

**Motivation in Context:**  
**How Social Contexts Moderate Aspiration-Attainment Gaps**

by

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## **DEDICATION**

To my family, particularly my mother Rosemarie, for all the sacrifices that afforded me the opportunities to be in contexts that facilitated my attainment of my aspirations.

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*“...the most talented and hardworking of all contestants will usually be outdone by a rival who is almost as talented and hardworking but also considerably luckier.”* – Robert H. Frank, *Success and Luck: Good Fortune and the Myth of Meritocracy*

As the title suggests, this dissertation is about how social contexts moderate aspiration-attainment gaps. Before diving into the details of what I mean by that, I want to take a moment to acknowledge some of the people who have been instrumental members of my social context – people without whom I would not have attained my aspiration of becoming “Dr. Lewis.” I am incredibly lucky have them in my life, and anyone that reads this dissertation should know the role they played in my attainment of this degree. Without the good fortune of meeting them when I did, none of this would have been possible.

To start, I want to thank Matthew Brashears for encouraging me to pursue this journey in the first place. I never thought about a career in academia before working with Matt in the Social Science Research Lab at Cornell. I initially got into in research because I was a little curious about how those studies I was reading about in class were done; it was just supposed to be a fun thing, not a career move. But Matt nurtured that curiosity, showed me how a career in science could help me tackle the issues I was interested in (e.g., disparities in educational outcoms), and made sure I was prepared to embark on that career as a graduate student. Without his mentorship, I never would have applied to graduate school, and I certainly would not have been prepared for this journey.

Next, I want to thank my dream team of core advisors – Denise Sekaquaptewa, Daphna Oyserman, and Allison Earl. They have all been incredibly supportive of me from the very beginning, and that support has been instrumental for my success. I remember meeting with Denise my first day on Michigan’s campus and being impressed with not only how open she was to exploring my crazy half-baked ideas, but also how generous she was with her resources; without my asking, she immediately offered to purchase all of the software and other supplies I needed to start developing and testing some of my ideas. A week later, Daphna returned from her conference, and she too was incredibly generous with her time and resources. We spent countless hours talking through ideas in the Institute for Social Research (ISR) and developing and running studies – we even got the first version of the time metric paper out by the end of that summer. Finally, Ali and I also met that summer, and although I did not have a clear idea of what we would study yet, it meant a lot to me that she took the time to meet and invited me to join the lab; little did I know then that the work we would do on health disparities would end up being half of my research agenda. I write about those first meetings because they were critical for launching my career. As Denise and I have written about in some of our research, having these supportive early experiences fostered a sense of belonging for me that carried me through

this journey. Their unwavering support then, throughout my graduate career, and even now, has given me the confidence needed to persist in this uncertain world of academia.

In addition to Denise, Daphna, and Ali, I was lucky to have four other fantastic mentors throughout my time at Michigan – Sonya Dal Cin, Frank Yates, Phoebe Ellsworth, and Vince Hutchings. Sonya was my welcoming neighbor in the Research Center for Group Dynamics (RCGD). She has always been very generous – taking time out of her schedule to read and provide feedback on my papers and grants even though I was not even in her primary department. She also went out of her way to enrich my network in ways that have been incredibly beneficial for my career – she always invited me to events in the Department of Communication, and connected me with people in that field whenever they came to campus; without her guidance, it is hard to imagine that I would have landed a job in a communication department. Frank has been another guiding force throughout my time here. I met Frank by attending the Decision Consortium seminars my first year, and after a great conversation about some of my research interests, he invited me to attend his lab meetings. The thing that always impressed me about Frank was how grounded he is; he always brings the work back to the core social issues. Starting every lab meeting with a news article about an ongoing issue in the world was a simple but powerful way to remind us why we're here, and that kept me motivated to do my work when the going got tough. That approach also made it clear why he has been so successful not only in his research, but in also building institutions to address social issues – institutions like the Preparation Initiative Program that has helped so many under-privileged students in Ross; he is truly an inspiration. Phoebe is probably the wisest person I have ever met; when Lee Ross and Tom Gilovich wrote their book *The Wisest One the Room*, they could have just placed her photo on the first page and ended the book there. Some of the most critical lessons I learned in graduate school were the lessons I learned in Phoebe's classes – Advanced Social Psych, Research Methods, and Outplacement, and through our meetings about our collaborative project with Mike. I am so lucky to have had the opportunity to learn from and work with her. Finally, Vince was the mentor that always 'kept it real' about life in the academy. Our research meetings were of course useful for advancing our project, but more than anything, I really appreciated being able to go to Vince for his perspective and strategies for navigating life in the modern academy, particularly as a man of color.

Other than my advisors and mentors, there are many others who were instrumental to my graduate school success. My colleagues and friends in the Stereotyping and Prejudice Research Interest Group, Culture and the Self Lab, Health Attitudes and Influence Lab, Media Psychology Lab, and Judgment and Decision-Making Lab gave me great feedback on my research projects – everything from study design to manuscript reviews. My research assistants – Jennifer Allen, Saarah Anjum, Wendy Cortes, Rachel Cultice, Monica Ellis, Ryan Foley, Nora Greenstein, Alex Grombala, Sara Helmer, Mariam Khan, Andrew Khouri, Elena Khutoretsky, Celina Romano, Alaina Stevenson, and Elizabeth Stewart – volunteered countless hours to collect data, code videos, and enter data; I cannot thank them enough. The Black Student Psychological Association and Rackham Merit Fellows were important communities that provided much needed social support and professional development.

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With respect to people not in Ann Arbor, my family has made so many sacrifices for me to get to this point, I’m not even going to attempt to summarize them here – that could be a dissertation on its own. It goes without saying, without their support, I would not be here. In addition, the family members I acquired at Cornell have also played a monumental role in this journey. Jennifer Warmingham, Jeff Reinders, Erica Holmes, and Duncan Hall spent so many hours on the phone or Google Hangout with me along the way it was almost as if they were here with me despite them being dispersed across the country. And then there was David Andrew Beavers. There aren’t enough words to thank him. In addition to our weekly Google Hangouts to check in on how life was going, David took extra time out of his days to listen as I was thinking through ideas, he read most of my papers and provide feedback, making sure they were clear and accessible to those outside of my academic bubble – something that is incredibly important to me. He was always there throughout the entire journey and I can’t thank him enough for his unwavering support.

The final group that I want to thank before moving to the substance of the dissertation is the institutions that supported me and/or my work throughout my graduate school career. I have already alluded to the great support provided by the Department of Psychology and Institute for Social Research, but I was also supported by a Rackham Merit Fellowship, a Dow Doctoral Sustainability Fellowship from the Graham Institute for Sustainability, a Sarri Family Fellowship from the Center for Political Studies, and a travel grant from the International Max Planck Research School LIFE. In addition, some of the research in this dissertation was funded by the Dornsife Center for the Mind and Society at the University of Southern California.

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## **ABSTRACT**

This dissertation examines how and why social contexts moderate gaps between people’s aspirations and attainment. The broader aim is to understand how contexts moderate the motivational and goal pursuit processes that contribute to social disparities. I examine these processes across 10 studies drawn from three empirical papers. First, I present eight experiments documenting how and why different ways of framing goal-relevant information influences people’s motivation and behavior such as when they begin saving for future events and how much unhealthy food they consume (“When Does the Future Begin? Time Metrics Matter, Connecting Present and Future Selves”: Lewis & Oyserman, 2015; “Seeing More and Eating Less: Effects of Information Granularity on the Perception and Regulation of Food Consumption: Lewis & Earl, in press). Second, I present a field experiment documenting that the stereotypes that are activated in public health clinics can undermine African American patients’ willingness to pay attention to stigmatizing health information (“African American Patients’ Attention to Health Information is Influenced by In-Group Peers in Health Clinics”: Lewis, Kougias, & Earl, 2017). Third, I present a national survey documenting that people’s interpretations of experienced difficulty (an important motivational construct) are influenced by their positions in the social hierarchy – indexed by the interaction between their race and level of education (“No pain, no gain? Social demographic correlates and identity consequences of interpreting experienced difficulty as importance”: Aelenei, Lewis, & Oyserman, 2017).

Together, the 10 studies in this dissertation converge to suggest that if we wish to understand and address social disparities, researchers and practitioners must consider the interplay between social context and identity, and how it influences motivation and goal pursuit processes.

*Keywords:* Motivation, Goal Pursuit, Disparities, Situated Cognition, Identity

## CHAPTER I

### Group-based Disparities as Aspiration-Attainment Gaps

“Mr. Baldau presents in a very clear way the challenge of the person who is trying to improve group relations. Although he is able to paint a relatively friendly picture about the situation in Cleveland, he is eager to stress that he is not at all certain whether his report mirrors more than the surface. Mr. Baldau can enumerate important progresses made by various minority groups in the last decade, but he is not certain whether they will last or create counter-pressure strong enough to reverse the trend.”

-- Kurt Lewin (1946, p. 34)

Across a range of domains in life – education, health, and wealth, for instance – people who are situated in lower positions in social hierarchies experience worse outcomes on average than those situated in higher positions in those hierarchies. These patterns hold across different ways of operationalizing social hierarchies including racial ethnic category membership and socioeconomic status (e.g., Lewis & Oyserman, 2016; Oyserman & Lewis, 2017). Disparities along these social lines have persisted in societies for a very long time. Indeed, as can be seen in the opening quote, disparities have been of interest to social psychologists since at least the 1940s when Lewin (1946) wrote his seminal article on “Action Research and Minority Problems.” Lewin (1946) and other scholars of his time were curious as to why disparities between groups emerge and persist, and what (if anything) could be done to reduce them.

Two general hypotheses emerged over time to explain patterns of social group disparities, and these hypotheses have generated large bodies of research. The first

hypothesis is that disparities between minority and majority groups can be explained in large part by deficits in aspiration and other individual level factors that undermine motivation and goal pursuit. Early scholars argued that the reasons minority people often do not reach the same levels of achievement as their majority group peers are that minority group members: (a) lack aspiration – perhaps because aspirations conflict with their group identities (e.g., Fordham & Ogbu, 1986), (b) lack self-control (e.g., Baumeister & Heatherton, 1996), and (c) are unwilling to delay the immediate gratifications necessary to achieve success (e.g., Mischel, 1958). More recent manifestations of this perspective argue that disparities can be attributed to counter-productive “mindsets,” such as lower positioned students thinking of their abilities as fixed rather than malleable (e.g., Saunders, 2013), or those students lacking the “grit” necessary to persist when facing obstacles in life (Duckworth, Peterson, Matthews, & Kelly, 2007).

The second general hypothesis proposes more structural explanations for group-based disparities. Researchers from this perspective argue that the primary reason those situated in lower positions in social hierarchies experience worse outcomes than their better situated peers is because society imposes different constraints on different groups of people. Constraints historically emerged due to explicitly prejudice-based discriminatory policies (e.g. mortgage red-lining, segregation, differential pay by social category) that substantially and continually limited minority families’ social and economic capital (Cameron & Heckman, 2001; Farley, 1977; Keubler & Rugh, 2011; Loury, 1977; Marshal & Jibou, 1975; Williams & Collins, 2001). Although those policies and practices are no longer legal, those historical policies can still be linked to disparate outcomes today (Oyserman & Lewis, 2017). Moreover, scholars taking a structural lens have also noted that bias did not

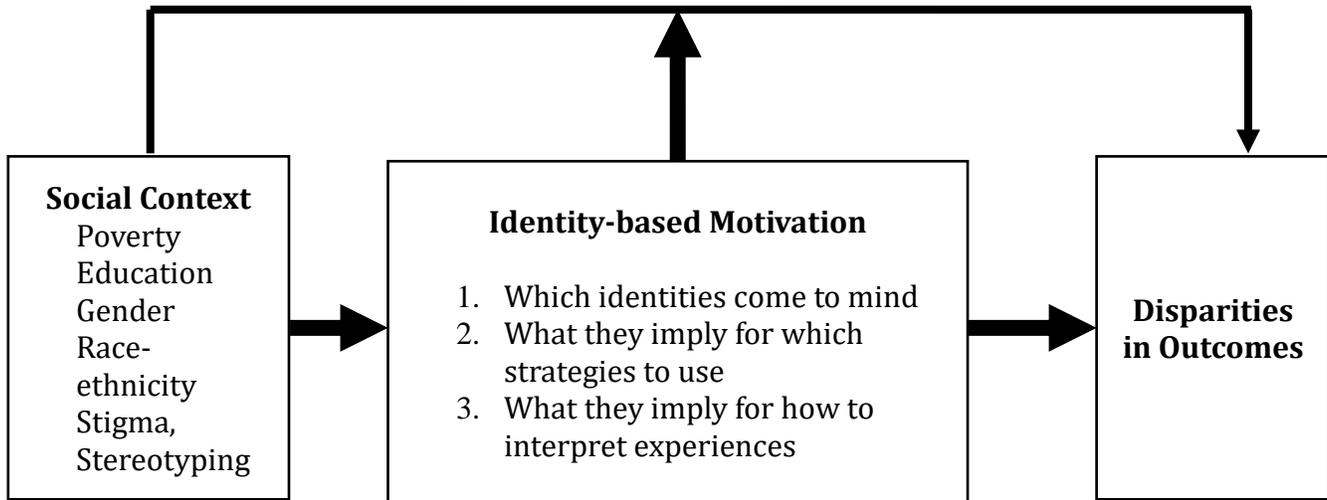
disappear when discriminatory policies were outlawed – bias just took a more implicit form that can still lead to disparities along social category lines. For instance, studies of unconscious bias have documented that equally qualified women and racial-ethnic minorities are less likely to be hired for a variety of positions (e.g. Bertrand & Mullainathan, 2003), teachers are more likely to look for trouble among minority students which explains their greater rates of suspension from school (Okonofua & Eberhardt, 2015), and doctors' implicit biases and stereotypes about minority patients influence treatment outcomes which result in health disparities (Burgess, Warren, Phelan, Dovidio, & Van Ryn, 2010). This body of work suggests that structural biases, whether explicit or implicit, can account for disparities in outcomes.

