

MINDSET MATTERS: AN INVESTIGATION OF HOW IMPLICIT THEORIES MANIFEST  
IN THE SYLLABUS OF THE COLLEGE INSTRUCTOR

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Casey Todd Peterson

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**Title**

MINDSET MATTERS: AN INVESTIGATION OF HOW IMPLICIT  
THEORIES MANIFEST IN THE EXPECTATIONS AND DECISION-  
MAKING OF THE COLLEGE INSTRUCTOR

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**By**

Casey Todd Peterson

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The Supervisory Committee certifies that this *disquisition* complies with North Dakota  
State University's regulations and meets the accepted standards for the degree of

**DOCTOR OF PHILOSOPHY**

SUPERVISORY COMMITTEE:

Dr. Nathan Wood

---

Chair

Dr. James Nyachwaya

---

Dr. Larry Napoleon

---

Dr. Lisa Arnold

---

Approved:

6/3/2021

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Date

Dr. Chris Ray

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Department Chair

## **ABSTRACT**

Recent research showed that college-level instructors' implicit theories about intelligence, or mindset, have a direct impact on student learning outcomes. The current study sought to discover how instructor mindset instantiates in the course syllabus. Through a document analysis and semi-structured interviews, patterns of language choice and cues emerged that aligned with growth or fixed mindset. Connections between these choice patterns and existing literature begin to explain how and why instructor mindset impacts student achievement.

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## **DEDICATION**

This work and this degree are dedicated to my family. It would not have been possible without the support of my partner and the desire to role model perseverance to our children. It is dedicated to all of the educators in my extended family, who taught me the value caring for others through teaching. This is also dedicated to the work of my parents and grandparents. The work they completed in their lifetimes provided me the privilege and luxury to pursue my career and to spend this time thinking and exploring. They built the future I now enjoy, and I am thankful for their love and sacrifices. I will continue to do my best to live up to the examples they set.

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## INTRODUCTION

Implicit theories, or our underlying beliefs about the nature and workings of the world, drive much of our individual perception and behavior. Carol Dweck (2006) is credited with introducing the concept of mindset. She described mindset as the implicit theories held by individuals that act as foundations for interpretation of information, reaction to the world around them, and their resultant behaviors. Her work specifically focuses on implicit theories related to intelligence (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 2000; Dweck, 2006; & Yeager & Dweck, 2012). These studies focused on the implicit theories of intelligence held by individual students that represent either fixed or growth mindset. In a fixed mindset, people believe that intelligence is primarily inherited and the amount an individual possesses cannot be changed significantly. When confronted with a challenge or failure, people with fixed mindset tend to give up and attribute failure to inherent inability (Dweck, 2006). In contrast, people with a growth mindset view intelligence as malleable, something that can be stretched and strengthened with effort and opportunity. People with growth mindset have an underlying belief that abilities and skills will improve with challenge and the experience of failure (Dweck, 2006).

Most mindset research comes from the field of social psychology and has been tested in education systems with students. This research most typically applies one of various mindset interventions with students and then quantitatively measures the subsequent achievement levels of the participants. Canning, Muenks, Green, and Murphy (2019) recently took a step in a different direction, studying the impact of instructor mindset on the academic achievement of college students. This study provided evidence that the implicit theories of intelligence, or mindsets, held by university instructors in the STEM fields do indeed have a measurable impact on student performance in STEM courses. Their study showed that instructors who possess a growth mindset somehow implicitly create learning opportunities and environments that improve

overall student achievement and produce more equitable outcomes for students. The Canning et al. (2019) study showed a racial achievement gap in courses led by an instructor with a fixed mindset that was double the gap in courses led by an instructor with growth mindset. The current study was designed to take a first step toward understanding what and how instructors may be communicating due to their own implicit theories that affects this disparity.

### **Statement of the Problem**

Mindset research thus far has focused almost solely on the mindsets of students. It is clear in the literature that student mindset impacts student outcomes. Canning et al. (2019) established that instructor mindset interacts with student mindset and has direct impact on equity in student outcomes. It is unclear how or why this happens.

If the implicit theories, or mindsets, held by instructors act as foundations for language choices, interpretation of information, reaction to the world around them, and their resultant behaviors (Dweck, 2006), then evidence of how mindset manifests in the language and decisions instructors choose should be observable. Examples of instructor mindset instantiation are largely missing from Dweck's (2006) work and the large body of resultant literature. There is a need for a systematic inquiry into the impact of instructor mindset on how courses are structured and executed.

As a starting point for investigating instructor mindset, instantiations of mindset may be evident in class syllabi. As an artifact of the course, the syllabus is a foundational document, representing a direct manifestation of the instructor's basic language and cue choices about how she or he expects to effectively deliver the course. Doolittle and Siudzinski (2010) stated, "The use of syllabi in higher education is ubiquitous, and their construction represents a critical moment in instructors' curriculum/course development thought processes and the communication process between instructors and students" (p. 30). The implicit theories of the

instructor related to class resources, student intelligence, and student motivation should be readily evident in these documents.

### **Purpose of the Study**

The purpose of this study was to identify instantiations of instructor mindset in the syllabi of classroom instructors at North Dakota State University (NDSU), Minnesota State University Moorhead (MSUM), and Concordia College.

### **Research Question**

How is instructor mindset instantiated in syllabi?

### **Significance of the Study**

The study has both theoretical and practical significance. Theoretically, this study adds to the scholarly knowledge around the topic of mindset science. It builds upon the knowledge created by the Canning et al. (2019) study, moving from a simple understanding that a mindset-related phenomenon exists to an understanding of how and why that phenomenon manifests in practice.

Practically, the results of the study provide evidence of language and practices commonly used by instructors with fixed mindset versus those with growth mindset. Using the results, instructors may be able to more consciously choose language and class structures to indicate and foster a growth mindset. Choices congruent with growth mindset have the potential to improve course outcomes and reduce achievement gaps between various groups of students.

### **Theoretical Framework**

The theoretical framework for this study was built using theories from the fields of psychology and social psychology. Each provided practical implications that overlap and weave together to provide a strong supporting background for this study. The following theoretical framework demonstrates the impact of positive implicit theories on the success of the individual.

Primarily, this study was built on Dweck's (2006) theory of mindset. Mindset was described as the implicit theories each of us hold that influence our decision-making and reaction to the world around us. Simply put, our implicit theories constitute our foundational assumptions about how the world works. Being implicit, these beliefs are largely unexamined and not consciously or intentionally acted upon. Implicit theories can be thought of as the underlying ideas we take for granted.

When describing intelligence, Dweck (2006) said that individuals hold either an entity or incremental belief. When holding an entity belief, the implicit theory at work is that intelligence is inherited and largely fixed. Individuals must work within the bounds of what they have been given. On the other hand, with an incremental belief the implicit theory at work is that intelligence is flexible and malleable. The individual is capable of "growing" intelligence. Dweck (2006) coined the terms fixed and growth mindset to describe implicit theories of intelligence. Those with an entity belief of intelligence are said to have a "fixed" mindset, while those endorsing an incremental belief of intelligence possess a "growth" mindset.

Humans assign meaning to life events and resources. In *Man's Search for Meaning*, Viktor Frankl (1959) viewed each meaning as having an orientation. The practice he developed, logotherapy, is the psychological practice of reorienting or reassigning meaning in order to improve life experience and results. In logotherapy, the practitioner actively examines implicit theories and reframes the perspective of the patient to a healthier, more productive meaning. In essence, Frankl (1959) was focused on re-orienting the mindset of his patients.

Maslow's (1943) theory of human motivation and his hierarchy of needs also played a role in this investigation. In this hierarchy, it is presumed that lower-level human needs must be satisfied by an individual before time and attention can be given to higher order needs. Humans are motivated to fulfill each need as it arises. According to Maslow (1943), these higher order

needs emerge naturally when the lower levels have been met. The strength with which the higher order needs emerge and demand to be satisfied is dependent upon the degree to which the lower, prepotent, needs have been met. Linking back to Dweck (2006), an individual possessing a more generalized entity (fixed) belief about both the internal and external resources in the world around them is likely to speak and make decisions in a different manner than someone who possesses a more generalized incremental (growth) belief. Frankl's (1959) logotherapy tied in as it reassigns meaning in ways that more fully meet different levels of need as described by Maslow (1943), freeing the individual to focus more time and energy on higher level need satisfaction. While both Frankl's (1959) and Maslow's (1943) frameworks were first laid out decades ago, both are still very present in recent literature and ongoing discussions of motivation and meaning making.

### **Delimitations**

This study focused only on the mindset of instructors as evidenced through their written syllabi and clarified through interviews. Observations of actual teaching practice were not completed, and students taking classes with participants were not be consulted. This study was intended only to identify language and decision-making processes linked to the implicit theory held by the instructor.

