that a recent grad has and compare it to the (inflation-adjusted) $26,000 that a Gen X grad had, there isn't such a substantial difference in debt values that would lead to a substantial difference in future net worth values. $5,000 is not a hurdle that is too high to overcome in the long-run if one invests wisely. Over time, making payments on debt and buying assets lead to an average net worth that far exceeds the debts one acquired in college. This is an encouraging fact for young grads. However, if long-term success in net worth is to match or exceed previous generations, PFL must match or exceed the PFL of previous generations.

Analyzing the past performance of graduates in the Unites States presents a great perspective on how a previous generation played the hand they were dealt, so to speak. Understanding how current grads' standing with PFL relates to a previous generation shows us that our generation must have a knowledge of PFL that meets or succeeds that of Gen X to achieve the same success. Indeed, we'd want our more recent grads' knowledge to succeed each previous generation's knowledge so our net worth will exceed theirs, especially considering that 60% of households age 55 and older have saved less than $100,000 for retirement (New Strategist Publications, 313). If we wish to overcome that statistic, we must have knowledge of PFL which exceeds that of our parents.

A helpful summary of our comparison to Gen X graduates can be found below:

	Household Income / Tuition Ratio	Average Student Debt at Graduation
1990s College Graduates	3.95	26,280.67
Modern College Graduates	2.65	31,430.86

PFL of International College Graduates

Another metric that can be used to contextualize modern American graduates is to compare them to modern international graduates. Instead of just comparing to a previous generation like Gen X, we can now turn our attention to comparing modern American graduates to their counterparts around the world. To do this succinctly and with value, we will compare modern American graduates to their counterparts in just one other country, being very careful about which country we select as our country of comparison.

Comparing with another culture will give us another way to see how our modern graduates' knowledge of PFL must be to compete in an increasingly globalized world. With our country of comparison, we will compare the average cost of college for an undergraduate student, the average amount of student debt taken to pay for that undergraduate education (with the corresponding interest rates), and salary projections for students after graduating. If we find that our students will come out of college more in debt with less of a salary projection, then we know that their knowledge of PFL must exceed their counterparts internationally. If we find that our students come out of college less in debt and with higher salary projections, then we know that their knowledge of PFL doesn't need to exceed the knowledge of their international counterparts.

In order to compare college graduates from the USA to those of another nation, we must select a nation as similar to the United States as possible so there is as little interference with assumptions made as possible. While there is no nation exactly similar to the United States in terms of education, upbringing, college cost, access to college, salaries, taxation structures, etc., there are nations that clearly are more comparable than others. To compare modern American graduates to modern graduates from China might be a less valuable comparison than say the United Kingdom, simply due to the vast differences in societal structure.

To better understand the space in between cultures, there exists a concept called Cultural Distance. Oxford's Dictionary of Geography defines Cultural Distance as "A gap between the culture of two different groups, as between Vietnamese immigrants and the Czech majority in the Czech Republic" (Mayhew). When the distance is something more simple, such as distance between the United States and the United Kingdom, there are methods developed to quantify that distance across several spectrums. In our example earlier, for example, we'd expect the quantified cultural distance in between the USA and China to be greater than the cultural distance in between the USA and the UK. The country that we want to compare our graduates to is the one whose cultural distance to the USA is the smallest.

Quantifying cultural distance is even more difficult than it sounds. Placing a number that sums up the cultural decisions and values of each nation is incredibly difficult. Due to disagreements in how these cultural values should be weighted, several different methods of comparison have been developed for measuring cultural distance between nations.

Country	Cultural distance
Generic formula	
United States	29.01
Australia	28.42
Great Britain	22.60
Netherlands	19.51
Denmark	7.70
New Zealand	1.80
Canada	0.00
Sweden	−2.02
Norway	−8.91
Italy	−25.44

Country	Cultural distance
Kogut/Singh's formula	
Canada	0.000
Australia	0.110
United States	0.126
New Zealand	0.183
South Africa	0.235
Great Britain	0.262
Germany west	0.348
Switzerland	0.359
Ireland	0.371
Italy	0.631

When looking at different methods of measuring cultural distance, there are several scores and methods of scoring that have been used over time. In 1980, a scoring system was proposed by Geerte Hofstede. Using Hofstede's method of scoring in the modern day, the United States is most culturally similar to (in order) Australia, Great Britain, and the Netherlands (Yeganeh, 13). In 1988, a new scoring system was proposed by researchers Kogut and Singh. Using Kogut and Singh's scoring method in the modern day, the United States is most culturally similar to (in order) Australia, New Zealand, and Canada (Yeganeh, 14). While the indices disagree on the particular, it's easy to note that Australia is perceived as culturally closest to the USA in both methods. Therefore, we will use Australia as our country of comparison for college graduates.

