

Cognitive Errors, Biases and Vocational Exploration

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VOCATIONAL EXPLORATION, COGNITIVE ERRORS AND BIASES

Many people go through a long and difficult process deciding what to do with their life. One major component of this process is deciding what to do for work or a career. Often, these processes reach a critical phase during the college years. Such life and work decisions are subject to the same strengths and weaknesses in human information processing that accompany any other decision process. Many students experience little or no direct support from their college for making such decisions. However, such support can help students make more timely and optimal decisions that will affect their entire life course.

Most college career centers, as the name implies, do little to help students grapple with the overarching life direction questions. In supporting students' career decisions, they often provide data regarding earnings potential and market need for certain job types, and about how one's personality might fit the work demands of a job. However, as with any decision process, understanding the strengths and weaknesses of human information processing in engaging such decision can improve efforts to support students' decision processes.

Some defer such vocational exploration¹ because their life circumstances don't require a quick answer. Perhaps their wealth assures them they can take their time to set their life course. Or perhaps strict family or cultural expectations make them feel the answers are already prescribed and personal engagement is unnecessary, or even foolhardy.

While such non-urgency may promote some delay in answering questions of vocation, many students delay vocational exploration for more maladaptive reasons. When they do engage such questions they may do so in non-optimal ways. Understanding the cognitive

¹ The term "vocation" is often used to refer to one's paid-work career. Here it will be used in its broadest sense. The term has historically been used to denote God's calling (or "vocalization") on one's life. While a dominant Roman Catholic understanding of the term vocation points to full time church-related work, a Reformed view sees all economic work as vocation. Luther taught that all Christians have as many specific vocations as relationships (Wingren, 1957/2004). All Christians have a vocation to serve Christ and neighbor. Married persons have a vocation to serve their spouse. Parents have a vocation to serve their children, as do (in different ways) children the parents. This term, "vocation," will thus be used here to refer both to one's career and, more expansively, to one's purpose and mission in life. The term "vocational exploration" will be used to reference all the ways one might grapple with life purpose, including paid career, volunteer work, family duties, or any other activity designed to promote [do you really mean to include all leisure activities – for example – here?] another's welfare.

factors that cause deferral and limit optimality is the first step in improving students' processes and outcomes.

The process of vocational discernment, whatever else it can or may be, is at least a decision-making process. As such, it requires information to inform the decision-making process, cognitive skills to process that information, and metacognitive skills to monitor progress and determine whether to continue or adjust the process. Finally, an evaluation must be engaged to determine whether an acceptable solution has been generated and terminate the process.

People's beliefs about decision-making affect their engagement in the process. This paper will first survey some factors that may diminish quality of decision, delay decision-making, and decrease satisfaction with outcomes. Following that, we will discuss some methods for mitigating poor decision-making processes and encouraging optimal cognitive engagement.

Decision-Making Folk Psychology

Everyone has folk theories about how the world works. We also have folk theories about psychology, about why humans do the things we do. This folk psychology is often implicit and based on our own previous history, a sort of natural observation. The problem is that most humans believe they possess an accurate intuitive understanding of psychology. Stanovich (2007) explains that many college students' folk physics is errant. They do not understand inertia, or other object motion physics (called kinematics) even though they have seen thousands of moving and falling objects. When they get kinematics questions wrong, and are shown the correct way to conceptualize the problem, they readily accept that their intuitive physics theory is incorrect. But when asked to make predictions in the area of psychology, they have higher confidence they are correct and continue believing they are right even when shown evidence to the contrary. In other words, human folk psychology is less susceptible to education than folk physics. Perhaps we think that since we possess a mind, we naturally understand not only what it does, but how and why. By extension, we believe we understand how and why others' minds work as well.

Most people's folk psychology of decision-making informs their decision-making behavior. We think problem solvers have extensive knowledge about all the possible choices, are very sensitive to small differences between the choices, are highly rational, and act to maximize long-term welfare. This is often called the "economic man or woman" theory. None of its tenets are strictly true. We often make choices without extensive knowledge. We are often relatively insensitive to difference amongst the choices. We are not completely rational. Finally, we typically act to maximize short-term welfare rather than long-term welfare.