### **Summary**

This study aims to investigate how instructor mindset instantiates in the syllabi they create. It is a starting point to begin to understand how and why instructor mindset impacts class outcomes. Implicit beliefs impact perception, choice, and behavior. The study looks for patterns of choice instructors make that align with the different aspects of mindset theory.

Chapter 2 walks through the initial literature review based on the theoretical framework, and evidence of the utility of the syllabus in identifying language cues that influence student



perception. Chapter 3 provides the methodological road map used for the study. Discussed in Chapter 4 and Chapter 5, this study provided insight into patterns of communication choices in the syllabus correlated to instructor mindset; the impact on communication choices of the value instructor's place on the syllabus as a tool; and the variability of how instructor's view and define intelligence. The study also provided possible connections between instructor mindset and the academic achievement gaps typically seen between marginalized and non-marginalized groups. Chapter 6 will provide implications for practice and ideas for future research.

## REVIEW OF LITERATURE

Mindset science, the foundation for this review, discusses the implicit beliefs individual people use to make decisions and choose behavior. To understand how implicit belief functions, human motivation theory (Maslow, 1943) provides context for environmental and psychological drivers of human behavior. How humans make meaning of the cues in their environment, and the ability to re-orient that meaning (Frankl, 1959) is also foundational for understanding the language and behaviors people choose. The review below investigates how these ideas intertwine to drive, explain, and re-orient human behavior in the college classroom.

### Mindset

Carol Dweck, a researcher in the discipline of psychology at Stanford University, popularized the concept of mindset in her 2006 book *Mindset: The New Psychology of Success*. Dweck (2006) defines mindset as the variety of implicit theories through which each of us interprets the world and our place in it. Many studies confirming Dweck's initial work have been done, with very little literature challenging or disconfirming the impact of mindset on learning outcomes.

When discussing intelligence, Dweck (2006) posits that an individual can possess a fixed or a growth mindset. A *fixed mindset* represents an implicit theory, or belief, that intelligence is largely inherited. In this mindset, the quantity and quality of each person's intelligence is largely fixed at birth and cannot be changed much. In contrast, *growth mindset* represents an implicit theory, or belief, that intelligence is largely malleable and can be shaped, changed, and even grown with effort and persistence. It should be noted that these implicit beliefs are not fully dichotomous and exist on a spectrum. These beliefs are foundational to how each person communicates, interprets the cues they receive from others, and in large part drives the decisions they make and behaviors they choose (Dweck, 2006).

Canning, et al. (2019) showed that the implicit beliefs of the instructor impact student performance and equitable outcomes in the classroom. With implicit beliefs, or mindsets, being so foundational to human motivation and decision-making, mindset science seeks to understand and explain their impacts. Mindset interventions focus on shifting, or reorienting, an individual's fixed mindset to a perspective of growth mindset. Reorienting mindset to a growth perspective proves useful in motivating effort and maximizing potential.

Dweck (2006) discusses the concepts of growth and fixed mindset, particularly as applied to the school learning environment. From a fixed mindset, academic success is about proving that an individual possesses high levels of intelligence and is "smart." From a growth mindset, academic success is about understanding that learning typically requires effort. People with a general fixed mindset see academic challenges and problems as something to avoid, while people with growth mindset see the challenges as something to embrace and enjoy. Failure in a fixed mindset is evidence of lasting and permanent inability, or inherent personal flaws, whereas failure from a growth mindset perspective is evidence more effort and understanding are required in order to achieve and succeed (Dweck, 2006). A person with a fixed mindset may say, "I can't", when faced with a failure. A person with a growth mindset, finding themselves in the same situation is likely to say, "I can't - yet".

In effect, mindset acts as an anchor point for interpretation of the individual's interactions with others and their environment. Growth and fixed mindsets, as implicit beliefs, are a starting point for using the information each of us has for making decisions and choosing behaviors. Information viewed and interpreted from the fixed mindset anchor point is likely to produce far different behaviors than if the same information is viewed and interpreted from a growth mindset anchor point.

Mindset theory has been shown to improve overall student achievement levels as well as the equity in learning environments. Yeager and Walton (2011) completed a theoretical review of social-psychological interventions designed to re-orient individuals to growth mindset. For this review, the authors searched highly cited journals:

for studies that (a) evaluated an intervention that communicated a social-psychological message but did not teach academic content, (b) randomly assigned students to treatment or control conditions, and (c) observed effects on students' grades in a course or a school overall over time. (p. 276)

The Yeager & Walton (2011) review found consistent evidence that interventions that were successful in instilling a growth mindset in students improved achievement in the classroom and significantly reduced the achievement gaps between majority and minority populations. The interventions seem to have this effect because of the shift in the meaning made of success or failure as dependent on effort and strategy, rather than on inherent traits such as race, gender, or talent. All studies in their review focus on shifting the mindset anchor point of the students from fixed to growth, with no real attention paid to shifting the mindset anchor of the instructor.

Examples of these types of interventions are too numerous to lay out completely, but a select number of cases illustrates the point well. Yeager et al., (2016) demonstrated that teaching a lay theory grounded in growth mindset to students before the beginning of college improved outcomes, with results improving over time. Aronson, Fried, & Good (2002) applied a growth mindset intervention with college students. Compared to the control groups, the intervention group showed a significant increase in grade point attainment (approximately +.23). Another study examined the effect of delivering a growth mindset intervention to one group of seventh grade students and a study skills intervention to another. The grade point difference at the end of

the year between the two groups was estimated at .30, with the mindset intervention group achieving at the higher level (Blackwell, Trzesniewski, & Dweck, 2007).

Mindset interventions have been shown to trigger a positive, recursive cycle of behavioral response (Quay, 2018; Yeager & Walton, 2011). In short, once a growth mindset about intelligence is instilled, the cause of success is interpreted as having invested enough effort and energy into the challenge at hand. This seems to foster similar investment in the next challenge. The effects of these simple interventions show positive, cumulative results over time as the growth mindset cements and evidence mounts (Quay, 2018; Yeager & Walton, 2011).

Mindset science provides a path to a model that higher education instructors, may use to more consistently build strong learning environments. *Growth mindset* is essential for individual framing of any learning challenge. It puts focus on effort and strategy rather than innate ability (Yeager & Dweck, 2012). A *sense of belonging* is necessary for engaging and maximizing learning in the classroom environment (Walton, Logel, Peach, Spencer, & Zanna, 2015). Finally, an individual must understand the *purpose and relevance* of the challenge presented to them (Yeager, Henderson, Paunesku, Walton, D'Mello, Spitzer, & Duckworth, 2014).

Connecting this work to leadership situations, Coyle (2018) lists three parallel components of effective team environments as *vulnerability, safety and belonging, and purpose*. Safety and belonging relate directly to Maslow's (1943) work in human motivation. Frankl (1959) discusses purpose as a component of meaning making. Vulnerability can be tied to mindset (Brown, 2010). These three facets of effective teams support the work being done in mindset science and may serve as a good framework for analyzing the messages instructors communicate to students. As written artifacts of the classroom, syllabi may show evidence of practices that do or do not reinforce these critical components.

Talking specifically about safety and belonging in group leadership, Coyle (2018) cites the utility of mindset science in how leaders can effectively frame feedback for employees. He breaks the effective elements of Blackwell, Trzesniewski, & Dweck's (2007) messaging down into three components that members of a group must hear and believe in order to reach their full potential: "1. You are part of this group. 2. This group is special; we have high standards here. 3. I believe you can reach those standards" (pg. 56). These three components align with Quay's (2018) summary of research on "wise feedback" and may be useful for instructors to reference as they reflect upon their communication with their classes, serving as a frame for analysis of the messages sent.

Learning something new requires taking the risk of success or failure. Risk taking requires vulnerability. By reframing the meaning of failure away from being a sign of an inherent fault and permanent inability in the individual, growth mindset reduces the risk of being vulnerable, as challenge and potential failure are framed as opportunities to enjoy and embrace (Dweck, 2006). Approaching vulnerability from a growth mindset likely helps to satisfy the safety need (Maslow, 1943), and ease discomfort typically associated with the feeling of vulnerability, whereas individuals operating from a fixed mindset would be likely to interpret vulnerability as a sign of danger.

Brown (2010) also identified being vulnerable and the ability to model vulnerability in her grounded theory research as an essential component of leadership. As the person responsible for managing the environment and resources work groups have, the ability of the leader, in this case the instructor, to be vulnerable opens the door for others to do the same. There is a certain alignment of these beneficial outcomes of vulnerability with growth mindset. A willingness and ability to be vulnerable may be an indication that an instructor is operating from a growth mindset. This could help to explain the results of Canning, et al. (2019). The mindset of the

instructor, as the leader of the classroom, plays a key role in establishing if vulnerability and risk taking are encouraged and rewarded in the classroom for the sake of learning.