### **From Social Structure to Social Psychology**

The argument I make in this dissertation is not that one hypothesis is “more correct” than another per se, but rather, that these two hypotheses can be synthesized to develop a more holistic understanding of why disparities occur and what researchers and practitioners can do to address them. The main argument of this dissertation is that people's positions in social hierarchies and the affordances (and drawbacks) that come with social position have direct effects on life outcomes, including disparities in those outcomes. But in addition to those direct effects, social position also has indirect effects on outcomes through individual level motivational processes.

This argument was developed from my consideration of a large body of research on social disparities – particularly disparities in education and health outcomes (for recent reviews, see Lewis & Oyserman, 2016; Lewis & Sekaquaptewa, 2016; Oyserman & Lewis, 2017). This body of research has revealed two key findings. The first important finding is

that there are rarely differences in aspirations between those situated in lower positions in social hierarchies than their better positioned peers. For example, low income and racial-ethnic minority people have educational aspirations that are equal to, and in some studies, higher than their White peers (Oyserman & Lewis, 2017); similar findings emerge in the health domain (Lewis & Oyserman, 2016). The second key finding is that when disparities-relevant individual differences do emerge, they are often a function of contextual factors (Lewis & Oyserman, 2016; Oyserman & Lewis, 2017). For example, prior research suggests that racial-ethnic and gender differences in motivation to pursue and persist on education and health related tasks are often a function of whether minority people are in situations in which stereotypes about people like them are activated (Earl & Nisson, 2015; Lewis & Sekaquaptewa, 2016; Oyserman, Fryberg, & Yoder, 2007). Contextually activated stereotypes and stigmas have downstream consequences for people's motivation and goal pursuit strategies (Lewis & Sekaquaptewa, 2016; Oyserman & Fisher, in press). Synthesizing this research allows us to generate a unified process model that integrates structural and psychological accounts for why social disparities occur. This process model is illustrated in figure 1 and can be used to generate testable predictions.



*Figure 1:* Process model outlining the direct and indirect effects of social context on disparities in outcomes. Model is adapted from Oyserman & Lewis (2017).

### **Preview of Empirical Evidence**

One way to empirically test the predictions outlined by the process model above is to consider how it could explain disparities in outcomes like savings and health. There is evidence that people often fail to save enough for retirement (Munnell, Webb, & Golub-Sass, 2007, 2009) and fail to sufficiently engage in preventive health behaviors (Sirois, 2004) such as avoiding unhealthy foods. Presumably some of the variance in these behaviors is due to direct differences in affordances of structural position – it is difficult to save for retirement if one is poor, and difficult to eat healthy if one lives in a food desert. However, it is also possible that social position influences the strategies people use to approach these situations and how they interpret their experiences in these situations. For example, if one is raised in a family with high levels of income or wealth, one might learn about compound interest and that compound interest makes it tremendously beneficial to start saving for retirement now in the immediate future rather than later when one is older – at which point it is likely too late. If one is not so fortunate, then perhaps there might be

other ways that those invested in equalizing opportunities can re-frame savings (and health) information to create the sense of imminence necessary to adopt a “start now” strategy. I test this possibility and the associated psychological mechanisms in eight experiments in Chapter Two.

Another way to empirically test the process model outlined in figure 1 is to observe how people from different structural positions naturally behave in situations where stereotypes and stigmas about their groups are or are not activated. Do people behave differently – in ways that have consequences for disparities in outcomes? I test this possibility in an observational field experiment in Chapter Three.

A third way to empirically test the process model outlined in figure 1 is to look more broadly at whether individual differences in constructs associated with disparate outcomes are themselves functions of people’s social position. That is, one can ask if people who have lower scores on factors previously shown to predict persistence when situations get difficult, are also those who are from backgrounds where their opportunities are often constrained. I test this possibility in a national survey in Chapter Four.

## CHAPTER II

### **Evidence from Manipulating Contextual Framing of Information**

This chapter is adapted from two of my original papers “When Does the Future Begin? Time Metrics Matter, Connecting Present and Future Selves” (Lewis & Oyserman, 2015, Studies 3-7) and “Seeing More and Eating Less: Effects of Information Granularity on the Perception and Regulation of Food Consumption” (Lewis & Earl, in press, Studies 3-5):

When should people begin saving for future events like their children’s college education or their own retirement? How many servings of junk food should people eat in each sitting? Although these questions do not have precise answers, on average starting to save sooner and eating less junk food will lead to better future outcomes than waiting to save and stuffing one’s self with junk. People seem to be aware of the benefits of engaging in these future oriented behaviors, yet often fail to do so (Munnell, Webb, & Goulab-Sass, 2007, 2009; Sirois, 2004). Failure to take appropriate future-oriented actions has enormous real-world consequences. In the realm of savings (the focus of the first five studies of this chapter), procrastination results in people failing to save enough for retirement (Munnell et al., 2007, 2009). In the realm of health (the focus of the final three studies of this chapter), overconsumption – particularly of calorically dense junk food – results in obesity (Zlatevska et al., 2014).

If people know that they should engage in future oriented behaviors like saving and avoiding unhealthy food, why do they not act “appropriately?” Explanations for why people do not engage in these behaviors range from structural to psychological. Structural explanations focus on barriers like poverty (e.g. Bertrand, Mullainathan, & Shafir, 2004) and the default options set up by institutions (such as whether employers automatically enroll employees in retirement savings accounts, Thaler & Sunstein, 2008; or the size of plates offered in eating facilities, Wansink & Van Ittersum, 2013). Psychological explanations focus on factors such as situational or dispositional variance in self-control (e.g., Ariely & Wertenbroch, 2002) or the perceived connection between people’s present and future selves (e.g., Oyserman, 2007).

In the current chapter, I argue that rather than being separate processes, structural and psychological accounts for why people fail to engage in future oriented behaviors like saving and eating healthy are inextricably linked. The central thesis of this chapter is that while psychological processes like perceived connection between present and future self (Oyserman, 2007) or self-control (Ariely & Wertenbroch, 2002) certainly explain variance in future oriented outcomes, those processes are not fixed and do not operate in a vacuum. Instead, they are highly malleable and subject to structural influences such as the level of granularity used to describe future relevant information.

### **Information Granularity as a Source of Meaning and Motivation**

A large body of research in social psychology dating back at least to Kahneman and Tversky’s (1979) work on prospect theory, has documented that the way information is framed matters for a broad range of judgments and behavior. One way that framing has been operationalized more recently is to manipulate the level of granularity used when

asking people to make judgments or engage in behaviors. For example, Zhang and Schwarz (2013) conducted a study in which they asked participants to make judgments about consumer products after presenting those products with fine- versus gross-grained prices. Specifically, the researchers told participants that the retail price for a DVD drive was either \$29.75 or \$30, and asked participants to estimate what the retailers paid for the drive. They found that participants who were told that the price of the drive was \$29.75 estimated that the drive cost retailers an average of \$3.25 more than participants who were told it cost \$30 (Zhang & Schwarz, 2013, Study 1). Essentially, that simple shift in context – in information presentation - signaled increased value to participants in the study.

How and why does granularity influence judgments and behavior? That seems to depend on people's perceptions of the judgment object, the domain of that judgment, and people's lay theories about that domain. In the case of Zhang and Schwarz's (2013) study described above, the fine-grained label implied that more thought and precision went into the pricing of the DVD drive (an electronic product) and in the domain of electronics greater precision implies greater value; thus fine-grained prices shifted perceptions of the drive's value. For the studies in the present chapter, I predict that granularity can be a source of meaning and motivation to engage in savings behavior (Studies 1-5) and to inhibit consumption of unhealthy foods (Studies 6-8). I outline the rationale for these predictions next.

Why might granularity influence savings? In the domain of savings, time is an important element that has particular lay theories associated with time metrics of different levels of granularity (e.g., days, years). First, people have a lay theory about time as distance (e.g., Casasanto & Borodistky, 2008). This implies an experience of temporal

granularity. That is, because the farther away something is in space, the fewer details can be seen, people should experience future events in the same way. The farther away a future event is, the fewer details can be imagined; the closer a future event is, the more details can be imagined. As a result, farther events are typically considered using more gross-grained rather than fine-grained time metrics (e.g., years rather than days). Second, following Grice's logic of conversation (Schwarz, 1996), people assume that the time metric being used relates to how much time is being discussed. Third, once a particular time metric is on people's mind, they will assume it is relevant to the task at hand. Yet having a time metric on one's mind does not necessarily mean one will act. Knowing when people will act requires a fourth step, which is knowing the circumstances in which people experience the future as imminent and relevant to the present self. Identity-based motivation theory (Oyserman, 2007, 2015) predicts that if the future is experienced as more connected to the current self, people should be more willing to act in support of that self and discount future rewards less.

Taken together, people should infer from the use of a fine-grained time metric that the future is near; this should influence their willingness to start saving for the future and reduce the extent to which they discount the future, in part because they will experience their future self as more connected to and congruent with their current self. Synthesizing these steps leads me to make two predictions about people induced to consider the future with a fine-grained versus a gross-grained time metric. First, if people know when a future event will occur, they should plan to act sooner to prepare for it. Second, this will occur because an accessible time metric changes perceived connection to and congruence with their future selves. This effect should be robust to other factors relevant to self-control

(e.g., income, education, age, interpretation of experienced difficulty, determined character – “grit”; Duckworth & Seligman, 2005; Smith & Oyserman, 2015). These predictions are tested in studies 1-5.

Why might granularity influence food consumption? Prior research suggests that people’s judgments of how much they are eating may be affected, not only by internal cues of satiety, but also by environmental cues signaling the amount one should eat (Wansink, 2004, 2006; Wansink, Painter, & North, 2005). If this is true, then perhaps changing the granularity of portion size descriptors (another external cue) may be another route to shift consumption judgments. In other words, holding portion size constant, describing portions using fine-grained (e.g., “16 gummy candies”) versus gross-grained (e.g., “one serving of gummy candies) labels may shift consumption judgments. Why? The granularity of labels may imply partitions of portion size. In this case, partitioning may psychologically distinguish one large unit (e.g., “one serving”) from several smaller units (e.g., “16 pieces”). Prior research on partitioning suggests that the unit labels to describe portions (e.g., Geier, Rozin, & Doros, 2006) and other partition cues (e.g., Red Potato Chips; Geier, Wansink, & Rozin, 2012) can dramatically decrease consumption. Partitioning effects have been proposed to operate by increasing transaction costs associated with consumption, whereby smaller partitions rather than larger aggregates provide more decision-making opportunities that enable people to better constrain their consumption (Cheema & Soma, 2008). Other accounts suggest partitions change eating norms, and break the automaticity and mindlessness of eating (Geier et al., 2012).

I propose an alternative mechanism: that the granularity of portion size descriptors can play an important role in the partition-to-consumption process. I predict that

partitioning as a function of granularity of portion size will shift consumption intentions (i.e. how much people plan to eat in a given sitting, how much people feel they need to eat in order to feel satisfied), and these consumption intentions, will subsequently impact consumption (i.e. how much people actually eat in a given sitting). Similar to the prediction of how temporal granularity may influence perceptions relevant to savings, here I predict that portion size granularity may influence the consumption process by influencing perceptual judgments about the amount of food present (e.g. calorie estimates, weight, cost, time to eat). Specifically, I predict that describing portion sizes using fine-grained (“16 gummy candies”) rather than gross-grained (“one serving of gummy candies”) labels will decrease the amount people plan to consume, which will impact the amount they plan to consume. This would occur because fine-grained portion size labels will lead people to believe that the portions are actually larger, and thus people would need to eat less to feel satiated. This prediction follows a similar Gricean logic of conversation process as outlined above for the temporal granularity predictions.