When confronted with a possible decision to be made, people consider whether they are in an ideal position to make the decision. Do they have the capacities of the ideal human decision maker as stated by the economic man or woman model? Most people believe they are highly rational. They also believe they properly seek long-term, rather than merely short-term, welfare. However, most early college students do not believe they are extremely knowledgeable about vocation issues. Neither do they believe they are highly sensitive to difference between the choices. They then implicitly reason that if problem solvers are such paragons of knowledge and sensitivity, they themselves are clearly not yet ready to solve this problem of vocation. So they defer the decision making process.

This deferral can be adaptive, driving us to gain information to better guide our decisions. But often, deferral of the choice leads to deferral of deliberations regarding the options. It can even lead to deferring the information gathering if the number of options seems too extensive.

Predictably Irrational

In his book, *Predictably Irrational: The Hidden Forces That Shape Our Decisions*, Dan Ariely (2008) explores how we are not the sensitive, rational decision maker who weighs the pros and cons of every choice, then chooses the one with the highest net value for us. He cites the example of organ donor programs compared across various countries. Some countries have above 80% participation, others have 20% or less, with few in-between.

What could account for this? The default setting. In the countries with the high participation rates, the DMV form allows users to opt out of being a donor. In countries with

the low participation rates the form assumes a default of not being a donor unless the driver opts into the organ donor program. Either way, fewer than 20% of drivers exert the effort of marking the checkbox.

In the economic man or woman model, it is supposed that a person determines the pros and cons of the decision and then chooses for the best long-term gain. This model stipulates that the effort of marking the checkbox to join the organ donor program is a greater cost than the gain of joining the program. But Ariely says the decision is not so flippant. It is precisely because the decision is so important that people do not feel equipped to make the decision. They cannot easily compare the costs to family of having their organs harvested to the gain of others who receive those organs. They do not know their preference. Or, it is not strong enough to motivate action. They accept whatever the default is rather than acting to change it. This may be a form of delaying or avoiding the decision-making process. Once they leave the DMV, they do not typically revisit the decision.

This difficulty in comparing divergent options (such as my surviving family's pain at seeing my organs donated versus giving life to another) has a second effect. Undesired options that themselves would never be chosen can actually affect which option does get chosen. Imagine you are given the choice of an all-expenses-paid trip to either Paris or to Rome. The various positive aspects of one or the other are qualitatively different, creating an apples-to-oranges comparison. Now imagine a third option that is undesirable: a trip to Rome that is all-expenses-paid except for coffee in the morning, which costs 2.5 Euros. Not only does no one pick this option since Rome with free coffee is better, but more people now prefer the Rome trip to the Paris trip! Comparison with a similar but inferior option ("the inferior option effect") has been shown to influence people's choice of which person they might want to date from a photo line-up. It can also affect subscription option choices for a best-selling magazine (Ariely, 2008).

Carlson (2016) illustrates such an apple-to-oranges comparison made by many economically challenged (often ethnic minority) students – comparing an aspirational career to a more "realistic" career. For the poor, the "realistic" career involves familiar work that seems

attainable. This means that without mentors and role models they may give up on their interests and aspirations fairly early to follow the attainable. They aim low.

Carlson's article centers on the fact that low-income students have less career volition. They feel they have less freedom to pursue careers that have high preparation costs, in money or time. This can be improved by providing role models or a range of economic aid options. Many colleges not only do not provide such options, but instead tend to direct low-income students toward professional programs such as accounting, nursing and hospital management, rather than to liberal arts degrees that are often a conduit to graduate school and more influential careers.

Cognitively, persons who entertain more of the "realistic" options than of the aspirational options will experience a stronger pull towards a "realistic" choice via the inferior option effect. Since the two types of careers have little in common, direct comparison is difficult. This is analogous to the Rome versus Paris comparison. "Achievable" careers are easier to compare to one another than to an aspirational career. So the superior "achievable" choices win out against not just the many rival achievable careers considered, but against the few aspirational careers considered. The inferior Rome trip similarly makes the better Rome trip seem not only the best of the Rome options but also better than the qualitatively different option, Paris.