Through Frankl's (1959) method of re-orienting the meaning of resources and experiences, we see the connection to how the general perspectives of fixed and growth mindset affect orientation, and how an individual may be re-oriented to a new pattern of meaning making. Each mindset informs vastly different reactions, behaviors, and expected outcomes. Maslow (1943) hints at this idea by saying, "Another peculiar characteristic of the human organism when it is dominated by a certain need is that the whole philosophy of the future also tends to change" (p. 374). This statement provides at least a partial description of why mindset interventions work. If an individual holds a fixed mindset about the available resources in their environment, viewing them as finite and inadequate, they are likely to behave in very different ways than if they view the same resources from a growth frame of reference.

The primary inspiration for this study, Canning et al. (2019) were the first to examine the effect of instructor mindset on student achievement levels. Using two previously validated survey items, the researchers assessed the mindset of 150 STEM instructors at a large, Midwestern university as primarily holding either a growth or fixed theory of intelligence. They then tracked the outcomes of the more than 15,000 students, including more than 1,600 underrepresented racial/ethnic minority (URM) students, enrolled in courses taught by these instructors. No intervention was applied. The researchers examined the academic achievement gap, regularly found on the national level in higher education, between Black, Latino, and Native American students when compared to their White and Asian counterparts. The analysis showed that in courses taught by instructors holding a fixed mindset this achievement gap was twice as wide as in courses taught by instructors holding a growth mindset. In an effort to determine which groups of instructors were most likely to endorse a fixed mindset, the researchers

examined several demographic factors they believed may possibly account for a measure of endorsement of a fixed mindset. They examined factors such as gender, race, age, and tenure status. None were found to significantly affect which mindset the instructor endorsed, with the authors stating, “Thus, it seems that fixed mindset beliefs are not gendered, generational, endorsed only by majority group members, simply a function of accumulated teaching experience, or more concentrated in certain STEM disciplines” (Canning et al., 2019, p 2).

Canning et al., (2019) also examined the potential for these same faculty characteristics to buffer URM students from stereotype underperformance:

...we found the URM (versus non-URM) faculty did not have smaller racial achievement gaps in their classes ( $B = 0.30$ ,  $P = 0.215$ ). Moreover, professors’ racial identity did not buffer URM students against the negative effects of fixed faculty mindset beliefs (faculty race/ethnicity x mindset interaction:  $B = -0.11$ ,  $P = 0.502$ ) – fixed mindset beliefs were equally bad for URM students when they were endorsed by White or URM professors. Similar findings emerged for faculty gender... Yet, professors’ age, teaching experience, and tenure status did not predict the racial achievement gaps in their classes (all  $P$ s  $> 0.19$ ), nor interact with their mindset beliefs to predict URM students’ grades (all  $P$ s  $> 0.41$ ). Demonstrating the strong impact of faculty mindset beliefs, when faculty demographics, mindset beliefs, and students’ URM status (and all interactions between these variables) were included in the model, the mindset of professors remain the consistent predictor of the racial achievement gap in their courses. This suggests that faculty mindset beliefs are powerfully associated with URM students’ intellectual performance – above and beyond that of other faculty characteristics such as their professors’ gender, race/ethnicity, age, teaching experience, and tenure status (p. 3).



In this study (Canning et al., 2019), students were also asked to report on motivation and pedagogical practices used by the instructor:

...students reported less “motivation to do their best work” in classes taught by faculty to endorsed more fixed mindset beliefs ( $B = 0.09$ ,  $P = 0.028$ ). Students also reported that fixed mindset professors were less likely to use pedagogical practices that “emphasize learning and development” ( $B = 0.09$ ,  $P = 0.005$ ). Exploratory mediation analyses of responses to these two questions...revealed that these demotivating pedagogical practices statistically explained the effect of faculty mindset on course grades for both URM and non-URM students, although this effect was larger for URM students. Thus, faculty who endorsed more fixed mindset beliefs used less motivating pedagogical practices (at least as reported by students), and these practices were associated with lower course performance for all students on average and especially for URM students (p. 3).

The Canning et al. (2019) study does not identify what students mean by “demotivating pedagogical practices, or how what patterns of language and cues students use to gauge how motivating each professor’s techniques are. The study only shows a pattern of fixed mindset instructors having a demotivating effect on all students, particularly students of color. The present study seeks to begin to identify those language and cue patterns.

### **Criticism of Growth Mindset**

There is little research that challenges the effectiveness of growth mindset interventions. As shown in the Yeager and Walton (2011) review, the results of growth mindset interventions have been largely consistent and have not generated academic division on the topic.

The impact and utility of growth mindset interventions in the classroom, however, was challenged for the first time in the academic literature, with two meta-analyses of mindset studies

(Sisk, Burgoyne, Sun, Butler, & Macnamara, 2018). Out of a body of 15,867 novel records found, the researchers selected 129 studies that met their inclusion criteria. This seems to exclude a large portion of the evidence available. In addition, the meta-analyses did not account for effect by race, one of the primary factors that consistently shows the widest margin of gains when using mindset interventions. Despite these limitations, the authors conclude in their general discussion that:

Effect sizes were inconsistent across studies, but most analyses yielded small (or null) effects. Overall, the first meta-analysis demonstrated only a very weak relationship between mind-sets and academic achievement. Similarly, the second meta-analysis demonstrated only a very small overall effect of mind-set interventions on academic achievement. (p.569)

Dweck (2018) responded to the criticisms presented by Sisk and colleagues (2018). She cited disagreement regarding what constitutes a meaningful effect size for an educational intervention to achieve. Sisk, et al. (2018) claimed an average effect size of .57 as representing a generally agreed upon meaningful result. Upon review of the literature used for this claim, Dweck (2018) pointed out that Sisk and colleagues (2018) relied primarily on literature that tested effects immediately after an intervention (i.e., testing after a lesson), and not on longitudinal effects more appropriate to match with the types of mindset interventions utilized in the meta-analyses (Yeager & Walton, 2011). Citing Dynarski (2017), a leading educational economist, Dweck (2018) provided evidence showing that an effect size of .20 on grades or test scores over the course of a year are “about the best you can expect” (p. 2). From the federal What Works Clearinghouse, a site that evaluates and promotes effective education interventions, Dweck (2018) cites a highly regarded literacy intervention (Somers, et al. 2010) for at-risk students that produced an overall effect size of .06. Dweck (2018) then cites the Sisk, et al.

(2018) findings that mindset interventions typically show an effect size of .19 with at-risk students, and an effect size of .08 when all students are included. Dweck (2018) went on to show that most mindset interventions used in the Sisk et al. (2018) meta-analyses met this mark.

Outside of formal academic literature, criticism has focused largely on the issue of equity. That criticism links growth mindset interventions to “deficit thinking” (Thomas, a. 2017, b. 2018; Wormeli 2018), or the notion that students have a deficit in intelligence or attitude that teachers must fix. Deficit thinking places the responsibility for the problem on the student rather than on the systems they learn in. Critics argue that by working to develop a growth mindset in individual students we ignore the larger, more destructive systems of institutionalized oppression inherent in higher education and focus solely on the responsibility of the student to work in and around those systems.

While coming from credible educators, this criticism of deficit thinking as inherent in the application of mindset comes only from the blogosphere and is not found in research. It is an understandable criticism if growth mindset work is only targeted at the student. Instructors reinforce and guide students through the learning systems in our society. Taking a focus on instructor mindset and the resulting outcomes may lead to scalable faculty mindset interventions that can begin to address and break down some of these institutional systems of oppression. Instilling growth mindset in one student impacts that individual; shifting one instructor’s mindset may impact thousands.

### **Human Motivation**

Dweck’s (2006) mindset theory centers on implicit belief about intelligence and one’s ability to learn. There are foundational conditions that must be met on the individual level for optimal learning and performance to exist. Having a growth mindset about intelligence is likely not relevant in an environment in which the basic needs of the individual have not been attended

to. Without understanding and attending to these foundational components, no individual can reach their full potential.

To understand how mindset functions and impacts decision-making and behavior, we need to examine basic human functions such as motivation, perception, and relevance. There is a need to investigate how humans interpret the social and environmental cues that create both understanding and action. Humans must perceive cues in their environment and make decisions about whether or not their needs are likely to be met in each setting. Various lived experiences and implicit beliefs will cause each individual to interpret cues in their own way.