Generally speaking, the Australian higher education system is very similar to the system that we're used to in the United States. There are a mix of public and private institutions, with the public institutions typically being more affordable and larger in number of students. However, an undergraduate degree is typically completed in 3 years of study. To gain entry as a domestic student, one needs the Australian equivalent of a high school diploma (which varies by Australian territory) as well as to submit an application.

Public institutions are publicly subsidized just like in the United States, and the Australian student is responsible for tuition costs and living costs associated with a college education just like the American student. A full course load costs different amounts based on different types of courses. Two of the largest public institutions in Australia, The University of Melbourne and The University of Sydney, should give us a good benchmark of cost comparison to an American public school like The University of Arkansas. While we won't be able to make accurate cost of living comparisons, the cost of education should be comparable between these three institutions.

At the time of composing this thesis, the exchange rate of Australian Dollars to US Dollars is approximately 1 Australian Dollar to 0.77 US Dollars. This exchange rate will be used throughout the rest of the paper. For comparison and example, a full-course load for an Australian business student studying at both The University of Melbourne and The University of Sydney in 2018 would cost the student $10,754 AUD (Australian Dollars), or $8,280.58 USD (University of Melbourne Fee Tables and Calculations, University of Sydney Bachelor of Commerce). This course load does not include mandatory add-ons and fees that will also have to be paid to attend the University. This amount is set by the equivalent of the Australian Federal government as a max that domestic students must contribute to achieve higher education. Since course work takes three years, total cost of paying tuition for a bachelor's degree in business is $24,841.74 USD.

We must be careful in how we structure our comparison of the University of Arkansas to these Australian public universities. The above amounts associated with Australian students do include some fees, but not all fees, and we must mirror this in our comparison to costs at the UofA. To take a full load (15 hours) of business classes at the UofA, a resident student's estimated tuition and fees for a semester are estimated by the UofA to be $5,952.15 (University of Arkansas TreasureNet Estimator). However, we must subtract fees that our Australian estimates didn't include. Specifically, Australian estimates include nearly everything but the "New Student Fee" and the "First Year Experience Fee" that is included in our estimates. When we subtract those fees out, we are left with tuition costing a UofA business undergrad $5,812.15 per semester. Assuming a 4-year (8-semester) path to graduation, total cost of paying tuition for a bachelor's degree in business is $46,497.20.

Cost of college tuition in Australia is approximately $21,655.46, less at public institutions than at the University of Arkansas and comparable public institutions in the United States, despite

the small cultural distance observed between our two nations. College students in Australia are graduating one year earlier than ours, coming out of the process over $20,000 ahead of us.

Of course, there are other factors besides tuition costs that we need to take into consideration as well. One of these factors is how education is financed in Australia. Are Australian students taking debt onto themselves at higher interest rates than our students? And, do Australian students have the wide availability of loan options that students in the USA have access to?

Australian students who attend public universities can receive full funding for the tuition piece of their education (which we estimated at $10,754 AUD) through the government-sponsored Higher Education Loan Program (or HELP). HELP is widely available to students so long as they're attending a publicly subsidized institution. It is not income based, meaning anybody who is eligible can apply and receive these loans regardless of their personal income or parents' income. Furthermore, "There is no real interest charged on HECS-HELP loans. However, [the student's] debt will be indexed each year to reflect changes in the Consumer Price Index to maintain its real value" (Australian Government StudyAssist). If you're a domestic student studying at a public Australian University, the government will give you interest-free loans to cover the cost of your tuition. You won't have to make payments on the loans until you make over $54,868 AUD (or over $42,248.36 USD) per year, at which point a set percentage (between 4% and 8% of your gross income) will be deducted from your paycheck to begin repaying the loan. You can also opt to pay a lump sum on top of your automatic deductions to decrease the principal loan amount as well. So, in answer to our previous questions, availability of loans is not an issue for domestic Australian students at public universities, nor are high interest rates on those loans.

While all seems great with these loans, there are more restrictions on them than the typical American student loan. First, these HELP loans can only be used to meet a student's contribution for tuition costs, meaning he's still on his own to pay for typical cost of living expenses such as food and shelter. Not only this, but the loans can't be used to even pay for textbooks or course materials.