Most people also believe decision-making is a linear, stepwise process in which information-gathering leads to judging, which leads to deciding, which leads to enacting the choice, with a large cost if the wrong choice is made. But many life path decisions are made incrementally each day. They are iteratively informed by new data over long periods of time. Thus, the student should be engaging in vocational exploration questions throughout their education. Yet, their reticence to make a final decision blurs imperceptibly into a lack of deep engagement with the choices. This lack of engagement is not recognized as limiting the entire process. The student thinks the delay will be redeemed by better decision-making down the road. Thus, the deferral seems to not cost much. It is thought of as simply taking appropriate time to gather information. But without engaging the discernment process in a sustained manner, the information needed for a competent decision will never arrive.

Heuristics Versus Algorithms

A heuristic is a rule of thumb employed to help us make a decision quickly, without considering literally every alternative, and thus avoid cognitive overload. So, although it does not contribute to delay in the process, it does increase the risk of a poor decision. Our working memories are extremely limited, storing information that takes about 2 seconds for us to speak (Baddeley, 2008). This results in the ability to remember only a handful of the possible options at a time, or only a handful of properties by which to judge options. Although we can work around this through writing the information out, we are true cognitive misers. We attempt to use as little effort as possible. Enter heuristics.

The best solutions result from a process of evaluating all possible options, called an algorithm. However, we cognitive misers typically default to heuristic strategies, which are less exhaustive and put limited strain on memory and cognitive operations. Dozens of specific heuristics have been investigated – too many to discuss here. But they all involve shortcuts that are often quite adaptive for limited capacity information processors. They yield solutions to common everyday problems quickly and without need of extensive memory resources or cognitive efforts. The solutions they provide are not always optimal, but their speed, coupled with somewhat low frequency of costly or large errors, makes them useful to us. The problem is we over-rely on them. We think that since they work on simple tasks they will work on complex tasks.

For instance, we often choose to use products that we have not exhaustively investigated, but that are endorsed by friends, family, people we respect, or (sadly) celebrities. Taking a doctor's recommendation for an analgesic is adaptive when she has examined me and used her medical expertise to prescribe it. It is less adaptive if I simply choose the analgesic she uses. I might have different issues than her, prompting her to prescribe a different medicine for me than for herself. Worse still is taking the word of the actor who portrays a doctor in a commercial. "I am not a doctor, but I play one on TV...." We too often conflate the attributes or abilities of the character with those of the actor. Thus their endorsement affects us more than it should. We don't have time to read all the studies about all over-the-counter pain-relievers.

We take the options that seem reasonable – and that are in plain sight in the store near us. We use differentiating information that is not overly complex pharmacology. It works for mom and that doctor on TV recommends it. So we take it.

The “representativeness heuristic” makes us susceptible to such advertising. It affects our estimates of the probability that A is a type of B, or of whether A can cause B. In this case, whether the advertised analgesic (A) can cause pain relief (B). To the degree that A is representative of the types of processes we have learned can cause B, we will believe A can cause B even if we have statistical evidence to the contrary (Tversky & Kahneman, 1974). Since most of us (wisely) rely on doctors for such medical advice, a physician spokesperson for the product increases our belief that it will give pain relief. Of course, if the consumer is not informed of the spokesperson’s identity or position, but that person wears a doctor’s white lab coat, this makes the ad’s claims more believable. Similarly, the spokesperson is more believable than an unknown if that person portrays a doctor on a TV series. The advertising on the package can also be misleading. A “pain reliever” relieves pain, right? So we expect it to relieve our pain.