At the broadest level, Abraham Maslow (1943) laid out the basic needs of humans in *A Theory of Human Motivation*. This seminal work detailed Maslow's Hierarchy of Needs, a concept often referenced and used in work within higher education. Using the image of a pyramid, Maslow (1943) listed and explained five levels of individual human need, with the emergence of each largely dependent upon the satisfaction of the level(s) below. The base of his hierarchy constitutes physiological needs. At this stage, chronic hunger must be at least marginally satisfied before the need of safety comes into the individual's awareness. Once safety is established it ceases to be a pressing need, and the love needs emerge. As love and belonging are established, esteem needs appear. Once esteem needs begin to be met, the desire and ability to self-actualize appears, and it is in this state that students can focus most on learning the complex concepts, philosophies, and skills being presented to them in the college classroom. Maslow (1943) described self-actualization as "the desire to become more and more what one is, to become everything that one is capable of becoming" (p. 382). If an individual in the self-actualization state is suddenly deprived of love and belonging (or threatened with the loss of it), the love needs become "prepotent." The attention of the individual will necessarily be drawn

away from self-actualization to the fulfillment or protection of the love needs. Maslow also stated that each prepotent need does not have to be met at 100% in order for the next to appear:

For instance, if prepotent need A is satisfied only 10 per cent then need B may not be visible at all. However, as this need A becomes satisfied 25 per cent, need B may emerge 5 per cent, as need A becomes satisfied 75 per cent need B may emerge 90 per cent, and so on. (p. 389)

This quote highlights a division of attention and resources that may be devoted to each level. It stands to reason that as each level is more fully met, more attention and resources can be focused on the next, or another level.

Maslow's (1943) hierarchy theory has been criticized as overly simplistic. King-Hill (2015) cited a study by Wahba and Bridwell (1976) in identifying a common criticism that there is little empirical evidence to support the theory, particularly the idea of a rigid hierarchy (King-Hill, 2015). The order of needs laid out by Maslow (1943) have also been shown to not necessarily be prepotent. In certain circumstances higher level needs may emerge or be met, even as lower level needs remain largely unsatisfied (McLeod, 2018). King-Hill (2015) identified several other criticisms in her work. She cited Hofstede's (1984) thoughts of the hierarchy being ethnocentric, and not necessarily applicable across cultures. Cianci and Gambrel (2003) highlighted that the hierarchy model does not account for exceptional circumstances, such as war and recession. Cianci and Gambrels' thinking is illustrated by the experiences of Viktor Frankl (1959) in concentration camps during World War II, in which physical resources required to satisfy the needs at the lowest levels of the hierarchy were extremely scarce, but the emotional and psychological needs of some of the higher levels could still be actualized and largely met. Finally, Tay and Diener (2004) argued that the hierarchy does not account for age, stating that

different portions of the hierarchy take on different levels of importance at varying points in the human life span.

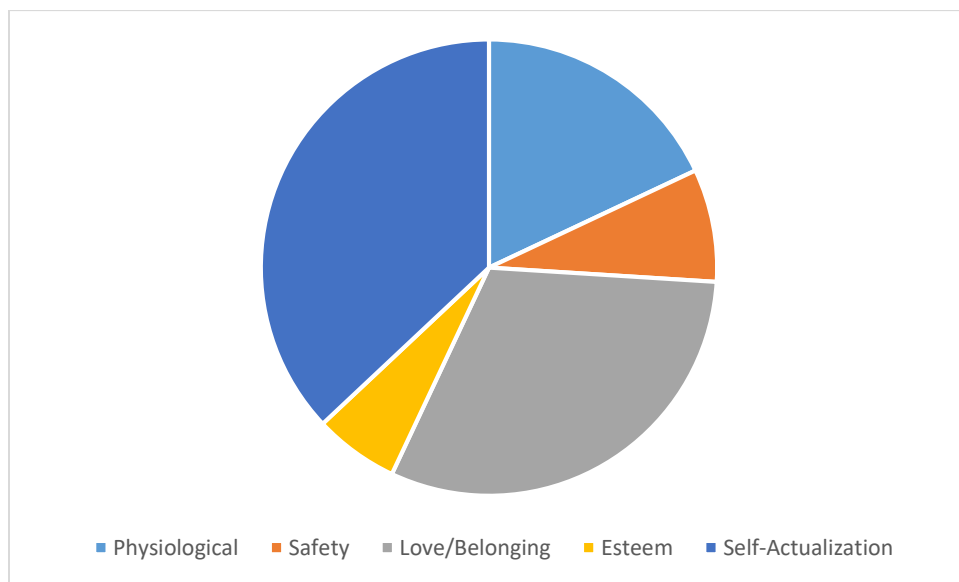
One other important criticism has come to light in the past decade. It has been confirmed that Maslow (1943) borrowed heavily from the beliefs of the indigenous Blackfoot people (Blackstock, 2011; Lincoln Michel, 2014). During his time visiting the Blackfoot people, he learned of a system of beliefs that were taught using the model of a tipi, the same basic triangle shape he later used to visualize his own hierarchy. At the base of this tipi was self-actualization, followed by community actualization, and topped by cultural perpetuity (Lincoln Michel, 2014). The Blackfoot people took for granted that individuals must reach self-actualization before being able to serve their greater communal purpose of community-actualization and to perpetuate the continuation of their collective knowledge across generations. It seems Maslow was heavily influenced by their teachings related to collective being and applied it to a Western view of individual being. It is believed that Maslow verbally acknowledged the Blackfoot influence but did not ever credit the nation in writing (Lincoln Michel, 2014).

Despite the criticisms of his work, Maslow's (1943) theory may still be applicable if viewed in a slightly different way. Removing the needs listed by Maslow (1943) from the traditional hierarchical pyramid image and inserting them instead into a pie chart form addresses the criticisms laid out above. As illustrated in the criticism of the original hierarchy (Maslow, 1943), basic needs cannot be seen as fixed or standardized, and may vary greatly based on situational factors. Instead of the rigid hierarchy of the pyramid, the pie chart uses the more finite and measurable resources of time and energy to visualize basic needs. This alternate model (see Figure 1) allows for all needs to coexist at the same time and in different measures based on the resources available to the individual. Basic needs can and should be examined from levels that are culturally specific, age appropriate, and situationally seated. As a demonstrative

example, Figure 1 might be thought of as representing an ideal distribution of time and energy a college student may need to devote to each need in order to meet instructor expectations and best reach his or her educational potential. Should the student suddenly lose financial stability or experience housing insecurity, the sections of the pie chart may change dramatically, with time and energy being diverted from the areas of love and belonging, esteem, and self-actualization. A more common occurrence with college students is the loss of a relationship. When this occurs, depending on the depth of that relationship, a student may become almost entirely consumed with the loss, again shifting the allotment of time and energy available for other endeavors and needs. Cultural factors also impact this model. While the example given may be somewhat representative of an average white student, the picture may look different for students who are culturally more responsible for caring for the needs of their family. Oppression plays into this as well, forcing some students (and instructors) to spend more time and energy navigating needs such as safety, love and belonging, and esteem than their more privileged peers.

**Figure 1**

*Alternate Distribution of Maslow's (1943) Needs*



Based on this model, it should be the goal of the instructor and the institution to create conditions that motivate and allow every student to maximize the amount of time and effort each is able to invest in self-actualization. Motivation in the classroom, as related to growth mindset, is associated with three primary components: the promotion of a sense of belonging, an assurance of the ability to become competent, and explicit communication about the purpose and relevance of the material being studied (Quay, 2017).

Instructors create systems and cues in classes that promote or discourage a sense of belonging. To build effective opportunities to learn and function, they must attend to the needs of the individuals in their groups. In *Dare to Lead*, Brown (2018) provided the following advice, “Leaders must either invest a reasonable amount of time attending to fears and feelings, or squander an unreasonable amount of time trying to manage ineffective and unproductive behavior” (p. 67). Time and energy spent managing dysfunction and poor behavior is time and energy not spent addressing the learning goals of the class. Faculty and staff do not have the time and resources to manage ineffective and unproductive behavior. In the college classroom, instructors are tasked with creating and managing an environment that maximizes student learning. Brown’s (2018) advice, as quoted above, can apply to instructors. They must indeed invest a reasonable amount of time attending to the fears and feelings of their students in order to foster conditions of belonging that allow students to focus on maximizing learning.