Alternatively, granularity could operate through a different process – one of self-regulation. A large body of research suggests that struggles related to self-regulation are a contributor to the social issues being discussed in this chapter – over-eating and obesity as well as under-saving (Ariely & Wertenbroch, 2002; Baumeister & Heatherton, 1996; Graziano, Calkins & Keane, 2010; Israel, Guile, Baker, & Silverman, 1993; Stroebe, 2008). That is, one reason people engage in maladaptive behaviors like eating too much unhealthy food or not saving for retirement is that they struggle with inhibiting hedonic behaviors like eating unhealthy foods or spending now rather than saving (e.g., Wing & Phelan, 2005). This pattern of behavior occurs even for the most motivated of people (Stroebe, 2008). I

wondered whether granularity may play a role in this self-regulatory process. Specifically, in the food domain I was curious as to whether changing the granularity of portion size labels may change dieters' motivation to regulate their consumption, and whether such a shift in motivation might actually help individuals reduce their consumption of unhealthy foods.

Why would this occur? Well if the theory for temporal granularity outlined earlier is correct and granularity can influence planning and temporal discounting, then that suggests granularity might facilitate regulation since planning and temporal discounting are themselves self-regulatory processes (Duckworth & Seligman, 2005). These pathways have not yet been tested and are thus the goal of the current studies.

### **Overview of Current Studies**

The current studies test four predictions derived from our consideration of how granularity (both temporal and portion size) might influence motivation and behavior. In the first three studies, I test the direct effect of temporal granularity on people's plans to save for future events – their children's college education and their own retirement. Study 4 assesses whether changes in plans resulting from different granular framing might be due to granularity influencing how close the future events feel or how important they are. Study 5 tests the mediational pathway between granularity and how much people discount the future via proposed mediators perception of connection and congruence between present and future selves. Study 6 tests the perceptual process of granularity more directly by assessing the influence of granularity on how people perceive dimensions of a physical object. Finally, studies 7 and 8 test self-regulation as another route by which granularity can influence motivation and behavior.

### Studies 1-3

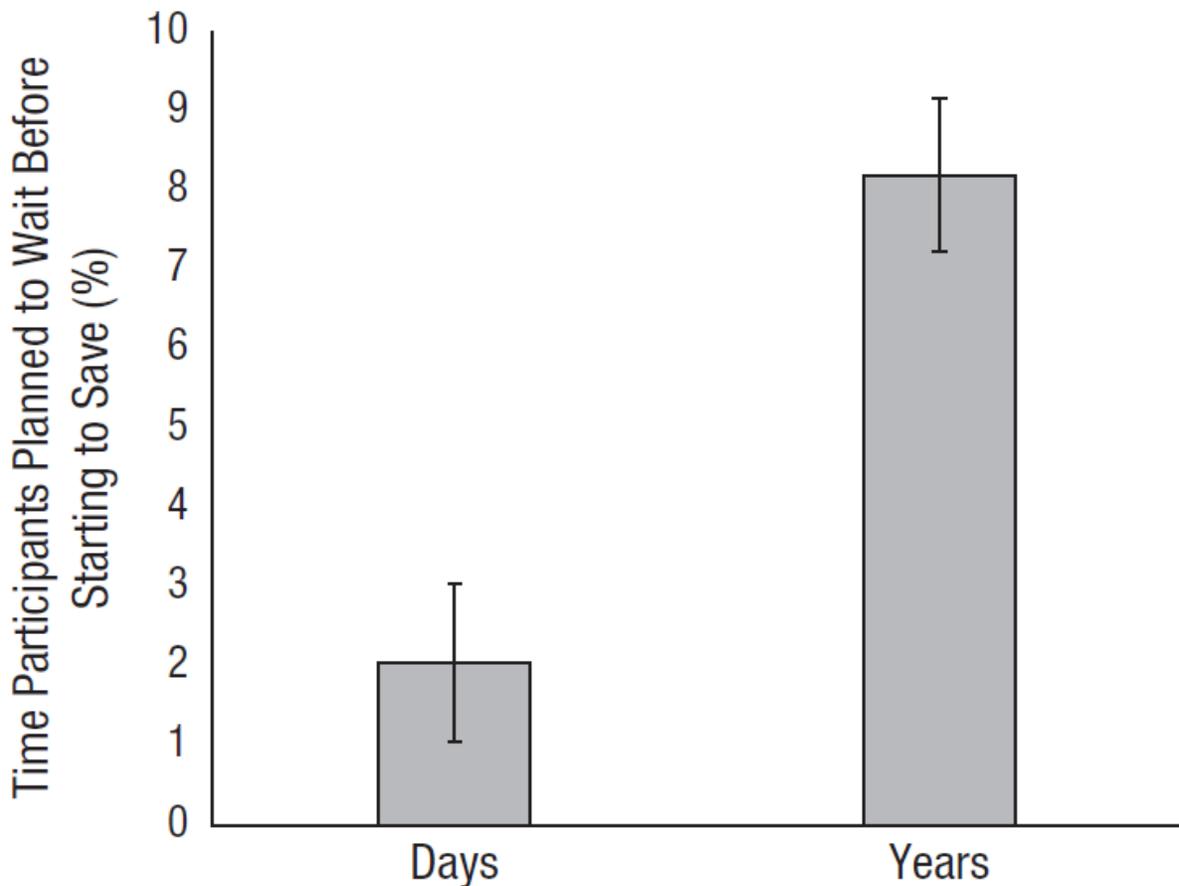
The first three studies test the prediction that information granularity, operationalized using time metrics (i.e. days: fine-grained vs years: gross-grained) will influence when people plan to take action for future events like saving for their children's college education or their own retirement.

**Method.** We recruited Adults with U.S. IP addresses from Amazon's Mechanical Turk ( $n = 386$ ). We asked participants in studies 1 to 3 when they planned to start saving for future events with an open-ended question containing the same time metric as the prime. In Study 1, each participant received one of two scenarios, in which he or she was asked to imagine his or her own child attending college in either 18 years or 6,570 days. In Study 2, each read a scenario in which he or she was asked to imagine retiring in either 30 years or 10,950 days. In Study 3, each read a scenario in which he or she was asked to imagine retiring in 40 years or in 14,600 days. In each study, the question asked matched the scenario in content and metric. For example, participants in the Study 1 who were exposed to the year time metric read, "Imagine you have a newborn child. You realize your child will be ready for college in only 18 years. When should you begin saving for their college education? In \_\_\_ years." Similarly, participants in Study 1 who were exposed to the day time metric read, "Imagine you have a newborn child. You realize your child will be ready for college in only 6,570 days. When should you begin saving for their college education? In \_\_\_ days."

**Results.** Data were analyzed using analysis of variance. As predicted, the granularity of the time metric matters. As can be seen in Figure 2, participants planned to start saving four times sooner in the days condition compared with the years condition, after we

controlled for their age, income, and education,  $F(1, 371) = 17.969, p < .001, d = 0.44$ .

Imagining distal future events with a fine-grained metric (participants' newborn's college in 6,570 days, their retirement in 10,950 or 14,600 days) rather than a gross-grained metric (their newborn's college in 18 years, retirement in 30 or 40 years) jump-started planned start time.



*Figure 2:* Reprinted from Lewis & Oyserman (2015). Results from Studies 1, 2, and 3: time at which participants planned to start saving as a percentage of the total time available, separately for each time-metric condition. Error bars indicate one standard error of the mean.

## Study 4

Study 4 sought to test whether the reason people were more willing to save when given fine-grained rather than gross-grained information is because the fine-grained frame made the future events (e.g. children's college or their own retirement) feel more important or close in time.

**Method.** We again recruited Adults with U.S. IP addresses from Amazon's Mechanical Turk ( $n = 400$ ). Participants were randomly assigned to one of the three scenarios used in Studies 1, 2, and 3 (college in 18 years or 6,570 days, retirement in 30 years or 10,950 days, retirement in 40 years or 14,600 days) and to one of the two time-metric conditions used in these studies (days, years). They were then asked (in order) "How important is saving for college [retirement]?" (1 = *not at all important*; 10 = *very important*) and "How close does college [retirement] feel?" (1 = *very near*; 10 = *very far*).

**Results.** Time metric does not influence goal importance or distance (if the time when an event will occur is distal but fixed) using an analysis of covariance (controlling for participant age, education, and income). Participants rated saving for college or retirement as important (combined  $M = 8.62$ ,  $SD = 1.81$ ) no matter which of the three scenarios they read,  $F(2, 394) = 1.97$ ,  $p = .18$ ,  $d = 0.15$ , or to which time metric they were assigned,  $F(1, 394) = 0.000$ ,  $p = .94$ ,  $d = 0.02$ . They also rated college and retirement as seeming farther away rather than closer (combined  $M = 7.97$ ,  $SD = 2.42$ ) regardless of which scenario they read,  $F(2, 394) = 1.94$ ,  $p = .15$ ,  $d = 0.15$ , or to which time metric they were assigned,  $F(1, 394) = 1.25$ ,  $p = .26$ ,  $d = 0.10$ . These null effects are important because the scenarios actually presented differentially distal events 18 years (6,570 days), 30 years (10,950 days), and 40 years (14,600 days) in the future. Moreover, the actual amount of money

needed should differ if one is saving for college or for retirement in 30 years or for retirement in 40 years. Hence, effects of time metric on starting to act in response to future events that will occur in a known but distal future are unlikely to be due to the granularity of the metric making a future event feel closer or more important.

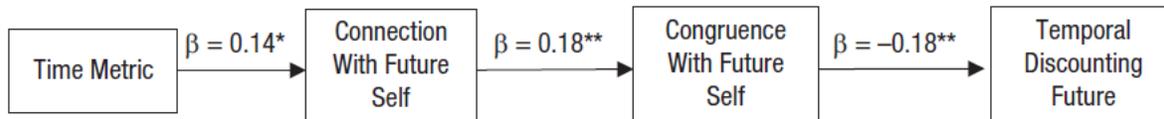
### Study 5

Study 5 was conducted to test the prediction that the reason people are more willing to save when given fine-grained information is that granularity shifts perceptions in such a way that people's present and future selves feel more connected and congruent.

**Method.** We again recruited Adults with U.S. IP addresses from Amazon's Mechanical Turk ( $n = 316$ ). Participants were randomly assigned to one of two scenarios: college in 18 years or 6,570 days and retirement in 30 years or 10,950 days. They were asked about their sense of connection and congruence between their present and future selves. These posited mediators were followed by a standard set of questions to calculate temporal discounting generally (not related to saving for their child's college or to their own retirement). Then we obtained demographic and self-control covariate controls (interpretation of experienced difficulty as importance, Oyserman, Destin, & Novin, 2015; and grit, Duckworth & Seligman, 2005). Mediation was tested via identity connection (four items,  $\alpha = .81$ ), identity congruence (four items,  $\alpha = .71$ ), and temporal discounting. Identity connection and identity congruence were rated on a scale from 1, *strongly disagree*, to 7, *strongly agree*, and temporal discounting was assessed using the Kirby Monetary Choice Questionnaire (Kirby, Petry, & Bickel, 1999). Kirby's temporal discount rate ( $k$ ) was calculated with the aid of the macros used by Duckworth and Seligman (2005) and by

Carter, McCullough, Kim-Spoon, Corrales, and Blake (2012; personal communications, June 16, 2014 with Angela Duckworth and Jungmeen Kim-Spoon).

**Results.** We tested the prediction that time metric influences temporal discounting via its effect on experienced connectedness between the present and future selves and hence the congruence of the present and future self. We tested this prediction, controlling for demographic variables and self-control measures, using PROCESS for SPSS Version 2.12, Model 6, with a bootstrap sample of 10,000 reiterations (Hayes, 2013). We found the predicted mediation, which showed a significant indirect effect of time metric on temporal discounting (the 95% bias-corrected confidence interval excluded zero  $[-0.0163, -0.0005]$ ) through feeling connected with the future self and the congruence between the present and future self (see Fig. 3). The model ( $F(8, 307) = 4.932, p < .001$ ) controlled for participants' level of education ( $p < .001$ ), income ( $p = .092$ ), age ( $p = .058$ ), interpretation of difficulty as importance ( $p = .078$ ), and grit ( $p = .712$ ). The total adjusted  $R^2$  for the model was 11%. Thinking about the future in days makes people feel that their future self is more connected to their current self. The more connected people feel their current self is to their future self, the more congruent their present and future selves feel. The more congruent the present and future selves feel, the less people are willing to discount future rewards in favor of current ones. As noted by Zhao, Lynch, and Chen (2010), the sole criteria of mediation is documentation of an indirect effect. Hence, connection and congruence between the current and future self mediates the effect of temporal granularity on temporal discounting.



*Figure 3:* Reprinted from Lewis & Oyserman (2015). Results from Study 5: model showing the effect of time metric on temporal discounting, as mediated by connection and congruence between the current and future self. Asterisks indicate significant paths (\* $p < .05$ , \*\* $p < .01$ ).

### Study 6

Study 6 was conducted to more directly test the hypothesis that granularity influences perceptions of judgments, and to test whether the granularity effects documented in the first five studies generalize to a different domain (food consumption). In the current study as well as the remaining studies in this chapter, granularity is operationalized using portion size labels. Specifically, for studies 6 through 8, “fine-grained” units now refer to the specific number of foods in a portion (e.g. “16 gummy candies”) whereas “gross-grained” units now refer to labeling a portion as a serving (e.g. “one serving of gummy candies”).