Various grants and scholarships are available to help with these non-tuition costs depending on the institution that a student attends, most of which are private and supported by donations. There also exist, much like in the USA, private student loans from companies with widely varying terms of use and interest rates. For a domestic student, these loans would assist with rent, transportation, food, etc. There is no need to use these loans with higher interest rates to pay for tuition expenses when these expenses are already covered by a zero-interest, government supplied loan.

At the two public institutions we looked into, The University of Melbourne and The University of Sydney, the institutions themselves also offer private, short-term, interest-free loans to help students who are struggling financially. These loans are applied for and supplied depending on financial need of the student, and are small in amount, typically $2,000 AUD or less.

How does government loan usage in Australia then compare to government loan usage in the United States? Well, according to NPSAS data cited in the previous section, current students in the United States are using $31,430.86 on average of government debt to fund their education, with interest rates hovering around 4% or 5%. According to Brookings, Australian loans "are generally available for the full tuition price, and because of the subsidized terms, many students opt to take them" (Brookings). If we used our previous estimate of a three-year business student, their HELP loan balance would be $32,262 AUD, or $24,841.74 USD, at the end of their college career. This is a generous estimate, because not all students will be taking out loans in the full

amount of their tuition. But, even if they did take out the full amount, their average outstanding balance at the end of college would be approximately $6,589.12 less than their American counterparts. Therefore, Australian students, using a conservative estimate, come out $6,600 ahead of American students in terms of student debt, and they don't have to pay any interest on that debt.

Australians typically do come out in better shape in terms of student debt than Americans. However, that's meaningless by itself if they won't make as much as American graduates. American graduates can still easily achieve a higher net worth than Australian graduates if they are paid more for the same positions and have reasonably higher future salary projections. We must take both Australian and American salary projections into account if we are to understand how student debt relates to net worth.

Below is a table from The Australian Journal of Education with median incomes by degree type in Australia from 2006:

Table 1. Median income for all graduates by field of study, 2006.

	Male $	Ratio Grad/HS	Female $	Ratio Grad/HS
Humanities	797	0.90	636	1.14
Science	1090	1.23	749	1.34
Allied Health	1215	1.37	896	1.61
Mathematics and Statistics	1219	1.38	900	1.61
Information Technology	1167	1.32	936	1.68
Engineering	1317	1.49	915	1.64
Architecture	1208	1.36	811	1.45
Medicine	2034	2.30	1405	2.52
Nursing	1070	1.21	727	1.30
Dentistry	1826	2.06	1297	2.32
Education	1085	1.23	858	1.54
Visual and Performing Arts	750	0.85	625	1.12
Commerce	1268	1.43	873	1.57
Law	1668	1.88	1158	2.07
Economics	1287	1.45	862	1.54
Year 12	839		558	

Source: Australian Bureau of Statistics, 2006 Census of Population and Housing, unpublished.

The median income figures that are shown are median weekly income numbers, stated in AUD. The base "Year 12" at the bottom of the table represents students with a high-school equivalent education who did not pursue higher education.

In order to understand this more clearly, we need to translate the AUD figure into USD. However, we can't use our current exchange rate of 0.77, since this data is from 2006. The Reserve Bank of Australia keeps historical data on USD exchange rates, and the mean exchange rate figure of all monthly exchange rates in the year 2006 is 0.76 (Reserve Bank of Australia); a small change from our current rate, but not an insignificant one. Below is a table constructed using the data above and the updated exchange rate information from 2006 to form a weekly USD earnings and corresponding annual USD earnings by degree type.

	Male Weekly USD	Male Annual USD	Female Weekly USD	Female Annual USD
Humanities	605.72	31,497.44	483.36	25,134.72
Science	828.4	43,076.80	569.24	29,600.48
Allied Health	923.4	48,016.80	680.96	35,409.92
Mathematics and Statistics	926.44	48,174.88	684	35,568.00
Information Technology	886.92	46,119.84	711.36	36,990.72
Engineering	1000.92	52,047.84	695.4	36,160.80
Architecture	918.08	47,740.16	616.36	32,050.72
Medicine	1545.84	80,383.68	1067.8	55,525.60
Nursing	813.2	42,286.40	552.52	28,731.04
Dentistry	1387.76	72,163.52	985.72	51,257.44
Education	824.6	42,879.20	652.08	33,908.16
Visual and Performing Arts	570	29,640.00	475	24,700.00
Commerce	963.68	50,111.36	663.48	34,500.96
Law	1267.68	65,919.36	880.08	45,764.16
Economics	978.12	50,862.24	655.12	34,066.24
Year 12	637.64	33,157.28	424.08	22,052.16