Fears and feelings arise based upon the perception of whether or not basic needs are being (or will continue to be) met. When individuals believe that their needs are not (or will not be) met in a given environment, they begin to experience the fight, flight, or freeze response, becoming competitive with other group members, seeking safer, more productive situations, or simply attempting to go unnoticed (Webster, Brough, & Daly, 2014). Students who do not believe their instructor desires or is able to help them succeed are likely to experience one of

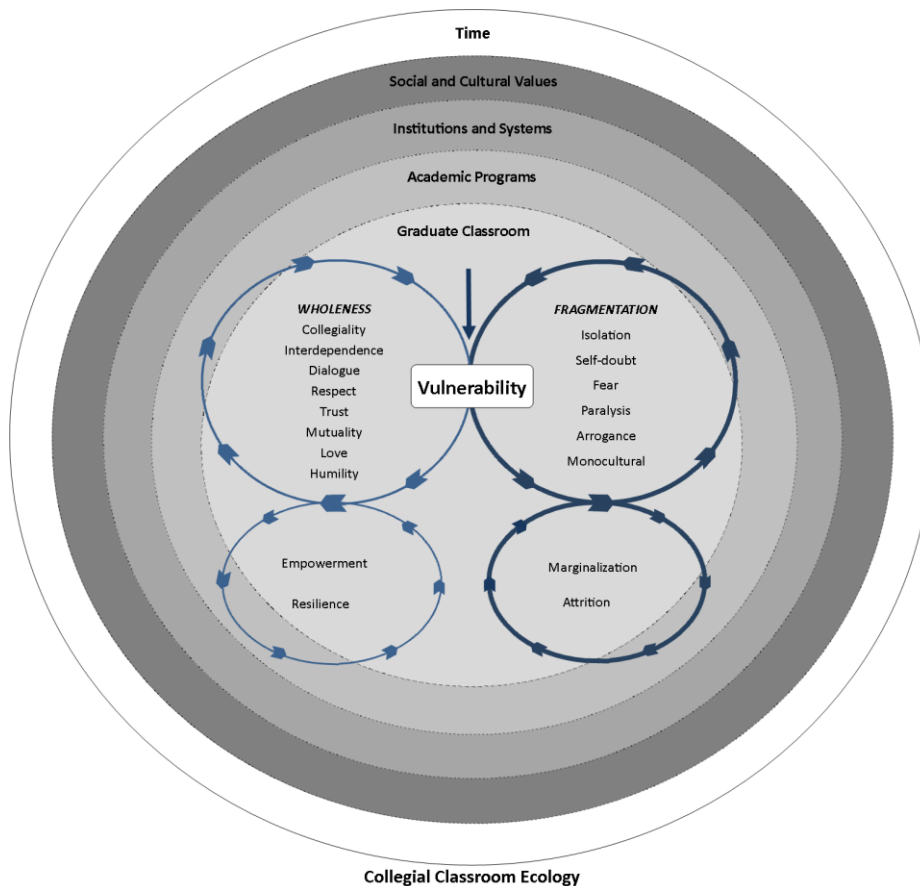


these responses. Arguably, any of these three responses will counteract efforts to create belonging and develop an optimal learning environment.

The Collegial Classroom Ecology model (Beseler Thompson, Wood, & Klamann, 2019) provides an illustration of outcomes characteristic of both collaborative (whole) and competitive (fragmented) classrooms.

**Figure 2**

*Collegial Classroom Ecology*



If we view the downward arrow in the center as representing the instructor inputs, from expectations and assignments to resources and communication cues, we can begin to see how the needs presented in Maslow's (1943) hierarchy may be satisfied for the class members. As individuals' more basic needs are satisfied, they become more able to devote time and energy to

self-actualization, and it is likely that the “wholeness,” or collaborative, response will be generated. If needs are left unsatisfied, the individual must devote extra time and energy to managing or meeting the lower needs, and the “fragmented,” or competitive, response is more likely.

The opposing responses presented by the model align with Maslow’s (1943) vision of satisfied needs producing a “healthy,” or functional, person, and unsatisfied needs resulting in a “sick,” or dysfunctional one. As a majority of individuals inside the class become healthier and more collaborative, the class itself becomes healthier and more capable of supporting student effort. Each course has structures chosen by the instructor such as grading systems, withdrawal options, and instructor expectations that function to encourage or discourage the development of an optimal learning environment. These structures are typically codified and first introduced in the syllabus. Ideally, these choices should be purposefully chosen to orient students toward elements of growth and success.

It stands to reason that instructor choice of expectations and processes in a class are inevitably influenced by the implicit theories held. Instructors holding a growth mindset about intelligence believe that most or all students are capable of succeeding in their classes. These instructors are likely to choose structures and language that encourage belonging, opportunities to foster and develop competence, and are explicit about purpose and relevance. Instructors holding a fixed mindset believe that only some of the students have the intelligence to succeed in their courses. These instructors are not likely to see a strong need for creating a sense of belonging or to provide multiple opportunities for mastery. Students either have it or they do not. In this case the instructors themselves become less relevant in the teaching process and may view themselves more as a simple evaluator or rater than as an active teacher. The systems and

language they choose are more likely to encourage competition than collaboration. At either extreme, instructor mindset should be evident in the choices they document in the syllabus.

From the first day of class, the instructor provides constant implicit and explicit cues about students' ability to gain competence and the purpose and relevance of the material being learned. Instructors with growth mindset will likely be more explicit about how material is linked within the class, to the broader curriculum, and to the students' own lives than those with a fixed mindset. Those with growth mindset may also be likely to provide multiple opportunities for mastery than those with a fixed mindset. A document analysis of course syllabi should provide opportunity to identify such instances and trends.

### **Painting a Picture**

Let us examine a typical first meeting of a college class through the lenses of Maslow's (1943) hierarchy. Students arrive at a predetermined location at an assigned time. In terms of *physiological needs*, students are immediately paying attention to the layout of the room, temperature, comfort of the seating, amount of workspace provided each member, location of bathrooms and water fountains, etc. As these needs are satisfied, *safety needs* begin to emerge. Students may begin paying attention to the proximity of exits, choose seating at the back of the room to avoid being surprised, notice a potential trip hazard, or avoid sitting in a broken chair. As they get continuously comfortable with the surroundings, the *love needs* may begin to emerge. Do they already know any of the other students in the classroom? Are they already connected to the instructor or the material in any way? This need and the subsequent ones may take time and experience to satisfy. As students feel an increasing sense of belonging in the class, more attention and energy can be allotted to *esteem needs*. Individuals search for cues from classmates and instructors that they are capable of meeting the expectations and learning goals of the instructor. They look for a sense of interdependence, a notion that others in the class

would learn less without them and that their own learning would suffer without the rest of the group. When their individual relevance to the class is felt and understood, they are free to explore *self-actualization*. The individual is able to maximize his or her own potential, or as Maslow (1943) would put it, “to become everything that one is capable of becoming.” (p. 382).

Institutions are usually very good at meeting these lower-level needs, and systems are in place for their adequate provision of both physical and safety resources (i.e., housing and dining programs). A classroom without desks is unlikely to be as productive as a classroom with proper seating and workspace. Without seating, student attention would be continuously diverted from learning to the task of coping with the physical environment. Instructors do not typically need to spend time and energy on these levels, other than identifying available environmental resources during the first meeting of the class. As identified earlier in the Brown (2018) quote, instructors, as classroom leaders, must pay close attention to the development and identification of resources to satisfy the love and esteem needs. These are dependent upon the relationships between members. If the needs of the members are not adequately met, the members will be continuously diverted to managing deficits and maximal self-actualization cannot occur.

Having explored motivation, there is a need to explore how humans make sense of their environment and experiences. We need to understand how individuals interpret the cues and interactions they experience. Each human faces thousands of choices about which systems to engage in or from which to disengage. If each human is motivated to makes choices primarily based on the perceived likelihood of their individual needs being met, we must wonder how each human makes meaning of the environment around them.

### **Meaning Making**

In her article on “wise interventions”, Quay (2018) listed three underlying psychological motives, first identified by Walton and Wilson (in press), behind how people make meaning of

the world they inhabit. People have a need to understand, a need for self-integrity, and a need for belonging. The need to understand involves making sense of self, others, and the environment. Self-integrity includes being able to see oneself as sufficient to interpret information and handle challenges (Brown, 2010). Belonging fills a need to be accepted and valued by the larger community (Maslow, 1943).

The physical and social environments an individual exists in provide a framework for meaning making. For example, shaped by the physical environment, an individual from the western United States is likely to interpret a rattling sound on a nature trail as a signal that the safety need must immediately be attended to, whereas an individual from the Midwest may not even notice the sound. The past experiences of the individual can cause the same cue can be perceived in different ways, motivate very different behaviors, and result in vastly different outcomes.

Every human being makes meaning of the cues present in their environment based on their lens, or perspective (Quay, 2018). Each person's lens is crafted over a lifetime as the individual interacts with the surrounding world. Much like human beings themselves, each lens is unique due to the multitude of social and cultural norms, global environments, and available resources that shape them.

Recent work by Walton and Yeager (2020) provided a clear description of why social cues are reliable artifacts. This statement from their work explains the direct connection of cues to behaviors:

For a person, a solid surface affords standing upon; a small round object affords throwing. Such *objective affordances* permit behaviors. Yet social contexts also afford psychological opportunities. They make possible, or they foreclose, particular ways of

experiencing, interpreting, and responding to events. If the context does not afford a proffered perspective, benefits are unlikely to persist (p. 219).

As social beings, all humans are born into collective cultures and social environments that Holland, Skinner, Lachicotte, and Cain (1998) call “figured worlds.” In these figured worlds, individuals make meaning of the environmental cues and interactions with others to make sense of their role in that environment. These cues and interactions help them to determine how they and others “fit” into a particular system.