Representativeness can also cause us to misjudge whether a person fits a certain category. For instance, imagine Chris. He is short, thin, wiry, wears wire-rim glasses, and likes to read poetry. Is he more likely a classics professor or a truck driver? Most people guess the former. Why? Because he is more similar to the prototypical classics professor than to the prototypical truck driver. Most people expect a person who sits at the wheel all day to be fat, not thin and wiry. They also expect a trucker not to appreciate cultured things like poetry. Chris *represents* our stereotype of a classics professor better than he does that of a truck driver. But regardless of the personal attributes listed, the statistical probabilities favor him being one of the multiple millions of truck drivers rather than one of the few hundred classics professors. The most logical guess, with the best probability of being correct, is that he’s a truck driver. But we ignore the statistical base rate information and use the personal information that is explicit in the vignette.

The “availability heuristic” similarly causes us to ignore statistical base rates when making likelihood inferences (Tversky & Kahneman, 1974). Something that is readily available in

memory will be deemed more probable than something that is not easily retrievable. This is also sometimes called the vividness heuristic because vivid events are recalled more easily than nondescript events. When asked which is more prevalent, humans dying from shark attack, or from falling airplane parts (Plous, 1993), people commonly reported shark attack. People were actually 30 times more likely to die from falling airplane parts in the years prior to that. Why were their probability estimates so wrong? It may be due to the vividness of shark attack in people's minds (precipitated by fictional movies such as *Jaws* and by documentaries about shark attack which include reconstructed events). It may also be due to higher impact news media coverage of shark attack than of death by falling airplane parts. So the latter are less vivid in recall, and less detailed when reported. This makes them less distinctive, therefore less available in memory. Our memory is best at recalling recent, highly repeated, and distinctive items. Since recency, distinctiveness and frequency all affect availability, sometimes our estimation of the likelihood of an event is biased by the last thing we learned on that topic, or some distinctive thing, rather than the actual frequency of its occurrence.

Sooner or later, humans use heuristics for most decision-making. Often we justify them by saying one analgesic is not all that worse than the next, or our attributions about a person were not catastrophic even if wrong. Often times, our culture ensures rough parity in the solutions (as with over-the-counter pain relievers that are FDA approved all being fairly similar in effectiveness and safety). Other times there are fewer constraints. But even when we do passionately care about choosing the very best option, our decision-making can be compromised by the very thing we value – a large number of options.

Choice Overload

Psychologists have noted that options often have paradoxical effects on the choosing process. Most people think more choice is better. For some people the new choice is best, so they are now better off. For others, the new choice does not ruin their other options, so it does not hurt them. Net improvement, right? Yet, too many choices, termed “choice overload” or the “excess choice effect,” has been shown to decrease choosers' satisfaction and confidence, increase regret, increase the likelihood of switching choices, and to cause choice deferral (delay

or procrastination). These effects are strongest with complex choice sets, difficult decision-making tasks, uncertain choice-preference, and when the decision maker tries to simplify or minimize effort in the choice process (Chernev, Böckenholt, & Goodman, 2015).

Making vocational choices certainly qualifies as a situation of choice overload. There is a very numerous, complex set of alternatives that are difficult for the student to rank. The process (and proper choice) can feel overwhelmingly important, changing one's entire life trajectory. So it is a difficult task wherein the student often adopts strategies to simplify the task or minimize required effort. These are the perfect conditions under which social scientists observe the paradoxical effect of choice overload (Schwarz, 2004).

Most choice overload studies involve a clear option set. Both experimenter and participant know the number of options in each condition. Only their properties are complex. Choices about vocation are even more complex. Different viewpoints, terminology, taxonomy, or level of analysis can make it seem as if there are more or fewer choices. Thus matters of framing, or how the decision-maker sees the situation, can powerfully influence what options the student believes she has. If the student believes his economic situation limits his choices, then this often becomes true for him, even if another might not perceive the same limits. This may cause a student not to pursue callings that require initial investment, such as graduate or professional schools, if full funding is not available and apparent.