**Method.** To test whether effects of granularity operate by changing perceptions of food size or levels of construal (an alternative mechanism), we recruited adults ( $N=200$ ; 52.5% male, ages 19-69  $M = 32.4$ ,  $SD = 9.03$ ) from Amazon’s Mechanical Turk to take a “Snack Rating Survey.” Participants viewed images containing 16 gummy candies in a 2 (Fine-Grained, Gross-Grained) by 2 (Construal First, Construal Last) between-subjects randomized factorial design. All participants saw the same images, but in the fine-grained condition, the images were labeled “16 Gummy Candies” whereas in the gross-grained condition, the images were labeled “One Serving of Gummy Candies.” The order of the construal measure was also manipulated such that half of the participants saw their image

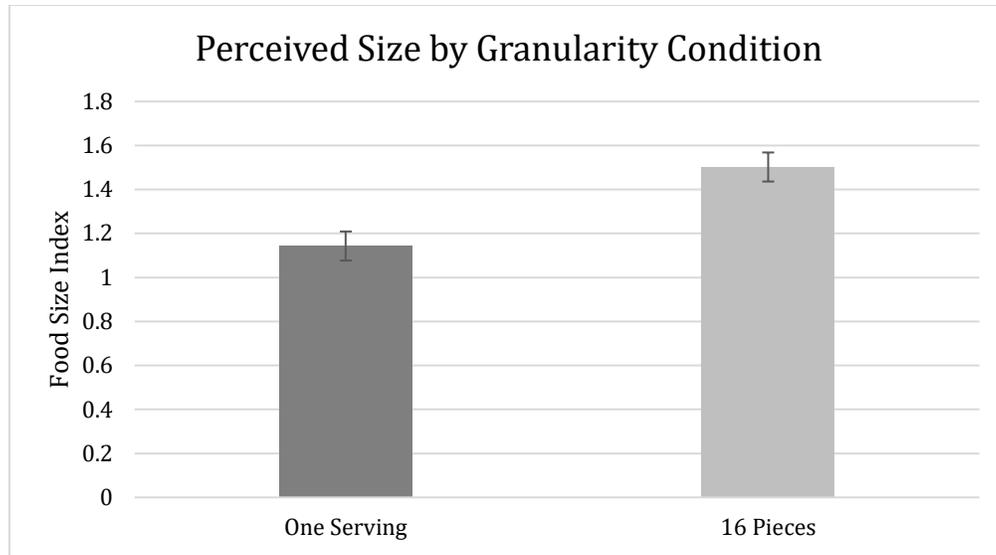
of gummy candies (with either a fine or gross-grained label) then immediately filled out the construal measure, whereas the other half saw their image and answered questions about the image then later completed the construal measure. This order was manipulated as our second factor to ensure that failure to find a construal effect could not be attributed to the measure being too far away from the prime (Kanten, 2011; Maglio & Trope, 2011).

To test the perceptual hypothesis, participants answered questions that were previously pilot tested to form a perception index: *“How much do you think these gummy candies weigh \_\_\_ oz; how much would you pay for these gummy candies \$\_\_\_; how long would it take you to finish eating these gummy candies \_\_\_minute(s); how much do you think these gummy candies cost \$\_\_\_; and how many calories do you think are in each serving [piece] of these gummy candies?”* (Cronbach’s alpha = 0.64).

To test the construal hypothesis, participants completed the Behavioral Identification Form (BIF; Vallacher & Wegner, 1989). The BIF is a 25 item scale designed to distinguish between two types of construals of different behaviors. Low-level construals emphasize how to do the action, the means of achieving the action, and the details of the action whereas high-level construals emphasize why the action is performed, the motives behind the action, and the meaning of the action. For example, “making a list” could be construed as writing things down (low level construal) or as getting organized (high level construal). The sum of the high level construal choices serves as the measure of construal, with higher sums indicating high level of construal and lower sums indicating low level of construal. Participants always completed the BIF after the granularity manipulation, and either before or after answering questions about the food image.

Participants also answered the consumption intentions questions (“how many servings/pieces of these gummy candies would you need to eat in order to feel satisfied; how many servings/pieces of these gummy candies would you likely eat in one sitting”;  $\alpha = .82$ ) that were asked in the first three studies. Finally, participants answered demographic questions.

**Results.** ANOVA revealed the predicted main effect of portion size granularity on perceived food size ( $F_{1, 196} = 14.67, p < .001, \eta_p^2 = .07$ ). Participants who saw the image of gummy candies with the label “16 Gummy Candies” perceived it to be larger than participants who saw the same image with the label “One Serving of Gummy Candies,” see Figure 4. Perceived size was not influenced by the order in which participants answered questions ( $p = .65$ ), nor did order interact with granularity to influence perceived size ( $p = .71$ ). These results suggest that seeing food with fine-grained portion size labels leads people to perceive the food as larger – to see it as weighing more, taking longer to consume, costing more, being a higher price, and being more calorie dense than seeing the same food with gross-grained labels. This implies that changes in perceived size could plausibly mediate effects of granularity on consumption intentions. What about construal?



*Figure 4.* Reprinted from Lewis & Earl (in press). Perceived food size by granularity condition. Dark gray bars indicate the Gross-Grained “Serving” condition whereas light gray bars indicate the Fine-Grained “Pieces” condition. Error bars indicate plus and minus one standard error of the mean.

ANOVA revealed that portion size granularity had no effect on participants’ level of construal ( $p = .78$ ). Question order also did not influence construal ( $p = .56$ ), nor did the interaction between granularity and question order ( $p = .31$ ).

*Mediation Model Testing: Perceived Size Mediates Effects of Granularity on Consumption Intentions.* To test whether changes in perceived food size mediate the effects of granularity on consumption intentions, we conducted a mediation analysis using PROCESS for SPSS v2.13.2 Model 4 with 10,000 bootstrap samples (Hayes, 2013). In this analysis, portion size granularity was the independent variable, perceived size was the mediator, and consumption intentions was the dependent variable. Mediation analysis revealed that perceived food size mediated the effects of portion size granularity on consumption intentions as evidenced by the bias corrected 95% CI excluding zero [-0.0663, -0.0034]. As illustrated in Figure 5, seeing the fine-grained portion size label (“16 Gummy

Candies”) rather than gross-grained label (“One Serving of Gummy Candies”) made people perceive the portion as larger. Because the fine-grained portion was perceived to be larger, participants intended to eat less of it.

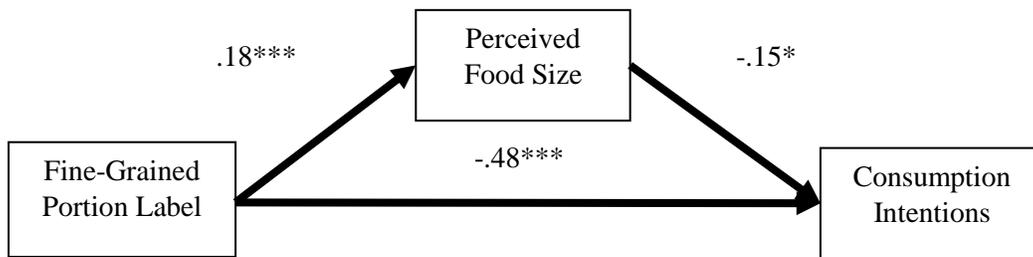


Figure 5. Reprinted from Lewis & Earl (in press). Mediation model depicting the process by which portion size granularity influences consumption intentions. Coefficients are standardized regression coefficients from the PROCESS model. \*  $p < .05$  \*\*\*  $p < .001$

### Study 7

Study 7 was conducted to test whether, in addition to shifts in perceptions, another route through which granularity can influence behavior is to shift people’s motivation to regulate their behavior.

**Method.** We recruited adults with weight loss goals ( $N=160$ , 52% male, age range 18-71,  $M = 32.23$ ,  $SD = 10.84$ ) from Amazon’s Mechanical Turk to take a “Snack Rating Survey.” After screening to ensure that participants were currently trying to lose weight, we randomly assigned participants to one of two rating conditions (fine-grained, gross-grained). All participants saw and rated images of 16 gummy candies and 16 baby carrots (order was counterbalanced) but the labels of those images varied depending on condition. Consistent with the prior study, participants in the fine-grained condition saw the images with the labels “16 Gummy Candies” and “16 Baby Carrots” whereas participants in the gross-grained condition saw the images with the labels “One Serving of Gummy Candies”

and “One Serving of Baby Carrots.” After viewing the images, participants answered the questions detailed next. To test the effects of information granularity on self-regulation, participants were asked “*how difficult would it be to eat only one serving (16 pieces) of gummy candies/ baby carrots?*” on 1 (Not at all difficulty) to 7 (Very difficult) scales.

Participants also answered the same consumption intentions (“how many servings/pieces of these gummy candies/baby carrots would you need to eat in order to feel satisfied; how many servings/pieces of these gummy candies/baby carrots would you likely eat in one sitting”), and demographic questions that were asked in the prior study.

**Results.** To test the self-regulation hypothesis, we used ANOVA to assess the effects of portion size granularity on the regulation of both unhealthy (gummy candies) and healthy (baby carrots) food for people with weight loss goals. The first ANOVA revealed a main effect of granularity on regulation of unhealthy (gummy) food consumption ( $F_{1, 152} = 6.05, p = .015, \eta_p^2 = .04$ ) whereby participants found it easier (less difficult) to eat *only* 16 pieces of gummy candies (fine-grained) than to eat *only* one serving of gummy candies (gross-grained), despite those being the same amount. No such effect was revealed in the second ANOVA which tested the same effect with baby carrots ( $p = .12$ ). To test whether changes in self-regulation mediate effects of granularity on intentions to consume unhealthy food (gummy candies), we conducted a mediation analysis using PROCESS for SPSS v 2.13.2 Model 4 with 10,000 bootstrap samples (Hayes, 2013). In this analysis, portion size granularity was the independent variable, self-regulation was the mediator, and consumption intentions was the dependent variable. Mediation analysis revealed that self-regulation mediated the effect of portion size granularity on consumption intention of unhealthy food as evidenced by the bias corrected 95% CI excluding zero [-.0747, -.0074].

We did not test for the indirect effect for the healthy food (carrots) because the granularity manipulation had no effect on our proposed mediator of self-regulation for the healthy food.

Seeing the fine-grained (“16 Gummy Candies”) rather than gross-grained (“One Serving of Gummy Candies”) portion size label made it easier for participants to inhibit their consumption of the unhealthy food, and thus they intended to eat less of it. These results provide preliminary evidence that in addition to changing people’s perceptions of portion sizes (Study 6), another process by which granularity may impact consumption is by enabling individuals to better regulate their consumption behavior.

### **Study 8**

Study 8 was conducted to conceptually replicate study 7 using the Spencer, Zanna, and Fong (2005) method of mediation model testing. That is, to verify that granularity does in fact interact with self-regulation, we decided to conduct another experiment in which we manipulate (rather than measure) self-regulation directly to obtain causal evidence for the granularity-to-regulation link.

**Method.** In Study 8, we manipulated self-regulation by changing participants’ interpretation of experienced difficulty. Interpretations of experienced difficulty (as importance or impossibility) are mindsets that can be shifted to promote or undermine persistence towards desired end states (Lewis & Oyserman, 2016; Oyserman, 2015; Smith & Oyserman, 2015). Experimentally guiding (priming) people to interpret difficulty as importance has been shown to enhance self-regulatory behaviors, increasing persistence towards difficult goals (Aelenei, Lewis, & Oyserman, 2017), whereas guiding people to interpret difficulty as impossibility does the opposite – it undermines persistence (Smith &

Oyserman, 2015). In line with previous work on interpretation of difficulty, the effect of the manipulation should only be observable under conditions of regulatory struggle (Oyserman, 2015). That is, to the extent that the granularity manipulation is facilitating self-regulation, the impact of the interpretation of difficulty manipulation should be weakened or non-significant. If, however, portion size granularity is not facilitating self-regulation, the impact of the interpretation of difficulty manipulation should be equivalent across both fine-grained and gross-grained conditions.

We recruited adults with weight loss goals ( $N = 300$ , 54.7% male, age range 18-74,  $M = 34.13$ ,  $SD = 11.66$ ) from Amazon's Mechanical Turk to take a "Snack Rating Survey." After screening to ensure that participants were currently trying to lose weight, we randomly assigned participants to view and rate images of 16 gummy candies in one of six conditions in a 3 (Difficulty Means Importance, Difficulty Means Impossibility, Control) by 2 (Fine-grained, Gross-Grained) between-subjects factorial design.