Since this data is still in terms of USD from the year 2006, we'll have to adjust for inflation. As earlier in the thesis, we will use the official Bureau of Labor Statistics' Consumer Price Index Inflation Calculator to do so. We'll translate all 2006 data into January 2018 data and place in a table below to show how much the average Australian degree holder makes in terms of current annual USD:

	Male Annual USD 2006	Male Annual USD 2018	Female Annual USD 2006	Female Annual USD 2018
Humanities	31,497.44	38,364.50	25,134.72	25,134.72
Science	43,076.80	52,468.39	29,600.48	29,600.48
Allied Health	48,016.80	58,485.41	35,409.92	35,409.92
Mathematics and Statistics	48,174.88	58,677.95	35,568.00	35,568.00
Information Technology	46,119.84	56,174.87	36,990.72	36,990.72
Engineering	52,047.84	63,395.29	36,160.80	36,160.80
Architecture	47,740.16	58,148.45	32,050.72	32,050.72
Medicine	80,383.68	97,908.90	55,525.60	55,525.60
Nursing	42,286.40	51,505.67	28,731.04	28,731.04
Dentistry	72,163.52	87,896.59	51,257.44	51,257.44
Education	42,879.20	52,227.71	33,908.16	33,908.16

Visual and Performing Arts	29,640.00	36,102.10	24,700.00	24,700.00
Commerce	50,111.36	61,036.62	34,500.96	34,500.96
Law	65,919.36	80,291.08	45,764.16	45,764.16
Economics	50,862.24	61,951.21	34,066.24	34,066.24
Year 12	33,157.28	40,386.22	22,052.16	22,052.16

Just as the Australian government keeps track of its median earnings by degree type, the United States Bureau of Labor Statistics keeps track of our median earnings by degree type. Below is a table which adjusts our cited USA 2011 statistics for inflation and then compares those to similar fields from the Australian data (if possible). We will remove earning categories that almost require advanced degrees (medicine, dentistry, and law). We will also remove earning categories that have no comparable in the United States (namely, Allied Health). Additionally, we will remove categories for which there is no data available from the Census and average categories which were categorized differently by the Census. While this brings us down to just a few remaining categories, it still will give us a good idea of how salaries compare between the two countries. If one country is paid significantly more or less than the other, we'd expect to see that pattern hold true across most, if not all, fields of study. Since the United States data isn't organized by gender, we'll average our two gender salaries from Australia to come up with an average salary by degree type regardless of gender. What we end up with is what we wanted in the beginning: an average salary comparison between United States degree holders and Australian degree holders, adjusted for inflation, by degree type.

	Average Annual Australian Earnings by Degree	Average Annual USA Earnings by Degree (BLS Census Salary Table)
Humanities (Average)	31,749.61	61,912.99
Science (Average)	41,034.44	72,733.93
Mathematics and Statistics	47,122.98	87,968.31
Engineering	49,778.05	100,509.66
Education	43,067.94	55,846.38
Visual and Performing Arts	30,401.05	55,387.78
Commerce	47,768.79	73,074.70

The difference in observed salaries is staggering. In every category except education, American salaries are almost doubling Australian salaries. It appears that despite the relatively small cultural distance between our two nations, salary levels between the two nations are largely different in favor of the United States.

To conclude our findings about Australia, let's review what's been discovered. From a cultural perspective, Australia is the most similar nation to the United States in both measures of cultural distance that we researched. This means that expected differences between the two nations should be very small, which gives us a good base country for comparison in personal financial matters and necessary knowledge of Personal Financial Literacy. Looking at college education, we found that public universities in Australia led to overall less student debt than American public

universities. Australian debt is interest free (indexed to the Australian inflation rate), and paid back from a portion of one's earnings after they reach a certain income level. However, average Australian salaries with a bachelor's degree equivalent are significantly lower than comparable salaries in the United States in the same fields of study.

When it comes to student debt, American students need to be more aware of PFL matters than Australian students. Americans graduate with more debt, with more complex payback terms, and with higher interest rates than Australian students. When it comes to the student debt aspect of PFL, we need to educate our students more than international students if we wish to achieve the same success.

Conversely, when it comes to salaries, American students come out widely ahead of Australian students. Although Americans need to know how to spend their higher salaries, they don't need to worry so much about having enough cash flow to pay down their student debts (generally speaking). So, as far as the ability to pay off student debt, American students need to be less aware than Australian students of paying it back. The net worth aspect of PFL is consequently higher in the typical American than the typical Australian. Knowing what to do with a higher net worth is important, but if net worth is the end goal of PFL, then our PFL needs to be less than the average Australian because we will naturally have higher net worth values due to our higher salaries.