Alternatively, a student with great economic resources may be able to leave off considering initial investment costs or total earning potential when exploring vocation. This can simplify the choice, reducing the number of aspects that must be compared in evaluating each option. This can also reduce time stress. A more economically challenged person may feel they must become self-sufficient earlier and therefore may choose an option with less costly preparation. Having a rich, supportive family can be one reason a person frames the situation a certain way. However, framing is still a powerful effect since one without such resources might still feel less economically constrained because he or she plans to take more time in training to work and pay off some of the debt, as well as adopting a lower practical standard of living which allows for higher student loan repayment after professional preparation. The inferior

option effect discussed in the previous section is one way framing can affect such decision-making processes.

Biases

In some decision-making situations, alternatives must be experienced, and only one or a few can be pursued at any one time. There is a cost to changing options. Cell phone companies know that the short-term cost of changing options is more salient to us than the long-term gain of switching. This is why they ask for 2-year commitments with early termination fees. Some companies now offer to pay the fees for the consumer who switches to them. It is their best way to acquire customers in a saturated market. Even this preys somewhat on short-term consumer thinking since the new company ends up making more than the early termination fees back based on how they set their subscription rates. Both strategies work. People typically avoid early termination if fees are charged, and they typically only switch to companies that will pay the fees for them. Both of these increase the monthly costs of cell phone contracts. Subscribers shouldn't be so controlled by those policies, but they are thinking short term rather than long term.

Also, once a choice has been pursued, two biases can cause us to persist even when it is not the best option: sunk cost fallacy and default bias. A sunk cost is a cost that has already been incurred and cannot be recovered. Logically, this cost should not cause one to keep to the current course, which required the cost. But humans see what we've already paid to pursue our present course and feel that cost would be wasted if we changed course. So the new option must not only be better than the old option. It must be better by greater than the sunk-cost amount.

In default bias or status quo bias, we are such cognitive misers that once we have "solved" a recurring life problem we dislike changing the solution. So we keep with the same course of action. As time passes on a given course of action, both biases grow stronger. This is why companies and salespeople will offer products at deep discounts, even sometimes losing money to get a consumer "hooked." Once we've chosen it, we are more likely to choose it again. Even though we now pay the "regular price," we are more likely to stick with it than if we

were newly comparing options with no past usage history. If we threaten to change companies (say, our internet service provider) most companies allow their phone support to give a very slight discount, in the hopes that keeping the customer for longer will increase their bias to stay with the company. But they do not usually let this customer keep the steep discount they offer new customers. They rely on the default bias to let them charge a bit more as time passes.

Collegians often feel the sunk cost of pursuing a major or a vocational choice and therefore resist changing it unless it is appreciably better than the current default (whatever they've already declared or pursued). The default bias, too, is a strong factor in students. Already mentioned is the fact that many low-income students more readily consider "realistic" or "achievable" options than aspirational options. The default bias compounds the problem of helping them achieve the highest career and life goals, when not accounting for their economic position. Helping them pay for college in ways other than loans can help them feel the freedom to change to aspirational career tracks in the same way company X can recruit a new customer by paying their early termination fees.

ENCOURAGING BETTER VOCATIONAL EXPLORATION

If having many choices that may be qualitatively different, being cognitive misers, and having poor folk theories of decision-making leads to so much deferral, error and bias, how can we hope to do better? Firstly, forewarned is forearmed. Beloved Wheaton College psychology professor Fran White constantly taught her students, "We are controlled by what we don't know about ourselves. But, we can exert some control over what we do understand," (M. Mangis, Wheaton College Psychology Department Chapel Address, April 20, 2016). Forewarned is forearmed. The next sections outline some steps that can be taken to defend against the cognitive errors surveyed above. Although it is not clear to what extent one can ever fully avoid or foil these biases, some steps that may help are outlined below.

Decision-Making Posture

Since students tend to think a good decision-maker is extremely knowledgeable and very sensitive to information (see **Decision-Making Folk Psychology** above), it is reasonable to

try and redress those assumptions. One simple way is to tell them stories of how others came to their own vocational path. When a faculty member, a staff person, or an invited guest shares their life journey with a student, this often illustrates by example that one does not need all the answers before starting the journey, and that mid-life course changes are not catastrophic. Many people's vocational stories include a fumbling start and a redirection.