Self-regulation was manipulated by priming people to interpret difficulty in one of two ways (or control; Aelenei, Lewis, & Oyserman, 2017; Oyserman, Novin, Smith, Elmore, & Nurra, 2016; Smith & Oyserman, 2015). To prime interpretation of difficulty, participants rated their agreement with four statements on scales from 1 (strongly disagree) to 7 (strongly agree). In the difficulty means importance condition, participants rated their agreement with the following four statements: "*Some weight loss tasks feel easy and some feel difficult. My gut tells me that if it feels difficult, it is important for me; I know in my gut that if a weight loss task feels difficult it is really important for me; I know that weight loss tasks that feel difficult are the important ones for me; A feeling of difficulty means that it's probably important.*" In the difficulty means impossibility condition, participants rated their

agreement with the following four statements: *“Some weight loss tasks feel easy and some feel difficult. My gut tells me that if it feels difficult, it is impossible for me; I know in my gut that if a weight loss task feels difficult it is not possible for me; I know that weight loss tasks that feel difficult are the impossible ones for me; A feeling of difficulty means that it’s probably impossible.”* Participants in the control condition rated their agreement with four statements unrelated to interpretation of difficulty: *“I think breakfast is an important meal; I like to eat a hot meal on a cold day; Eating a balanced diet should be easy to do; The saying ‘early to bed, early to rise, makes a person healthy, wealthy, and wise’ is a good way to live my life.”*

After being primed with their respective interpretations of difficulty (or control), participants were then randomly assigned to view and rate images of 16 gummy candies presented with either fine-grained (“16 Gummy Candies”) or gross-grained (“One Serving of Gummy Candies”) labels, consistent with the prior studies. After viewing the images, participants answered the same perceived satiety and consumption intentions questions asked in the prior studies.

**Results.** If our hypothesis that granularity facilitates self-regulation is correct, we should only find effects of interpretation of difficulty under conditions of a regulatory struggle – in the gross-grained condition. That is precisely what we found. Interpretation of difficulty influenced consumption intentions when participants were presented with a gross-grained label ( $F_{2, 291} = 5.88, p = .003, \eta_p^2 = .04$ ), but not when participants were presented with a fine-grained label ( $p = .89$ ). Conversely, effects of granularity were significant at all levels of interpretation of difficulty – difficulty means impossibility ( $F_{1, 291} = 42.17, p < .001, \eta_p^2 = .13$ ), difficulty means importance ( $F_{1, 291} = 11.78, p = .001, \eta_p^2 = .04$ ),

control ( $F_{1, 291} = 44.31, p < .001, \eta_p^2 = .13$ ). These findings provide causal evidence demonstrating that granularity facilitates self-regulation in the presence of a regulatory struggle.

## Chapter Discussion

Across eight studies in two different domains, I find a robust and reliable effect of information granularity on motivation and behavior. Presenting people with fine-grained information about future events that require saving (Studies 1-5) or about portion sizes (Studies 6-8) of the food in front of them led people to engage in more future oriented action – saving sooner and inhibiting consumption of unhealthy food. These effects of granularity operate via one of two pathways. Granularity can shift perceptions of goal relevant judgments – connection between present and future selves (Study 5) and perceptions of food size (Study 6). Granularity can also shift people’s motivation to regulate their behavior, particularly when self-regulation would be most beneficial (e.g., individuals facing a regulatory struggle; Studies 7 and 8).

These findings are informative for several reasons. At a theoretical level, they provide evidence that studies of why people fail to engage in future oriented behaviors like saving and eating healthy should consider the interface between situational forces and psychological processes (see also Lewis & Oyserman, 2016; Oyserman & Lewis, 2017). That is, while self-control (Ariely & Wertenbroch, 2002; Baumeister & Heatherton, 1996) and other perceptual processes (like connection between present and future self; Oyserman, 2007) certainly explain variance in people’s future oriented behaviors, those processes are themselves functions of people’s immediate context. Studying the interplay between contextual and psychological variables as I have begun to do here, is essential for a broader

understanding of motivation and goal pursuit processes and associated outcomes like social disparities (Lewis & Oyserman, 2016; Oyserman & Lewis, 2017).

At a practical level, the current studies also have some important implications for practice. People struggle with saving for future events (Munnell, Webb, & Goulab-Sass, 2007, 2009; Sirois, 2004) and with inhibiting consumption of unhealthy foods (Zlatevska et al., 2014) and those struggles have adverse consequences for society (Munnell et al., 2007, 2009). The findings of these eight studies suggest that, like many “nudges” emerging from the behavioral economics literature (e.g. Thaler & Sunstein, 2008), considering granularity when designing information can be a relatively cheap and easy way to produce desirable change. These small changes in the context of how information is framed can make it easier for people save, to inhibit their unhealthy consumption, and perhaps elicit other beneficial behavior changes that could benefit society. Future research should investigate more possibilities.

## **CHAPTER III**

### **Evidence from Observation of Goal Pursuit in a Naturalistic Setting**

This chapter is adapted from my original paper “African American Patients’ Attention to Health Information is Influenced by In-Group Peers in Health Clinics” (Lewis, Kougias, & Earl, 2017):

#### **Racial Disparities in HIV Outcomes**

African Americans make up 13% of the U.S. population (U.S. Census Bureau, 2010), yet account for 54% of HIV deaths (CDC, 2013). In response to this pandemic, myriad interventions have been designed and implemented to reduce disparities (Myint-U et al., 2008). Although these interventions are effective under tightly-controlled experimental trials, once they are unleashed into the community their efficacy depends on how much attention target audiences pay to the messages. Prior research has documented that target audiences are often reluctant to attend to HIV-prevention messages outside the context of standardized intervention programs (Earl et al., 2009; Earl, Crause, Vaid, & Albarracin, 2016).

Why would people ignore information that could save their lives? In general, people avoid discomforting health information (Case, Andrews, Johnson, & Allard, 2005), particularly when it is stigmatized and self-threatening, as is the case with HIV-prevention information (Blumberg, 2000; Earl, Nisson, & Albarracin, 2015). Because HIV carries

greater stigma within some racial groups (e.g. African Americans; Cohen, 1999) than others (e.g. European Americans), racial identity, and associated stigmas, can also influence attention to HIV-prevention messages. For example, compared to European Americans, African Americans avoid paying attention to HIV information in public health settings to avoid signaling that they are the “kind of person” who needs HIV information (Albarracin, Durantini, & Earl, 2006). In other words, the concern that others might think they are HIV-positive elicits emotions aversive enough to keep African Americans from paying attention to HIV information (Earl et al., 2015; Earl & Albarracin, 2007). However, racial differences in attention are not observed in response to non-stigmatizing information (e.g. flu information), suggesting that stigma plays a critical role in the attention to health information process. These prior findings suggest that concerns about potential ‘audiences’ influence whether or not African Americans pay attention to HIV (but not flu) information (Earl & Nisson, 2015). What remains unclear however is whether *who is in the audience* influences attention.

Why might audience composition matter? Research in public health suggests that people seek out and pay attention to health information if the information feels congruent with their important identities – that is, if the information or behaviors feels consistent with things ‘people like me’ do (Lewis & Oyserman, 2016; Oyserman & Fisher, in press). This insight has guided researchers and practitioners to advocate for “cultural sensitivity” in public health campaigns; specifically, if health messages feel congruent with one’s cultural norms or values, then one should be more likely to pay attention to health information and to engage in health behaviors (Resnicow, Soler, Braithwaite, Ahluwalia, Butler, 2000; Thomas, Fine, & Ibrahim, 2004). This means that in public health contexts,

patients might be particularly sensitive to the behaviors of in-group members who are present in the health setting, as those behaviors might be informative for whether the health information is identity or culturally congruent (Resnicow et al., 2000). In other words, if a patient is in the waiting room of a public health clinic, they may scan the audience to see if other people ‘like them’ are paying attention to health information and use that cue to decide whether they should be paying attention to health information as well.

However, identity concerns, and thus, sensitivity to identity-congruence, are heightened under conditions of social threat (Lewis & Sekaquaptewa, 2016; Oyserman & Fisher, in press). For example, HIV is highly stigmatized within the African American community, and these stigmas reduce the likelihood of African Americans seeking information about or adhering to HIV treatment (Brooks, Etzel, Hinojos, Henry, & Perez, 2005; Capitano & Herek, 1999; Rao, Kekwaletswe, Hosek, Martinez, & Rodriguez, 2007). Again, because HIV stigma is greater within the African American community, any decrease in attention to HIV information associated with an audience being present should only occur in the presence of in-group (e.g. majority African American) audiences, and should not occur in the presence of out-group (e.g. majority European American) audiences. Following the same logic, we should also expect any audience effect to be minimized or eliminated if the information is non-stigmatized (e.g. if flu information is presented). We test these predictions in an observational field experiment detailed next.

**Method.** Participants were 235 clients of the Champaign-Urbana (Illinois) Public Health District (C-UPHD), and were demographically diverse (108 men, 127 women; 99

African-Americans, 116 European-Americans, 20 “Other”)<sup>1</sup>. The study design was a 2 (Observed race: African-American vs. European-American) X 2 (Communication type: HIV-prevention vs. flu-prevention) X continuous (Number of others in the waiting room) design with covariates (duration of time in the waiting room and baseline alertness).

Participants were unobtrusively observed while they visited the Adult Sexual Health Clinic of the C-UPHD. During this time, participants had the opportunity to watch a video about HIV – *or* flu-prevention. Both videos were standard-of-care at the health clinic, however, which video played was controlled by the research team and randomized by day. Coders recorded the amount of attention to the video, as well as demographic variables and features of the visit, including participant alertness and time spent in the waiting room. Participants were observed for the entirety of their time in the waiting room. Entrance and exit time stamps recorded on the coding sheet were used to calculate the demographic composition of other participants in the waiting room after completion of the observations.

*Videos.* The HIV-prevention video, “Safe in the City,” is a soap-opera style video about HIV- and STI-prevention, designed to be culturally sensitive to African-Americans (Myint-U et al., 2008). The video was approximately twenty minutes long and ran on a continuous loop in the waiting room. The flu-prevention video, “Germ Busters,” discussed prevention, symptomology, and treatment of the flu, including H1N1. The video was approximately twenty minutes long and ran on a continuous loop in the waiting room.

*Unobtrusive Observation and Behavioral Coding.* Two trained senior research assistants, who were demographically diverse (though none were African American) and

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<sup>1</sup> Because the study was designed to examine health disparities between African-Americans and European-Americans, participants of other races were excluded from analyses (n = 20).

extensively trained, did behavioral coding. Once coders agreed ( $\kappa > 0.80$ ), the study commenced, and to minimize obtrusion, only one coder was present in the waiting room at a time. See Appendix A for the coding sheet.

*Attention.* The coding sheet included a three-level measure of attention (0 *ignoring the video*, 1 *casually looking/glancing at the video*, and 2 *paying attention to the video*). The coding sheet was validated by previous research, which suggests that the attention measure predicts recall from the video as well as performance on a post-exposure quiz (Albarracín, Leeper, Earl, & Durantini, 2008; Earl et al., 2016).

*Participant Demographics and Situational Features.* The coding sheet also included demographic information about the participants and features of the situation. Baseline level of alertness was operationalized as a holistic assessment of participants' alertness and ranged from 1 *extremely bored/tired* to 7 *extremely alert/agitated*. Baseline alertness was normally distributed, with most participants receiving an alertness score of 4, *average alertness* ( $M_{\text{alertness}} = 3.88$ ,  $SD_{\text{alertness}} = 1.07$ ). Duration was assessed by measuring the total amount of time participants were in the waiting room and ranged from 1 – 95 minutes ( $M_{\text{duration}} = 18.29$ ,  $SD_{\text{duration}} = 14.05$ ).

*Audience Characteristics.* The audience was coded by totaling the number of other clients (and their demographics) who were in the waiting room throughout the entire duration of a target client's stay in the waiting room. In other words, any client who overlapped with the target participant was coded as an audience member, regardless of the duration of overlap in the waiting room, and their demographic data were included in the analyses.

**Results.** We first examined effects of observed race (African vs. European American), information type (HIV- vs flu-prevention), presence of same-race others, and their interactions on attention to health information. Regression analysis revealed a two-way interaction between race and information type ( $b = -.15, t(193) = -2.43, p = .016, d = .35$ ), a two-way interaction between information type and presence of same race other ( $b = -.14, t(193) = -2.36, p = .019, d = .34$ ), and a three-way interaction between race, information type, and presence of same race others ( $b = -.12, t(193) = -1.98, p = .049, d = .29$ ). Figures 6 and 7 illustrate the nature of these interactions which are also detailed next.

First, among European Americans, there was no effect of information type or the presence of same-race others on attention to health information (See Figure 6); European Americans paid equal amounts of attention to HIV- and flu-prevention information regardless of who else was present. Second, for African Americans, both information type and audience composition mattered for how much attention they paid to the presented health information (See Figure 7). Specifically, for flu-prevention information, there was an unexpected positive relationship between the amount of same race others present in the waiting room and attention, whereas for HIV-prevention information there was a predicted negative relationship between the amount of same race others present and attention. These patterns were consistent regardless of whether we analyzed using a percentage or the raw number of others; we present the percentage analysis for ease of interpretation. These latter findings support the predicted effects of in-group audiences on African American attention to stigmatized vs non-stigmatized health information. To verify that effects are localized to in-group audiences, we conducted parallel analyses using a variable for the number of other race patients present in the waiting room. Those analyses revealed

no main effects or interactions of the other-race variable (all  $p$ 's > .09). This suggests that it is concerns from in-group (but not out-group) members that are most influential on African American patients' attention to health information.