Each college classroom represents and incorporates several figured worlds (Carlone, Scott, & Lowder, 2014). Carlone, Haun-Frank, and Webb (2011) frame each classroom as an individual social system into which students are enculturated into norms and practices. These normative practices are the standards and behaviors students are held accountable for. Instructors, either explicitly or implicitly, define the roles of instructor and student in each course. The instructor is responsible to establish the operational rules and social norms in this figured world, providing an initial orientation to the explicit culture of the class, and then providing an ongoing reorientation to either that explicit culture or the implicit culture that develops. In the classroom, Hazari, Cass, & Beattie (2015) define cues as “the teachers’ stance in terms of their actions and choices which signaled certain student actions and roles” (p. 742). The ongoing cues and interactions delivered by the instructor and the students will continually shape the roles assigned or accepted by each participant. Carlone, Haun-Frank, and Webb (2011) found that subtle cues and interactions have a strong impact on how students performed and whether or not they built an identity as a “science person.” From first impressions and throughout the rest of the class, students and teachers may be ascribed roles such as “good,” “bad,” “brilliant,” or “annoying.”

Marx, Simonsen, and Kitchel (2016), similarly found that subtle verbal and non-verbal immediacy was influential in increasing student engagement in the college classroom. They defined engagement as “a student’s connection to learning and the learning environment” (p. 212). They cited Mehrabian (1972) who “purported immediacy cues are the first step in relationship development and toward meaningfully capturing student interest in the classroom...immediacy behaviors employ cognitive, emotional, and behavioral aspects between the teacher and learners” (p. 215). Immediacy cues, while certainly present in everyday classroom interactions should also be present in the class syllabus. Introduced at the beginning of each course, the syllabus is presented when students are beginning to understand the figured world of the class, and attention to immediacy cues from the instructor and environmental cues is likely high.

Further research on the Collegial Classroom Ecology model (Beseler Thompson, Wood, & Klaman, 2019) is also showing that subtle cues matter. “Our data demonstrate that students are very perceptive to nuances in those kinds of signals and actively look to those sorts of things to determine what to expect at the beginning of a course - and continue to be vigilant to see if those initial signals will be reinforced” (N. Wood, personal communication, February 10, 2020).

Canning, et al. (2019) showed that instructor mindset is correlated with student performance and classroom equity. The instructor’s own implicit orientation, or mindset, must drive many of the subtle cues they send to students. Mindset surely influences the figured world they create in the classroom, how they ascribe roles within the class, and how they evaluate and treat students. As the class syllabus provides the first, foundational establishment of rules and normative practices, evidence of how instructors envision, or figure, their own roles and those of the students should be evident in the text of the document.

Instructors have opportunity and an obligation to improve the outcomes in the class. “A teacher’s responsibility is to connect the learner with the learning, not merely disseminate knowledge” (Marx, Simonsen, & Kitchel, 2016). One way of improving outcomes is through paying attention to each class member’s need to understand, need for self-integrity, and need to belong (Walton & Wilson, in press). The most effective leaders are likely to be explicit about the culture of their classroom and engage in a process of orienting students to the expectations and opportunities being provided. They must also be aware that their students are unconsciously living in many overlapping figured worlds and will be influenced heavily by more foundational cultural norms they rely on to interpret the world. A class cannot be completely divorced from the outside world. Cues and interactions that work for one student may not be interpreted in the same way by another student. The initial and continuing development of a specific classroom culture must account for the cultural intersectionality of its members if it is to successfully address the three motivators laid out by Walton and Wilson (in press).

Meaning making ties into the establishment of purpose and relevance. Frankl (1959) demonstrates how interpretation of purpose can at times be utilized to overcome deficits in resources. In *Man’s Search for Meaning* (Frankl, 1959), he recounts his experience surviving a Nazi concentration camp during World War II, and his observations of human psychology under conditions in which physical resources were extremely scarce. He provides many examples of individual’s emotional and psychological reactions to physical deprivation. Many basic physiological and safety needs, of the type described by Maslow (1943), went largely unmet for extended periods of time. Some individuals focused the largest share of their time and energy on these missing resources, while others were able to focus their time and energy on higher level needs such as belonging and esteem. While many died from want, others managed to make



meaning of their situation differently, finding purpose in their lives and meaning in their suffering. Regarding individual purpose, Frankl (1959) says:

This uniqueness and singleness which distinguishes each individual and gives a meaning to his existence has a bearing on creative work as much as it does on human love. When the impossibility of replacing a person is realized, it allows the responsibility which a man has for his existence and its continuance to appear in all its magnitude. A man who becomes conscious of the responsibility he bears toward a human being who affectionately waits for him, or to an unfinished work, will never be able to throw away his life. He knows the “why” for his existence, and will be able to bear almost any “how”. (pp. 79-80)

In describing his own theory of psychiatric practice, logotherapy, Frankl provided several examples of the ability humans possess to shift attitude and meaning. He described each meaning as having an “orientation” (p. 105) and demonstrated how that initial meaning orientation can be shifted. His examples showed how a shift in perceived meaning can meet a basic need and free the individual to move to a more positive plane of existence. One such example is demonstrated through a conversation he had with a rabbi who had lost his wife and children in the concentration camps, and whose new wife could not have children. The rabbi’s problem was presented in that he would not have a son who would say Kaddish for him after his death. Frankl describes the re-orienting of meaning as such:

I made a last attempt to help him by inquiring whether he did not hope to see his children again in Heaven. However, my question was followed by an outburst of tears, and now the true reason for his despair came to the fore: he explained that his children, since they died as innocent martyrs, were thus found worthy of the highest place in Heaven, but as for himself he could not expect, as an old, sinful man, to be assigned the same place. I

did not give up but retorted, “Is it not conceivable, Rabbi, that precisely this was the meaning of your surviving your children: that you may be purified through these years of suffering, so that finally you, too, though not innocent like your children, may *become* worthy of joining them in Heaven? Is it not written in the Psalms that God preserves all your tears? So perhaps none of your sufferings were in vain.” For the first time in many years he found relief from his suffering through the new point of view I was able to open up to him. (pp. 119-120)

The re-orientation of the meaning of the rabbi’s suffering shifted perception of its ultimate impact on the meaning and outcome of his life. This new meaning more fully satisfied an esteem need, providing the opportunity to spend more energy and attention on self-actualization (Maslow, 1943).

Instructors have the ability to communicate and foster meaning and purpose in the classroom. Orienting students to the collaborative, or wholeness, side of the CCE model (Beseler Thompson, Wood, and Klamann, 2019) is likely to allow maximum focus of time and energy in the self-actualization level of need. The instructor has the ability to establish and reinforce expectations that all participants will play roles that contribute to a figured world that aligns with wholeness side of the model.

### **The Function of Mindset in Making Meaning**

Meaning making patterns can be seen as grounded in an individual’s mindset. Merriam and Webster’s online dictionary lists the medical definition of mindset as “a mental inclination, tendency, or habit” (2019). This definition fits tightly with Dweck’s (2006) description of mindset as an implicit, underlying theory. In general, mindset acts as an anchor for perception and interpretation of environmental and relational cues which then inform behaviors (Quay, 2018). A growth mindset frame of reference puts emphasis on effort and manageable factors

rather than uncontrollable traits when individuals approach challenges and new situations (Dweck, 2006).

Central to mindset science is the concept of perception. As discussed above, people are likely to behave in collaborative or competitive ways based on the resources available to them. Perception of the sufficiency of resources is influenced through cues gathered from communication and the physical environment. As discussed when considering motivation, if environmental and relationship cues establish the availability of resources needed to satisfy various levels of need, mindset provides a basic frame of reference to make meaning of those perceptions.

Brown (2010) described cue perception and interpretation as happening from a mindset of scarcity or a mindset of sufficiency. Each of us, through the orientation our mindset provides, interpret the placement of both physical and psychological resources on the spectrum of scarcity and sufficiency. Individuals with different mindset orientations are likely to interpret the availability of resources differently. The Dalai Lama, Archbishop Desmond Tutu, and Douglas Abrams (2016) provide a broad example of how critical our psychological orientation is to making meaning of the world around us. In *The Book of Joy: Lasting Happiness in a Changing World*, they lay out eight pillars of joy as well as obstacles to joy (Table 1). As globally recognized spiritual authorities, the authors posit that joy is created and sustained in life when the underlying interpretation of events is directed by these eight pillars (Lama, Tutu, & Abrams, 2016). Joy is destroyed when the individual is focused is on the obstacles.