Direct re-education is also powerful. When we do understand that we often have a certain implicit psychological theory, we can notice when we are being driven by it. It can help us realize we do not have to know all the options, understand all their relative merits, or decide and act perfectly rationally for long term optimality. We need to fight the desire to defer judgment by engaging the quest, yet also take time on that quest to really explore many alternatives.

Predictably Irrational

Just as the DMV question default (opt-in versus opt-out for organ donation) can stymie people, so can cultural, familial, and institutional expectations. They become the "default" that is difficult to resist. So people can be boxed-in by others' expectations. Furthermore, the inferior option effect can be quite strong. Students (especially low-income and minority students) need encouragement to seriously consider aspirational careers and callings. Mentors and models can be powerfully effective for this. When the student sees real evidence that an aspirational vocation can be achieved by someone like them, she or he is more likely to consider a vocation that seemed out of reach before they received such modeling. Serious consideration of a number of aspirational careers can result in the inferior option effect biasing the person toward aspirational careers rather than away from them. This is because some of the now more numerous aspirational career alternatives are easily compared. The best of those will seem even better than the "achievable" ones that could not be directly compared to other alternatives. Colleges, academic advisors, and career centers need to be more aware that

minorities and lower income students are often counseled into the professional programs rather than graduate school and other elite paths. Institutions need to fight those tendencies.²

Encouraging More Algorithmic Behavior

All humans prefer to use decision-making and judgment strategies that don't require much memory or cognitive resources. We are cognitive misers. We often avoid even very small increases in workload as a part of this miserly process. It can take years of coaching to get someone to even expend the tiny effort of writing down information for future referral and additional data gathering. Rewriting and organizing that information over time is even more rare. My grade-school children resist writing their assignments down. "I just remember it, Dad!" they tell me. Even when their teachers require them to write an assignment log, they often pack their backpacks to leave school without even referring to it. So, they occasionally forget to bring home a needed book for a test review.

As with my children, the first order of business with college students is to convince them to write it down. Journaling about one's vocational calling, interests, and aptitudes can be quite powerful. By keeping written record of the different issues, one is more prone to consider all the important ones in a decision process. Without such a record, some issues may be remembered at one time, different issues at another time, but they are never considered together so that all considerations can contribute to the decision. This resistance to journaling occurs even for young adults who say they are very concerned about their future and what to do with their life. One way to overcome this may be to encourage them to blog their vocational discernment process.

The simple act of writing things down and occasionally reorganizing that information can make the whole process more algorithmic and less heuristic. Using the written material,

² Obviously financial aid and other economic provisions can also help with these students. This paper deal with some cognitive remedies for the cognitive errors. Some of the procedures used to fight the differential advising should be culture-blind, such as using test results, inventories or metrics when the counselor does not know the identity or culture of the student who completed the test, inventory or metric. Once counselors know the ethnic, economic or other particulars of a student, their knowledge of those factors may influence their counseling even though they will not believe it does. Of course, training all faculty and staff that such things occur is also important, since much of the mentoring cannot be culture-blind and being aware of such biases is the first step toward not perpetuating them.

rather than requiring timely spontaneous recall, increases the information that the student can consider at one sitting. This redresses the principal shortcoming of heuristics: their overreliance on a few facts to conserve cognitive resources. This miserly modus operandi is so pervasive that one cannot overemphasize the degree to which this simple change can improve all one's important decisions. Our culture prizes written over oral information in all respects for decisions of state and business. Yet it does not do so for important decisions of the "heart," such as a life calling, a career, or choosing a spouse. Such a practice is generally considered to be inauthentic or too cold and calculating for such personal decisions. But in reality, it brings the full powers of the intellect to bear on the decision so it can be a holistic decision, rather than only a "heart-felt" decision.³

Relieving Choice Overload

A dizzying array of life options faces the college student who ponders what to do with her life. Choice overload – the delay, dysfunction and discontent that comes with too many choices – does not apply in all situations. Experts experience less of it. Organizing choices into categories can also mitigate the overload effects.