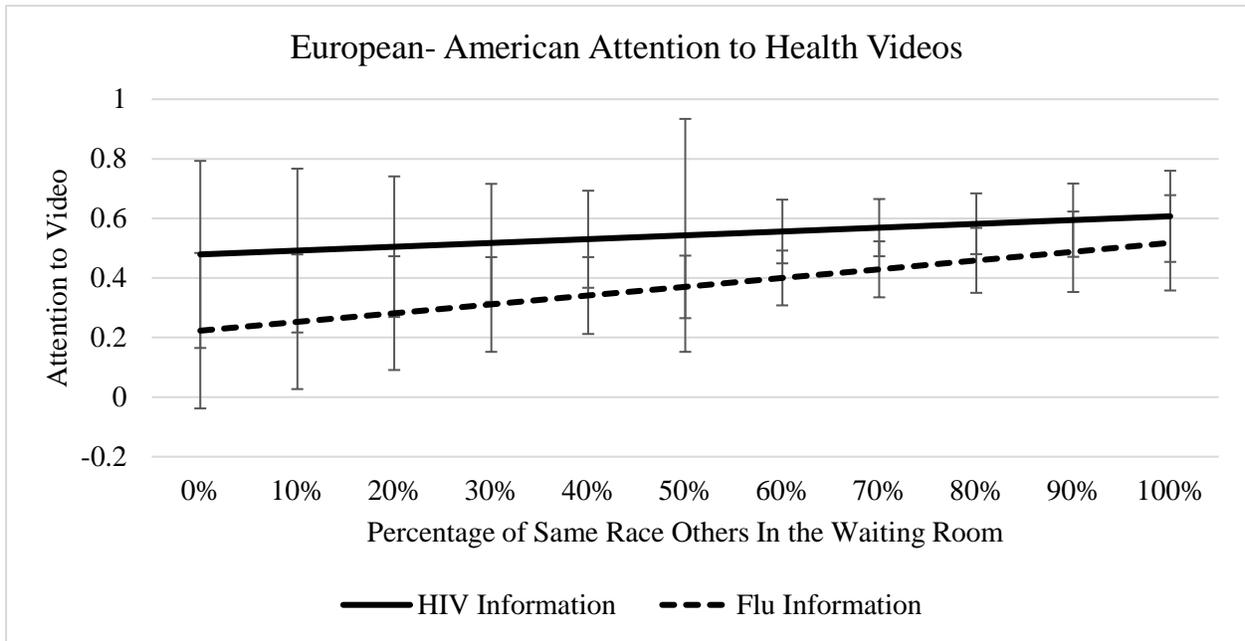


Figure 6. Reprinted from Lewis, Kougias, & Earl (2017). European-American Patients' attention to health videos as functions of the type of video and the percentage of same-race others present in the waiting room. Error bars represent one standard error of the mean.

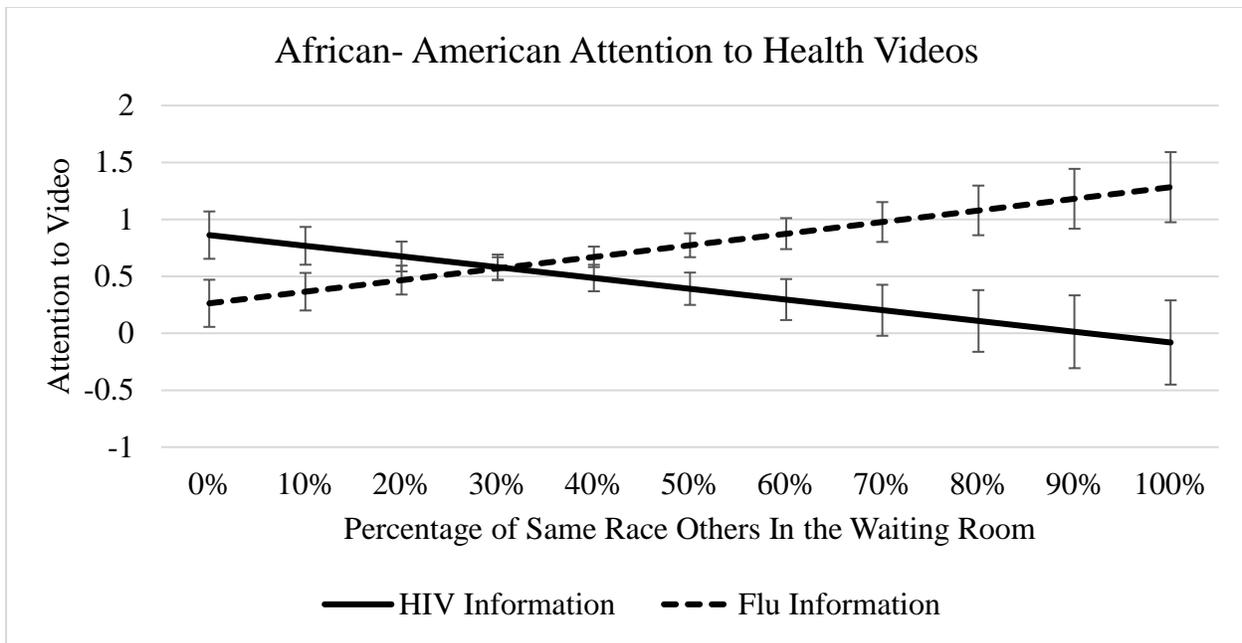


Figure 7. Reprinted from Lewis, Kougias, & Earl (2017). African-American Patients' attention to health videos as functions of the type of video and the percentage of same-race others present in the waiting room. Error bars represent one standard error of the mean.

Because African American patients were influenced by both information type and the presence of same-race others, we wondered whether the behavior of same-race others in the waiting room might also have an impact on African American patients' attention. To test this, we conducted two additional regression analyses, one examining effects of what happened when same-race others in the room were *ignoring* the health information being presented, and another examining what happened when same-race others in the room were *attending* to the health information being presented. Results of those analyses are presented next.

First, the regression analysis examining effects of ignoring behavior revealed a null effect of ignoring behavior ( $p = .11$ ) and a null information type by ignoring behavior interaction ( $p = .31$ ). These null effects suggest that the presence of other African

Americans in the waiting room who are ignoring health information has no effect on attention.

Second, the regression analysis examining effects of attending behavior revealed a main effect of attending behavior whereby African American patients paid more attention to health information when same-race others were also paying attention ( $b = .30, t(92) = 2.67, p = .009, d = .56$ ). As illustrated in Figure 3, the effect of the presence of same-race others on attention emerged only when African American patients were in the presence of stigmatized HIV-prevention information ( $p = .026$ ); the behavior of same-race others did not matter when non-stigmatized Flu-prevention information was on display ( $p = .49$ ).

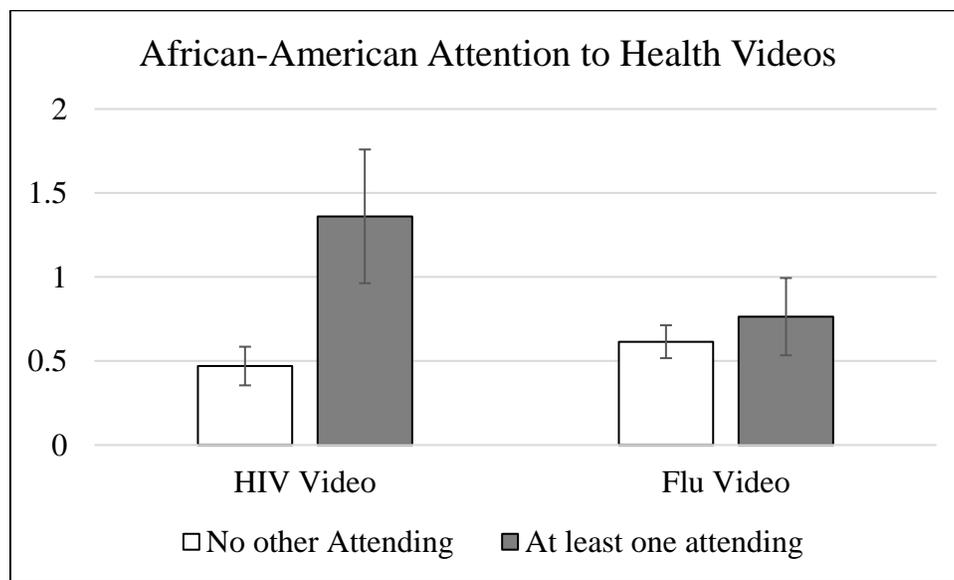


Figure 8. Reprinted from Lewis, Kougas, & Earl (2017). African-American Patients' attention to health videos as functions of the type of video and whether or not other African-Americans in the waiting room were paying attention to the video. Error bars represent one standard error of the mean.

## Chapter Discussion

We found that African American patients' attention to health information was influenced by the type of health information being presented, as well as the audience

present in a public health clinic waiting room. Specifically, when stigmatized HIV information was being displayed, African American patients paid less attention to the information when other African Americans were also present. However, African American patients' attention to HIV information increased when those fellow African American patients were also paying attention to the HIV information. On the other hand, African American patients' attention was unaffected by the audience if the presented health information was non-stigmatized (i.e. Flu), or if the audience was majority European American.

This work contributes to public health literatures on cultural sensitivity and cultural tailoring (Resnicow et al., 2000; Thomas et al., 2004). The current study demonstrates that culturally tailoring health information is not sufficient for increasing attention; instead the process by which people come to pay attention to health information is much more nuanced. Indeed, the HIV video used in the current study is a standard of care video culturally tailored to increase African American patients' attention to HIV information (Myint-U et al., 2008). Yet, as illustrated in Figure 2, African American patients were reluctant to pay attention to the video when they were surrounded by other African Americans. This implies that theories of cultural sensitivity need to be expanded to consider not only the characteristics of the patients and of the health information, but also (a) whether the information is stigmatized and (b) the contexts in which the patients are most likely to view the information (Lewis & Oyserman, 2016).

In addition, the current research also contributes to the stereotype threat and social stigma literatures. We found that African American patients were influenced by the presence of in-group but not out-group members. Research on stereotype threat – the

psychological threat that arises when one is in a situation or doing something for which a negative stereotype about one's group applies - might have made the opposite prediction. That literature would predict that concerns about confirming negative stereotypes held by outgroup members might influence patient behaviors (Lewis & Sekaquaptewa, 2016). On the other hand, the present results support an in-group stigma process. Specifically, our data suggest that when African American patients are faced with stigmatized health information, they may be concerned about signaling that they have engaged in behaviors that members of their in-group disapprove of (e.g. drug use, same sex relations) and thus they disengage from the health information (Lewis & Oyserman, 2016; Oyserman & Fisher, in press). Future research could further specify the conditions under which concerns from the in-group vs out-group will be more predictive of behavior.

The current study has several implications for public health practice. First, our results imply that "culturally sensitive" health messages can have unintended iatrogenic effects on attention by arousing stigma and stereotyping concerns. We found that depictions of minorities engaging in stigmatizing behavior resulted in *less* attention to the standard of care HIV video when minority patients were in the presence of in-group peers. Because the average African American lives, and presumably receives their healthcare, in a majority African American neighborhood (U.S. Census, 2010), African Americans are most likely to be exposed to these videos under these very conditions that undermine the success of these messages. This highlights a need to re-think the design of culturally sensitive health messages that are likely to be viewed in segregated contexts.

Second, our results suggest a potential intervention point to leverage increased attention to HIV-prevention information by African American audiences. Specifically, we

found that if African American patients saw other African Americans paying attention to the HIV video, they paid more attention. Future work should assess various motives as a way of reducing barriers to attention to health communications, and ultimately reducing health disparities by capitalizing on this spiraling of attention. Furthermore, additional work should be aimed at decreasing perceived stigma as a way of increasing attention to HIV-prevention information, particularly for African Americans. One strategy may be to use *meta-interventions* – supplemental programs designed to increase intervention participation. Meta-interventions have increased acceptance of HIV-relevant videos and counseling sessions (Albarracin et al., 2008), and so could signal in-group acceptance to increase attention to HIV information, particularly for African Americans. This could be accomplished by drawing inspiration from work on parasocial media interactions, whereby audiences engage with media by forming connections with characters (Giles, 2002) or by incorporating strategies from two-step flow of communications models (Lazarsfeld, Berelson, & Gaudet, 1944). In this way, audience engagement could be manipulated by having a pre-recorded video of similar others (“opinion leaders”) reacting favorably to the video being viewed in tandem with the health message. Thus, there may be opportunities for meta-interventions designed to increase attention to health information.

Like all studies, there are some limitations to our findings. First, our study focused on African American attention to HIV-prevention information because HIV disproportionately affects African Americans. We are unsure if our findings generalize to other groups who are also significantly affected by HIV, who may have different concerns (e.g. Hispanic-Americans, Men who have sex with men). Second, we only used one set of

videos in our study (though they are standard of care videos) – Safe in the City and Germ Busters; results may vary given different health messages.