**Table 1**

*8 Pillars of Joy and Obstacles to Joy*

<b>8 Pillars of Joy (Growth Mindset)</b>	<b>Obstacles to Joy (Fixed Mindset)</b>
Perspective	Fear, stress, anxiety
Humility	Frustration, anger
Humor	Sadness, grief
Acceptance	Despair
Forgiveness	Loneliness
Gratitude	Envy
Compassion	Suffering, adversity
Generosity	Illness, fear of death

From my perspective, the eight pillars of joy clearly align with a growth mindset, while the obstacles align with a fixed mindset. Each set also seems in alignment with the “wholeness” and “fragmented” responses seen in the Beseler Thompson, Wood, and Klamann (2019) model. In essence, our mindset orientation, or the way we choose to create meaning in the resources and cues around us, drives our fundamental behaviors and reactions. Our mindset, or implicit belief, shapes the way we react to the world and how we choose to act in it. Substituting the word “learning” for the word “joy” in the table above more clearly illuminates the connection of mindset to potential outcomes in the college classroom, or many other situations in life.

**Reorienting Meaning at the Anchor Point**

Mindset science, from the field of social psychology, seeks to align a complex system of forces in arrangements that promote productive behavior. Yeager and Walton (2011) described a “tension system” as a core tenant of social psychology. Similar to the pillars of joy, in this tension system, forces are present that either foster or discourage particular behaviors. Viewing fixed or growth mindsets as anchoring points at opposite ends of this tension system allows us to

see how the tensions tighten and relax in different directions to promote or restrict patterns of thought and behavior.

Most literature in mindset science refers to “fixed” and “growth” mindsets and is related to intelligence beliefs (Canning, Muenks, Green, & Murphy, 2019; Dweck, 2006; Walton, Logel, Peach, Spencer, & Zanna, 2015; Yeager & Dweck, 2012; Yeager, Walton, Brady, Akcinar, Paunesku, Keane, Kamentz, Ritter, Duckworth, Urstein, Gomez, Markus, Cohen, & Dweck, 2016). When cues and resources are viewed from a fixed mindset anchor, competitive or fragmented (Beseler Thompson, Wood, & Klaman, 2019) behaviors are fostered through the tension system. An individual is likely more prone to fight for a resource and/or protect what they have when essential elements are perceived as lacking. When those same cues and resources are viewed from a growth mindset anchor, collaborative behaviors fostering wholeness (Beseler Thompson, Wood, & Klaman, 2019) are encouraged. Team members are more likely to be vulnerable, share ideas and resources, and consider the greater good if essential elements are interpreted as being in sufficient supply for everyone.

### **The Syllabus as Research Tool**

An instructor is likely to make different decisions about how to construct and lead their classes based on which end of the mindset spectrum they fall on. Decisions rooted in the instructor’s implicit theories instantiate in language, both written and spoken. The review below also builds a case that as the primary written document that describes each class, the syllabus should be a rich source of instantiations of instructor mindset.

Eberly, Newton, and Wiggins (2001) conducted a descriptive, qualitative examination of general education syllabi “in order to gain a better understanding of their attributes and characteristics; to identify the ways in which syllabi reflect and communicate university goals and objectives of general education; and to identify the ways in which the syllabi communicate

an implicit contract” (p. 56). The study identifies three significant purpose domains for syllabi: administrative, course development, and interpersonal. How instructors frame these domains provides many cues about their implicit beliefs. The authors state that the syllabus “clarifies mutual responsibilities, helps set the tone of the course, and describes the instructor’s beliefs about the educational purpose of the course” (p. 59). While acknowledging that most orientation to the tone, expectations, and interpersonal workings of the course are established through other interactions, they cite the syllabus as being an important point of contact for developing first impressions and initial orientations.

The syllabus has proven to be a rich source of data in a number of other studies. Stanny, Gonzalez, and McGowan (2015) assessed the culture of teaching and learning using a syllabus review rubric. They cite Bers, Davis, and Taylor (2000) who stated that syllabi are “unobtrusive but powerful indicators of what takes place in classrooms” (p. 899). Another study used a grounded theory approach to identify how faculty were communicating about data information literacy (Maybee, Carlson, Slebodnik, & Chapman, 2015). Gorski (2009) did a qualitative content analysis of syllabi for multicultural education to assess how the content of these classes was being conceptualized by instructors. The belief of the syllabus as a valuable data source is also supported by the work of Beseler Thompson and Wood (Wood, personal communication, February 19, 2020), who found that syllabi are tools that orient students to instructor expectations.

### **Summary**

Yeager and Walton’s (2011) review of mindset interventions provided strong evidence that they work. Interventions done with students that work to instill a growth mindset, or implicit belief, about intelligence improve academic outcomes for all students and serve to close the achievement gaps typically found between marginalized and non-marginalized groups. The

Canning et al. (2019) study highlights that the mindset of the instructor does indeed influence student outcomes and achievement gaps between groups but does not identify mindset-related language or choices that cause this influence. As fundamental descriptions of the expectations and operating systems of a class, the instructor-generated syllabus should be a rich source for identifying instantiations of the instructor's mindset. Course syllabi, as written documents intended to assist in orienting students to the class, provide a starting point for examining language and system choices that may aid in better understanding how instructor mindset impacts student achievement.

## **METHODS**

The literature review provides evidence that implicit theories (mindset) related to the nature of human intelligence influence behaviors, choices, and achievement. Canning et al. (2019) showed correlation between instructor mindset and student achievement outcomes, but did not illustrate how instructor mindset is communicated to and perceived by students. As a starting point, this study seeks to answer the question of how instructor mindset instantiates in the course syllabus.

### **Research Design**

A sequential mixed methods design was chosen for this research. Qualitative methods served as primary tools, with a quantitative survey used to support the primary methods. The research involved the use of three different methods to accomplish the goals of the study. Document analysis was chosen as the primary method to evaluate syllabi, created and used by the study participants, for instantiations of mindset. A survey was chosen to initially assess participant mindset, providing a comparison source for the findings of the document analysis. Semi-structured interviews were chosen as a third method in order to clarify and deepen understanding of the findings.

The first step in the sequence was to survey instructors. This survey (Appendix A) served a dual purpose in the design and execution of the study. First, it acted as an initial screening tool to assess instructor mindset. The mindset assessment questions utilized were shown to be valid both by Rattan, Good, and Dweck (2012) and by Canning, et al. (2019), however, scores have not been standardized. The distribution of scores across the sampling frame was needed to validly classify instructors' self-reported answers on a spectrum of fixed to growth mindset. This assessment of mindset was foundational to empirically creating distinct groups for answering the research question, and for checking reliability of the document analysis



findings. Secondly, the survey also served the practical purpose of collection of syllabi for the document analysis. The survey provided the ability to collect two usable sets of data while only contacting participants one time.

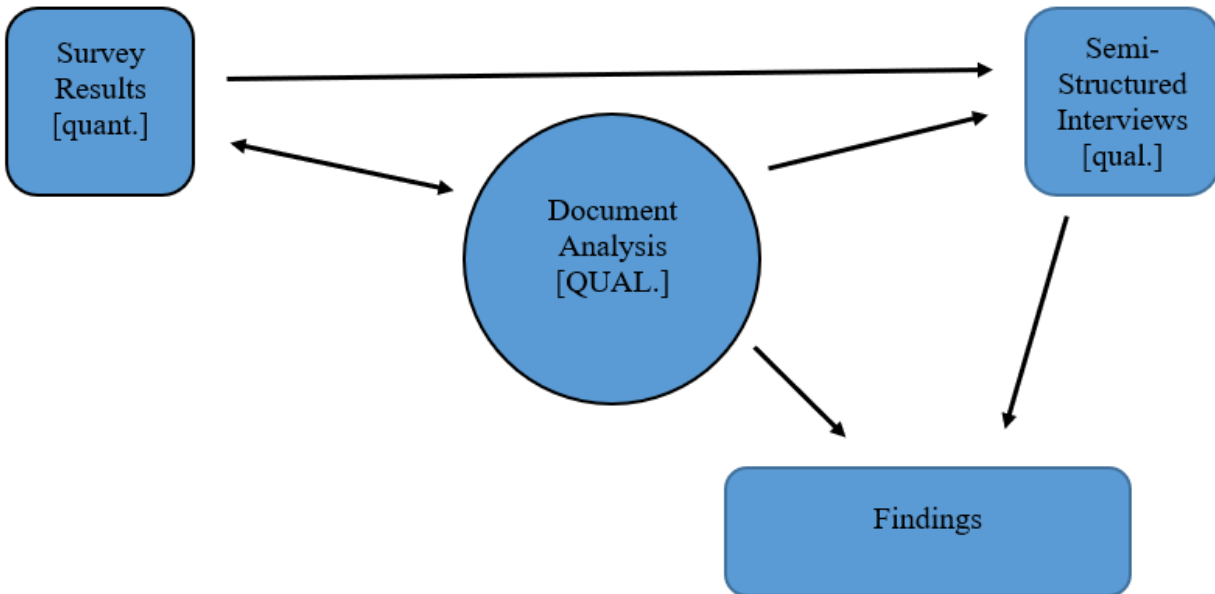
As the primary analysis method for this study, the document analysis was chosen to deeply examine the language and classroom procedures chosen by each instructor as they structured their courses. Document analysis was employed to identify dimensions of difference and crosscutting themes in the data.