Over time, higher salaries (especially salaries that are nearly double) lead to a higher net worth. We can pay off debt faster than Australians and save more. Even with our relatively higher student loan amounts and higher interest rates, over time we should come out far ahead of the average Australian. Internationally speaking, we are in a better spot financially than many would have us believe, mostly due to our high salary levels. While the cost of our education could be significantly less complicated, the average salary later in life makes up the difference for those who are willing to endure the complexion while they pursue their undergraduate studies.

Conclusion

PFL is an often confusing and difficult thing to measure. To understand one's knowledge of PFL and one's need for knowledge of PFL, we must look at one's very specific, individual situation and make specific judgment calls on what he/she currently knows and what he/she will need to know for the future. PFL is a very personal matter that varies wildly within similar generations and within similar nations. One's knowledge of PFL and need for future knowledge of it can vary wildly even within his friend group or immediate family.

To gain an understanding of the overall, average need for PFL, we must make comparisons. We compared our current graduates' general financial states to the financial states of two other groups: graduates from Generation X and graduates from modern day Australia. These comparison groups provided us insights that proved fruitful in determining where our current graduates stand financially. We can then use that understanding of our financial situation to understand if we're ahead or behind when it comes to PFL, and what we'll need to know more about or less about in the future.

From our Generation X graduates, we learned that college costs have risen compared to average household income. This means that the current generation's PFL needs to be higher than the previous generation's if we are to have the same success with saving for our children's college education. We learned that despite significantly lower costs, Gen X graduates did take out a significant amount of student debt to finance their education. Current grads are only taking out

approximately $5,000 more than Gen X grads to finance their education through student debt. This means that current grads must have a slightly better knowledge of how to pay down student debt than their parents. However, $5,000 in the long run can easily be overcome by small payments and average purchases (like a home). We learned that average net worth of a Gen X household in the modern day is approximately $70,000. At the same time, Gen X grads have little, if anything, saved for retirement. This means, again, that our generation's knowledge of retirement planning must be significantly greater than the previous generation's knowledge of the same. Overall, our generation is not in a horribly worse situation than our parents' generation, just a slightly worse one that can be overcome easily with more comparable knowledge of critical pieces of PFL.

From our modern-day international graduates, we picked Australia as our country of comparison because two different measures of cultural distance showed that Australia was the culturally closest country to the United States in the world. We learned that the organization of higher education in Australia is very similar to the organization of higher education in the United States. We learned that the only major difference is that an average bachelor's degree in Australia only takes three years to complete. On average, education costs are significantly less in Australia, meaning that our student's knowledge of PFL and leverage student debt needs to be higher. We also learned that their student debt structure is less complicated than ours overall and doesn't bear any real interest, and is subtracted automatically from their citizens' paychecks once they hit a certain salary level. This also indicates that our students need more knowledge of how to pay back student loan debt than international students. However, as we looked at salary projections to indicate future net worth, our students came out widely ahead of Australian students, showing that our knowledge of budgeting doesn't need to be as high as theirs when striving toward a higher net worth. Overall, there are areas where we do need more of a knowledge of PFL matters than international students to have the same amount of success, and a few areas where we don't.

This thesis focused on aspects that appeared most important toward improving one's net worth and living with a higher quality of financial assurance and safety. However, there are several aspects that were not investigated with regards to PFL matters. Tax structure in Australia compared to the United States, for example, could prove to be a meaningful difference in determining future net worth. Cultural values with Gen X could also prove to be a meaningful difference in determining net worth. The evolution of financial instruments could also mean significant changes in complexion and, eventually, net worth.

What we did discover is a benchmark that shows a comparative state of PFL matters. Compared to Gen X grads, we do need to be more aware overall of PFL matters to have the same amount of success. And we know that, at least with regards to retirement savings, we'd want to have even more success. Compared to Australian grads, we also need to be more aware overall of PFL matters when it comes to paying back our larger debt amounts. And as we make more money than average Australian grads, we need to know how to leverage those higher salaries to create higher net worth values.

What we're left with is a comparative analysis of the state of PFL in America. However, what needs to still be investigated is how the current state of PFL in America compares to how it should be. Stats about retirement savings being so low in the later stages of life should shock us and give us a sense that knowledge of personal financial matters should be and could be better than they are. Just because the younger generation isn't in a much worse position than the older generation, or in a much worse position than international peers, doesn't mean that we're in a good position overall. Knowledge of PFL could always be better, and the more we emphasize and teach it, the higher our societal net worth values should increase over time.

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