As for adjudicating which options are preferable, how does one develop expertise in making vocational choices? Simply looking inwards at one's desires and preferences is commonly advised, yet lacking volumes of actual field experience most people have no realistic basis on which to judge the options. The remedy is to gain expertise by making embodied choices -- pursuing experiences that explore vocation. Of course, the first exploratory choices are made with little experiential background. Nonetheless they lead to more and more well-

³ There is a caveat to encouraging writing. The writing process does help us avoid cognitive errors and biases caused by our limited capacity information processing (especially working memory capacity). But Schwarz (2004) notes that some people whom he calls "maximizers" are more likely to feel less satisfaction about their decisions. They obsess about squeezing the maximum value from every situation. Their high expectations typically lead them to feel their choice did not yield as much value as was expected given their extreme pursuit of the very best outcome. They often also, paradoxically, achieve suboptimal outcomes, perhaps because of their focus on maximizing. Schwarz recommends that people try to be "satisficers," who accept any alternative that meets their goals or requirements without worrying about whether it is the very best alternative. There is thus a middle ground to be achieved. One must invest seriously in the process, and do things such as writing and record-keeping to do it well. However, one must avoid the quest for perfection or the perfect outcome. We must teach students to not let "best" get in the way of "good."

informed choices and experiences. This is why offering internships for credit can be useful. But student also need encouragement from their academic advisors, professors and career center to pursue not-for credit paid or volunteer work experience as well.

Categorizing or otherwise organizing students' options can help mitigate the choice overload effect. A vocational exploration course or some co-curricular method (housing groups etc.) of educating them about life paths and careers can thus be very useful. Good taxonomy, or organization, of vocations can thus help students avoid deferral, thus making more timely and optimal decisions.

Biases

Sunk cost and default bias are hard to redress. But certainly a Christian liberal arts college can remind students that one's past or current experiences need not have been in vain, even if one's life aims later change. The emphasis on early engagement with matters of vocation that I recommend can make one feel a failure if late in college one experiences a radical shift in motivation. But, after encouraging timely engagement with matters of vocation, it is important that faculty and staff not cause the student to ever feel it is too late to change course.

One way to fight the negative consequences of default bias is to set the default smartly. For instance, Ariely (2008) recommends that businesses and governments pursue opt-out retirement savings strategies. Since people often feel overwhelmed by such decisions, they don't feel confidence to act. If they must act to opt in to a retirement plan, they fail to do so. Conversely, if they are automatically enrolled to save the maximum amount that will be employer-matched, they seldom act to opt out. They are more secure in retirement because of how the default was set.

Similarly, the college can set a positive default for all students. There are many ways this can be done. Encouraging low-income and minority students toward aspirational vocations has already been mentioned. Offering vocational exploration in the curriculum is also a powerful default setter. This can and has been done a number of ways. Most of the 88 institutions which participated in the Program for Theological Exploration of Vocation (PTEV) have either a course

or module that is offered in the curriculum (<http://www.ptev.org/history.aspx>). These were largely continued even after grant funding for their vocation projects ended. Such courses help make vocational exploration a default, a thing done by many or most people. Due to the default bias, students will often then engage this process within the course in ways they would never have done on their own. Even students who do not take the course may see the value placed on it by the institution, and this will bias them toward individually engaging the process their peers share with them from the course.

Cognition and Vocational Exploration

Many cognitive errors and biases have been identified in psychology. Most of them have some application in addressing how to engage in vocational exploration, how to teach it to students, and how to prepare those who teach students. This treatment is not meant to be exhaustive, but to outline some of the ways that common human cognitive processes must be understood to best forward any attempt to help students clarify for themselves their life path. At the least, it can be useful to specifically teach students why most people's implicit decision-making theories can cause them to delay vocational exploration. Helping students understand choice overload, default bias and other sometimes-counterintuitive effects can help them identify and defend these factors when they occur in their own vocational journeys.

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