Despite these limitations, the current study contributes important insights to theory and practice in public health. Public health researchers, practitioners, and policy makers have spent multiple decades developing frameworks of cultural sensitivity and cultural competence in attempts to address racial-ethnic disparities in health and health care (Bentacourt, Green, Carrillo, & Ananeh-Firempong, 2003). These efforts should be applauded as they have advanced knowledge of how different target audiences respond to different health messages – factors that are important to understand in order to develop effective interventions for reducing health disparities. To further advance this goal, we need to expand our understanding of the contextual and psychological processes that differentially impact subgroup behaviors (Geronimus et al., 2016; Lewis & Oyserman, 2016; Oyserman & Lewis, 2017). Understanding these behavior, and the conditions under which they emerge, is critical for improving health and reducing disparities.

## CHAPTER IV

### Evidence from a National Sample of American Adults

This chapter is adapted from my original paper “No pain, no gain? Social demographic correlates and identity consequences of interpreting experienced difficulty as importance” (Aelenei, Lewis, & Oyserman, 2017, Study 1).

Currently, almost two thirds (65.9%) of American high school graduates start attending college immediately after graduating from high school (National Center for Educational Statistics, 2016). Of those, the majority start at a community college (Cabrera & La Nasa, 2001; Rowan-Kenyon, 2007). Unfortunately, of the total estimated 10.1 million students currently enrolled in community colleges, about 8 million will not graduate -- graduation rates for community colleges average 21 percent --79 percent do not graduate (Ginder, Kelly-Reid, & Mann, 2014). This community college graduation rate is less than half the graduation rate of students entering four-year colleges, about 54 percent of whom graduate with a bachelor’s degree within six year’s (ACT Research and Policy Issues, 2012). That most high school graduates start college implies that lack of college aspirations is not the problem – entering students likely do imagine “college graduate” as an academic possible future identity --an academic identity that they might have in the future. However, that most students fail to graduate implies that the problem is translating this academic possible identity into persistent action.

Students are right to focus on their academic possible identities—having credentials beyond high school is increasingly necessary in modern societies. Low education is associated with worse outcomes on almost every dimension of human development including unemployment, poverty, mental and physical health problems, and healthy family relationships (e.g., Card, 1999; Daly & Bengali, 2014; for a full review, Oyserman, 2015). Each of the negative effects of low education are particularly likely for racial-ethnic minorities with less than a college education (Ahmed, Hill, Smith, & Frankenberger, 2007; Sassi, Devaux, Cecchini, Church, & Borgonovi, 2011; Shi & Stevens, 2005; U.S. Bureau of Labor Statistics, 2014). Having a college degree is buffering, and this is especially true for stigmatized racial-ethnic minorities. Though there are likely a number of underlying processes explaining the link between education and life outcomes, one of the important ways that college education likely reduces economic and health risk is by influencing the likelihood of chronically experiencing lack of choice and control (for reviews, Lewis & Oyserman, 2016, Oyserman & Fisher, in press). Lack of choice and control, in turn, are posited to increase the likelihood that experienced difficulty is interpreted as implying impossibility rather than importance (Elmore, Oyserman, Smith, & Novin, 2016; Oyserman, 2015; Oyserman, Smith, & Elmore, 2014).

### **Identity-based motivation and interpretation of experienced difficulty with college**

Identity-based motivation theory (IBM) describes the process by which interpretation of experienced difficulty operates to influence the self, motivation, and engagement (IBM, Oyserman, 2007, 2013, 2015). A core prediction of IBM is that it is not experienced difficulty per se but rather how that experienced difficulty is interpreted that matters for whether academic possible identities and strategies to attain them come to

mind and influence engagement. Following common definitions of academic engagement (Fredricks, Blumenfeld, & Paris, 2004; Libbey, 2004; Landau, Oyserman, Keefer, & Smith, 2014), we operationalized academic engagement in terms of intentions – the degree to which individuals intend to prioritize and put their best effort into a given task, and behavior – the extent that they actually do spend time, study, ask questions, and persist. There is some evidence that interpretation of experienced difficulty influences engagement. Thus, if engagement is operationalized as time spent on a subsequent academic task, students led to recall times in which they interpreted their experienced difficulty with schoolwork as implying schoolwork's importance were more engaged than students led to recall a time in which in which they interpreted their experienced difficulty with schoolwork as implying schoolwork's impossibility (Smith & Oyserman, 2015).

IBM predicts that social stratification (including social class and racial-ethnic minority status) matters in part by changing the odds that people will experience success-likely vs. failure-likely contexts and hence need to interpret experienced difficulty (Lewis & Oyserman, 2016; Oyserman & Fisher, in press, Oyserman et al., 2014). Experienced difficulty can be interpreted as implying importance, “no pain, no gain” and highlight the need to sacrifice to work toward a possible academic identity and to come up with strategies to do so (Oyserman, Bybee, & Terry, 2006). But experienced difficulty can also be interpreted as implying impossibility, “not worth my time” and result in shift in effort and attention to other goals. Middle school students guided to interpret experienced difficulty with schoolwork as implying importance performed better on a subsequent test of fluid intelligence than those guided to interpret experienced difficulty with schoolwork as implying impossibility of success (Oyserman & Fisher, in press).

These insights have been used to develop an identity-based motivation intervention that, when tested in a randomized control trial intervention, improved the attendance and grade point average of low income and minority students (Oyserman, Bybee, & Terry, 2006; Oyserman, Terry, & Bybee, 2002). For example, in one randomized control trial of the identity-based motivation intervention, eighth grade students in the control condition went to school as usual and experienced the usual difficulties with schoolwork without structured interpretation (Oyserman et al., 2006). They were followed through eighth grade and the next year as they transitioned to high school. The identity-based motivation intervention occurred twice a week in the beginning weeks of the school year for a total of 12 sessions, ending before the first quarter marking period ended. Students randomly assigned to the intervention condition participated in in-class small group activities. Activities focused on the three pillars of IBM (connection, strategies, interpretation of experienced difficulty), with the goal of fostering three norms. These norms were first, that everyone has academic possible identities and can have strategies to attain them. Second, that next year and adult possible identities – the selves one believes one might become in the near and the more distal future, are linked. Third, that along the way everyone experiences difficulties and that experiencing difficulties is a sign that one is working on a task that is important, worth one's while.

At baseline, intervention and control groups did not differ on any of the obtained measures (school grades, attendance, homework time, in-class behavior including teacher report of engagement and possible identities) and no difference was expected given randomization to group. However, at the end of eighth grade and at the end of ninth grade the following school year, students in the intervention group had better grades, spent more

time on their homework, were more engaged by teacher report, and had better attendance and standardized test scores compared to control group students. Effects were mediated by change in school-focused possible identities and strategies to attain them. Results implied that vulnerable students are more likely to succeed if guided to interpret experienced difficulties with schoolwork as the importance of these tasks.

Although the initial test involved middle school students, later experiments demonstrated that interpretation of experienced difficulty effects are not limited to vulnerable middle school students. For example, college students were led to recall a time they interpreted experienced difficulty with schoolwork either as a sign of task impossibility or as a sign of task importance (Smith & Oyserman, 2015). Students in the interpretation of experienced difficulty as importance group rated academics as more central to their identity. They also performed better on a test of fluid intelligence. In addition, college students guided to focus on interpretation of experienced difficulty as importance generated more academic possible selves and strategies to attain them than college students guided to focus on interpretation of experienced difficulty as impossibility (Oyserman, Novin, Smith, Elmore, & Nurra, 2016). The effect of guided focus was not moderated by how much participants endorsed the interpretation of experienced difficulty they were guided to focus on, suggesting that effects are due to cuing associated knowledge in memory rather than due to endorsement itself (for further discussion of how priming works, see Forster, Liberman, & Friedman, 2009).

Prior studies on guided interpretation of experienced difficulty highlight the effect of having people focus on one or another interpretation, but people also differ in their chronic (trait) interpretation of experienced difficulty (Fisher & Oyserman, in press;

Oyserman, Novin, et al., 2016). Across studies, when interpretation of experienced difficulty as importance and as impossibility are measured, people agree more with the idea of interpreting experienced difficulty as importance and less with the idea of interpreting experienced difficulty as impossibility. However, across studies each interpretation of experienced difficulty contributes separately to variance in relevant constructs – including efficacy and locus of control (Fisher & Oyserman, in press; Oyserman, Novin, et al., 2016). The correlation between the two scales (interpretation of experienced difficulty as importance, interpretation of experienced difficulty as impossibility) is low with the confidence interval of the average correlation ranging from -0.13 to -0.06 in one set of four studies (Fisher & Oyserman, in press) and the correlations ranging from -0.18 to 0.08 in another set of four studies (Oyserman, Novin, et al., 2016).

### **Social structural factors and experienced difficulty with college**

In this section we consider the community college context as potentiating a particular interpretation of experienced difficulty (e.g., Oyserman & Destin, 2010). There are a number of reasons this is likely: First, low-income, working class, and racial-ethnic minorities are more likely to attend community college (Laanan, 2000). These groups of students are less likely to experience educational settings as supportive of their success (e.g. Cabrera, Nora, Terenzini, Pascarella, & Hagedorn, 1999; Hu & St. John, 2001; Hurtado, Inkelas, Briggs, & Rhee, 1997; Kao & Thompson, 2003). Second, these students are more likely to experience discrimination (e.g. Bertrand & Mullainathan, 2003) and stereotype threat – the fear of confirming a negative stereotype about one's group (Nguyen & Ryan, 2008; Lewis & Sekaquaptewa, 2016; Steele & Aronson, 1995). Compared to university students, community college students may have less time to invest and may experience

more goal conflict because they are more likely to be working full time and to be single parents (Hoachlander, Sikora, & Horn, 2003). They may be less confident in their academic skills since they are less likely to have successfully completed rigorous coursework before college (Goldrick-Rab, 2010) and are more likely to be required to take remedial classes during college than university students (Attewell, Lavin, Domina, & Levey, 2006)<sup>2</sup>. In part due to the above factors, community college students often misperceive the academic requirements for graduating, underestimating the difficulties they are likely to experience and the sacrifices schooling entails (Person, Rosenbaum, & Deil-Amen, 2006).

### **Predictions and Current Study**

Taken together, our literature review yields two predictions about social structural factors and interpretation of experienced difficulty, which we test in the current study. The two predictions are about the association of chronic interpretation of experienced difficulty with education and income. We predict that interpretation of experienced difficulty will be associated with college education, especially for racial-ethnic minorities, and that interpretation of experienced difficulty should mediate the relationship between income and education. We test these predictions in Study 1 using a large on-line sample of adults varying in level of education and in minority status.

### **Study 1**

**Method.** Adults (N = 1, 071; 57.2% male;  $M_{\text{age}} = 34.52$ ,  $SD = 10.98$ , 82.8 % White) rated how strongly they agreed or disagreed (1=*Strongly disagree*, 7=*Strongly agree*) with 12 statements about interpretation of experienced difficulty and reported demographic

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<sup>2</sup> Over half are required to take one or more remedial courses, classes that do not count toward degree credits and lengthen the time to degree completion.

information. These statements formed the interpretation of experienced difficulty as importance and as impossibility subscales and the demographic information used for the current analyses. Our research team recruited this sample on Amazon's Mechanical Turk to complete seven unrelated studies; the data used in this study were located at the end of each of these studies and have not been used or published elsewhere. That is, in each of seven studies, participants responded to the study questions and then completed the interpretation of difficulty questionnaire prior to reporting their demographics. Answers to the interpretation of experienced difficulty questions and demographic questions were then pooled into a large dataset for the current analyses. We chose this method prospectively because it allowed us to collect interpretation of experienced difficulty and demographic information from a large racially and educationally diverse sample and so have statistical power to test our predictions without much cost, we paid ten cents per minute.

**Results.** We set up two regression equations, one to examine the effects of Education, Race, and their interaction on interpretation of experienced difficulty as importance score (first regression) and the other to examine interpretation of experienced difficulty as impossibility score (second regression). Throughout we present unstandardized regression coefficients represented as *bs*. The first regression revealed main effects of Education,  $b = .16$ , 95% CI [.04, .28],  $t(1025) = 2.68$ ,  $p = .008$ ,  $d = .17$ , Race,  $b = -.13$ , 95% CI [-.23, -.02],  $t(1025) = -2.36$ ,  $p = .018$ ,  $d = .15$ , and their interaction,  $b = -.23$ , 95% CI [-.35, -.11],  $t(1025) = 3.77$   $p < .001$ ,  $d = .24$ , on interpretation of experienced difficulty as importance score. Participants with higher levels of education were more likely to agree that experiencing difficulty is a signal that tasks are important. Minority (mostly

Black and Hispanic) participants drove this effect. The second regression revealed that neither Education, nor Race, nor their interaction significantly predicted interpretation of experienced difficulty as impossibility.

To better understand how Education and Race were associated with interpretation of experienced difficulty as importance, the effects of the first regression were decomposed in follow-up analyses examining the relative influence of different levels of education on interpretation of experienced difficulty as importance. Change in education is associated with change in interpretation of experienced difficulty as importance score for minority but not for White participants. The size of the relationship between interpretation of experienced difficulty as importance score and education is moderated by level of education for minority participants. This moderated relationship has the following three characteristics: Minority participants with less than a high school education are less likely than their White counterparts to interpret experienced difficulty as a sign of importance. Next, having a community college education eliminates racial differences in interpreting experienced difficulty as importance. Finally, minority participants who obtain advanced degrees are more likely to interpret experienced difficulty as importance than their White counterparts.

With regard to the second regression equation, there is no significant effect of Education ( $p = .84$ ) or Race ( $p = .10$ ), or an Education by Race-Ethnicity interaction ( $p = .12$ ) for experienced difficulty as impossibility scores. We interpret these significant and null results to mean that higher education increases productive interpretation of experienced difficulty by increasing interpretation of experienced difficulty as importance rather than by reducing interpretation of experienced difficulty as impossibility. The implication is that

guiding at risk students to consider that their experienced difficulty might be a signal of task importance is likely to be useful (e.g., by bolstering their academic possible identities and increasing their academic engagement).

Next we tested the possibility that interpretation of experienced difficulty mediates the well-documented relationship between higher education and more income especially for minorities. A moderated-mediation analysis using PROCESS for SPSS v2.12 with 10,000 bootstrap samples (Hayes, 2013) reveals that the effect of Education on Income ( $r = .29, p < .001$ ) is partially explained among minority participants by the effect of Education on interpretation of experienced difficulty as importance scores (95% Confidence Interval (CI) for Index of Moderated Mediation [-.1532, -.0180]). Specifically for minority participants, level of education is positively related to higher experienced difficulty as importance score and this higher score is positively related to annual income (95% CI for Indirect Effect for Minority Participants [.0145, .1342]). Experienced difficulty as importance score does not mediate the relationship between education and income for White participants (95% CI for Indirect Effect for White Participants [-.0343, .0016]). Recall that for Whites this score is also not associated with education. We interpret our finding that education matters for interpretation of experienced difficulty among minority (but not White) Americans to mean that there are other ways in which Whites experience difficulty as implying importance beyond educational attainment (see also Oyserman, Destin, & Novin, 2015).

## **Chapter Discussion**

Taken together, Study 1 demonstrates that level of education plays a significant role in how people interpret their experienced difficulty. Racial-ethnic minority adults with higher levels of education are more likely to interpret experienced difficulty as a signal of task importance. Minority adults who had completed community college ( $M = 4.05$ ) had “difficulty as importance” scores that were 1.49 points higher than minority adults with less than a high school education ( $M = 2.56$ ). Calculated as a percentage change ( $M_{\text{community college}} - M_{\text{less than high school}} / M_{\text{less than high school}} \times 100$ ), this difference is 58.2 %. This difference in interpretation of experienced difficulty as importance also partially predicts their annual income. These findings provide correlational support for the importance of educational attainment in interpretation of experienced difficulty as importance. To understand what this difference implies when translated back to dollars, we conducted the following calculations.

First, we set up a regression equation with income as the dependent measure and experienced difficulty as importance score as the predictor, obtaining an unstandardized beta of .16 ( $p = .013$ ). This means that each 1-point increase in interpretation of experienced difficulty as importance score corresponds to a .16 increase in income level in our scale. Next, we multiplied the difference in interpretation of experienced difficulty as importance scores (1.49) by the effect of interpretation of experienced difficulty as importance score on income level ( $1.49 \times 0.16 = .24$ ). This revealed that obtaining a community college degree versus not completing high school corresponds to a .24 increase in income level for minority participants on our income scale. Our income scale was designed so that each unit represents an increment up of \$10,000 per year. The product of the unit increase and the effect of interpretation of experienced difficulty on income unit is

$\$10,000 \times .24 = \$2,400$ . As can be seen in the demographics table, half of our sample reported earnings of \$29,999 or less. The implication is the higher interpretation of experienced difficulty as importance scores among community college graduates compared to those who did not finish high school may explain an income advantage that is substantial at the low income levels of this group.

Of course our analyses are importantly limited by their correlational and self-report nature. We did not manipulate interpretation of experienced difficulty or contrast the effect of manipulated interpretation of experienced difficulty to the effect of no guided interpretation of experienced difficulty or contrast the effect of state (guided) interpretation and trait (non-guided control). This limits our ability to infer the causal direction of these relations. We do not have a way to verify income so it is possible that self-report errors result in a noisy estimate of effects. Moreover our effect size ( $d = .24$ ) is small, though we believe that it is consequential because of prior research showing that interpretation of experienced difficulty matters for academic outcomes. We base this idea that small effects can be important on a number of literatures. First as noted by McCartney and Rosenthal (2000) small effect sizes can matter for educational policy for a number of reasons, including the fact that error in measurement may guarantee small effects. Second, whether an effect, small or not, matters depends on its consequences (for a related discussion, see also Prentice & Miller, 1992). Our self-report measure is brief and surely contains measurement error and even small increments in shift in interpretation of difficulty matter if they increase the positive consequence of education on income. Nevertheless, that we find a theoretically consistent relationship between people's social position (indexed by their race and level of education) and their interpretation of

experienced difficulty (an important motivational construct) suggests again that it would be fruitful for future research to continue exploring relations between social structure and motivational constructs.

## CHAPTER V

### Conclusion

“...there exists a great amount of good-will, of readiness to face the problem squarely and really to do something about it. If this amount of serious good-will could be transformed into organized, efficient action, there would be no danger for intergroup relations in the United States. But exactly here lies the difficulty. These eager people feel to be in the fog. They feel in the fog on three counts: 1. What is the present situation? 2. What are the dangers? 3. And most important of all, what shall we do?”

-- Kurt Lewin (1946, p. 34)

It has been six decades since Lewin (1946) wrote “Action Research and Minority Problems” – a clarion call for social scientists to conduct *action research* to address pressing social issues such as group-based disparities between minority and majority group members in the United States and elsewhere. Since that time some progress has been made; for instance, from 1995 to 2015 the percentage of African Americans with 4-year degrees rose from 15% to 21% and the percentage of Latinos who have 4-year degrees rose from 9% to 15% (Kolodner, 2016; NCES, 2016). At the same time, gaps between minorities and majority members remain quite wide, and recent projections suggest that if we continue on the current trajectory, those gaps – at least in education – will persist for another three to four generations (Beck & Muschkin, 2012; Hedges & Nowell, 1999). These patterns suggest that today, as was the case six decades ago, there continues to be a pressing need to transform people’s good will for addressing social disparities into organized, efficient action. I believe the findings of this dissertation can

shed some light on Lewin's (1946) third question – “what shall we do?” about social disparities, and thus I will end this dissertation by suggesting some potential answers.

The ten studies in this dissertation highlight key insights for understanding and addressing persistent social disparities. First, the eight experiments in chapter two documented that the granularity of labels used to describe information can moderate aspiration-attainment gaps. In those studies, fine-grained labels in both the savings and health domains impelled people to take action towards their goals by shifting either their goal-relevant perceptions or motivation to regulate their behavior. It is important to note that granularity did not change aspirations – saving for retirement and losing weight were important goals to participants across conditions; the finer-grained frame simply made it easier to take the appropriate actions to achieve those goals. Second, the observational field experiment in chapter three documented that stigmas that become activated in public health clinics can lead stigmatized people to pay less attention to health information unless they witness others like themselves paying attention to the information. Third, the national survey in chapter four documented that motivational constructs like people's interpretations of experienced difficulty are functions of people's lived experiences – their positions in the social hierarchy.

### **Implications for Theory**

This work contributes to a growing body of research on the role of motivation and goal pursuit processes in social disparities. First, it highlights that disparities are not due to people in low positions in social hierarchies lacking aspiration or discounting the importance of their goals, as some have hypothesized (e.g., Fordham & Ogbu, 1986). Across studies, both in the current dissertation and elsewhere in the literature, we find that

minorities tend to aspire equally high as their majority group peers (for reviews, Lewis & Oyserman, 2016; Oyserman & Lewis, 2017). These findings converge to suggest that gaps in aspiration are not the mechanism explaining group based disparities. Instead, it seems that social contextual variables moderate gaps between aspiration and attainment. Here I highlighted three levels of contextual variables. Findings from the first level (Chapter 2) suggest that aspiration-attainment gaps can be moderated by the granularity of labels used to present goal-relevant information to people. When finer-grained labels are used, information seems to loom larger and create a sense of imminence for people to act, and motivates people to regulate their behavior. Findings from the second level (Chapter 3) highlight that activated stigmas can moderate people's engagement with goal-relevant information; when stigma is low – they pay attention, when stigma is high, they disengage. Finally, the third level (Chapter 4) highlights that people's chronic positions in social hierarchies influence their motivational profiles such that people situated in lower positions in social hierarchies are less likely to endorse motivational constructs that likely do not fit with their lived experiences. Together, these findings suggest that as we continue to study motivation and goal pursuit processes as potential mechanisms for group based disparities, it is important to acknowledge the moderating roles of people's social contexts. It is the interplay between context and identity, not one or the other, that influence motivation and goal pursuit processes and their associated outcomes (Lewis & Oyserman, 2016; Oyserman & Lewis, 2017).

The present research also contributes to literatures on attitude-behavior consistency (Glasman & Albarracin, 2006). Research on attitude-behavior consistency suggests that people's attitudes and behavior tend to be moderately correlated at  $r = .51$ ,

but the size of this correlation tends to vary by a host of factors (for meta-analytic review, see Glasman & Albarracin, 2006). The studies in the current dissertation suggest some other factors that moderate this relation. The chapter on granularity suggests that the granularity of labels used to describe information can influence whether people's attitudes to save or eat healthy translate to their willingness to act in line with those attitudes. The chapter on stigma in public health settings suggests that it is not only one's own attitudes toward a behavior (e.g. towards getting information about HIV) that influences whether or not one pays attention, but also the (perceived) attitudes of one's in-group peers and the consequences that has for the self. The chapter on macro-context suggests that people's motivation to act in difficult situations potentially depends whether they think their action will result in success, and not just whether they think the action is important (for a longer discussion, see Oyserman & Lewis, 2017).

To address gaps between attitudes and behavior, researchers have theorized about how different types of plans can help people implement their intentions (Gollwitzer, 1999). Research on implementation intentions has documented that implementation intentions have a medium-to-large ( $d = .65$ ) effect on goal attainment by enhancing the accessibility of specified opportunities and automating goal-directed responses (for meta-analytic review, see Gollwitzer & Sheeran, 2006). The present findings contribute to this literature in interesting, and sometimes conflicting ways. The first set of findings on information granularity complement research on implementation intentions by suggesting an even more automatic process to impel people to take action. From an implementation intention framework, people succeed if they make the right type of (if-then) plans. My findings on granularity suggest that if people are provided with goal-relevant information at a useful

level of granularity, that will motivate them to plan and take action toward their goals. The second set of finds on the role of stigma in goal pursuit are somewhat at odds with the implementation intention framework. Participants in that study presumably made the right plans to come to the public health clinic to get health information. Yet, as documented in Chapter 3, those plans to pay attention to health information in the clinic were undermined by the stigmas activated in that setting. This suggests that more research is needed to understand whether and how stigma might operate to undermine the efficacy of interventions like implementation intentions.

### **Implications for Practice**

The research presented in this dissertation also has several implications for practitioners and policy makers interested in developing policies to reduce group based disparities. The first set of findings on information granularity presented in Chapter 2 highlighted how relatively small changes in context, such as the granularity of information used to describe information, can have substantial effects on people's motivation and behavior. Simply reframing when retirement will occur (in x days vs the equivalent number of years) made people much more willing to begin saving, and making comparable changes to portion labels made people eat less food. That relatively small interventions can produce large changes in behavior is an important insight for practitioners to keep in mind (see also Resnicow & Page, 2008).

The second and third set of findings in Chapters 3 and 4 highlight the broader lesson I hope practitioners take away from this dissertation – it is critical to consider people's momentary and chronic social contexts when developing interventions to address disparities. One implicit assumption underlying much of public policy is that to effectively

change behavior, policy makers simply need to provide people with the right information. The findings of Chapter 3 suggest that this assumption can be flawed. Specifically, we saw that “culturally tailoring” stigmatizing HIV information to target audiences was insufficient to get African American patients to pay attention to the message on display. Contrary to what the message designers likely hoped, displaying the HIV prevention message in a setting where in-group peers were present led to a decrease in African American patients’ attention to the message. This highlights the need for policy makers to consider not just information, but also the context in which information is being presented when developing interventions to address group-based disparities. Although Chapter 4 did not examine immediate behavioral consequences of interpretation of experienced difficulty as a function of social status, other research on this construct suggests the same lesson applies to that, and other motivational constructs, as well (for review, see Oyserman, 2015). Practitioners must consider people’s contexts, and how those contexts influence what comes to mind, the linked behavioral strategies, and interpretations of experiences such as interpretation of difficulty. Without a clear understanding of how these processes work in tandem, interventions designed to address disparities are unlikely to succeed (for longer discussions, see Lewis & Oyserman, 2016; Oyserman & Lewis, 2017).

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