In creating the research design, it was anticipated that the results of the document analysis and survey might conflict in a variety of ways. Semi-structured interviews were selected as a method to explore and explain any conflicts that emerged, and to deepen and clarify understanding of the evidence found in both the document analysis and survey. The interview protocol (Appendix B) was finalized after comparing the results of the survey with the findings from the document analysis.

In summary, Figure 3 below provides a visual representation of the research design. Primary analysis was conducted through the document analysis on the syllabi collected in the survey. Survey results related to instructor mindset were compared to the findings of the document analysis. Both uniform themes and contradictions found in the results of the survey and document analysis informed the semi-structured interviews. The semi-structured interviews were used to explore and explain contradictions, and to deepen understanding of uniform themes.

**Figure 3**

*Analysis Model*



**Setting**

This research took place in the upper-Midwest of the United States with spring 2020 semester instructional faculties at North Dakota State University (NDSU), Minnesota State University Moorhead (MSUM), and Concordia College (CC). All located within a ten-mile geographic radius, these institutions represent three distinct types of 4-year institutions: a mid-sized, state land-grant university; a regional comprehensive university with foundations as a normal school; and a small private liberal arts institution.

**Data Sources**

Syllabi provided directly by participants constituted the primary data source for the qualitative document analysis. As a foundational, orienting document to each course, the syllabus was chosen as a starting place for identifying mindset-related cues in the language used to describe the course.

A quantitative survey was developed primarily to assess instructor mindset. The assessed mindset of each participant was important to use for comparison against the findings of the document analysis, and helped to establish both confirming and disconfirming cases. The survey also served as a means of collecting syllabi for the document analysis. It was developed and distributed using Qualtrics software. The survey consisted of researcher-generated demographic questions, and two items first developed by Dweck (2000) as a part of the larger Implicit Theories of Intelligence Scales. These two particular items were first used together by Rattan, Good, and Dweck (2012), and subsequently utilized in the Canning, et al. (2019) study to assess participant mindset on a continuum from fixed to growth. Using these two specific survey items to assess mindset ensured congruence with the Canning, et al. (2019) study.

Semi-structured interviews provided the final set of data. They were performed with the intent of clarifying and elaborating findings from the document analysis, and exploration of disconfirming cases. Informed by the findings of the document analysis and comparison to the survey data, an interview guide was generated for the semi-structured interviews. Standard questions were asked of each participant related to items such as the importance they place on the syllabus as a communication tool, the amount of time they spend creating or revising syllabi, how they go about constructing syllabi, and how they first learned to write a syllabus. Each participant was also asked to verbally respond to the two items from the Implicit Theories of Intelligence Scales (Dweck, 2000) in order to confirm initial survey results. The protocol also left space for me to ask questions specific to the syllabus each participant submitted. These individualized questions were crafted prior to each interview separately in order to further explore specific trends, anomalies, or incongruent findings between the survey results and document analysis. For the interview protocol, please see Appendix B.

## **Study Participants**

The sampling frame included all instructors of courses at the participating institutions in the spring semester of 2020. This sampling frame totaled 1,775 instructors who were invited to complete the survey: 1,214 from NDSU, 333 from MSUM, and 228 from Concordia College. Two institutions provided contact lists of instructors, and one institution utilized an instructor listserv to distribute the survey link. Instructors with all levels of status were surveyed which included the following ranks: full professor, associate professor, assistant professor, lecturer, adjunct, and graduate teaching assistants. Participants were asked to self-identify their particular status.

A third party from the research team was asked to construct purposeful, stratified mixed-methods sample sets of syllabi from the survey participants based on a variety of factors. This process allowed me to perform the document analysis without knowledge of the assessed mindset of each instructor. The syllabi chosen were split equally between instructors assessed through the survey as having a growth mindset and those assessed as possessing a fixed mindset. The sample was also constructed based on factors such as assessed faculty status, institution of employment, and STEM and non-STEM disciplines in an effort to ensure a broad array of participant materials were examined.

Finally, from the syllabi analyzed, participants were selected for invitations to complete semi-structured interviews. Individual participants were selected to represent both confirming and disconfirming cases from the document analysis. Eight participants completed the interview portion of the study.

## **Data Collection Procedures**

Survey data were collected via Qualtrics software. Names and email addresses for all instructors at each institution were requested through each school's institutional research and

analysis personnel, or the institution's designee. Lists of instructors were provided by two institutions as requested, while the third opted to provide only a link to an instructor listserv created specifically for this study. An invitation email (Appendix C) containing a survey link was sent to potential participants. The email invitation to participate was distributed in late April, 2020, with one reminder sent in early May one week after the initial email. Subsequent reminders were not necessary as the initial efforts resulted in a sufficient number of responses, > 240 (Cohen, Manion, & Morrison, 2011), to establish survey reliability. The survey yielded a total of 332 responses: 234 from NDSU, 44 from MSUM, and 54 from Concordia College. With those responses, 208 syllabi were submitted: 163 from NDSU, 11 from MSUM, and 34 from Concordia College.

After the document analysis, 15 selected participants were invited to participate in semi-structured interviews, with roughly half accepting the invitation. The invitations and interviews occurred in the middle of fall semester, 2020, during instructor's first semester teaching during the pandemic, and it is believed this caused a lower than expected response to the invitations.

Semi-structured interviews (n=8) were conducted as a final step of data collection. Due to the COVID-19 pandemic, interviews were conducted and recorded using the Zoom videoconferencing platform.

### **Sampling Procedures**

Given that more than 200 syllabi were collected during the survey portion of the study, there was a need to prioritize those selected for the document analysis. The assessed mindset of the participants was used in sample selection. Other theoretically important variables such as institution type and STEM vs. non-STEM disciplines were also included in the groupings. Canning, et al. (2019) found that other demographic characteristics including gender, race, and

disciplinary difference within STEM fields were not predictive of instructor mindset, and therefore these characteristics were not considered in this study.

To ensure that I remained without knowledge of the instructor mindset assessment results, a third party from the research team, Dr. Wood, purposefully constructed a stratified mixed methods sample (Patton, 2002) for me to analyze. The sample was chosen to ensure that a roughly equal and representative number of participants from each of the theoretical categories were included. Survey scores were tabulated, and the distribution of scores was analyzed to eliminate samples that fell both in the middle and at the extreme ends. An initial sample of 12 syllabi were selected for qualitative analysis, with additional samples of 8 syllabi each constructed for use in the constant comparison analysis. Dr. Wood (personal communication, 2020) provided detailed documentation (Appendix D) for how the samples were constructed.

### **Interview Participants**

While originally planned to be conducted in a face-to-face manner, the semi-structured interviews were conducted and recorded via the Zoom videoconferencing platform due to the COVID-19 pandemic. Participants were asked to complete the interview in a private space of their choosing. Interview data were collected and stored as video/audio recordings, and notes created by the researcher.

Fifteen participants were invited to be interviewed. These fifteen participants were selected based on their representation of a both confirming and disconfirming cases. Eight respondents completed interviews. Short descriptions of the interviewees, the syllabus each submitted, and my own relationship to each participant or course follow.

Invited participants were selected based on several factors. First, confirming cases were those that had a strong match between inferred and actual mindset, while disconfirming cases had inferred mindsets that did not match the actual, assessed mindset. Participants were also

selected to ensure the included a mix of syllabi from STEM and non-STEM courses. Finally, the participants were chosen based on course level. Lower-level courses, typically with 100 and 200 level identifiers in course bulletins, are primarily taken by students in the first two years. Upper-level courses, typically with 300 and 400 level identifiers, are primarily taken by students in the third year of study and beyond. One invited participant taught a graduate level course. Other course status details (general education, required, elective, etc.) were not considered in this study. That type of status was not always indicated on syllabi, and distinguishing each would have required a fairly detailed knowledge of the curriculums of various courses of study across three institutions. The broader course categorizations were sufficient for this study.

Interview participants were provided the opportunity to choose a pseudonym for themselves or to have one randomly assigned. Any names assigned by the researcher conform to cultural norms related to the biological sex of the particular interviewee in order to indicate the variance present in the sample, but carry no other meaning.

**Table 2**

*Interview Participants*

<b>Name</b>	<b>STEM/Non-STEM</b>	<b>Course Level</b>
Lane	STEM	Upper-level
Sherry	STEM	Upper-level
Douwe Egbert	STEM	Lower-level
Zeach	Non-STEM	Graduate-level
Bella	Non-STEM	Upper-level
Alice	Non-STEM	Lower-level
Jackson	Non-STEM	Upper-level
Oscar	STEM	Lower-level

*Lane* taught a STEM, upper-level course. She inherited this course two years ago and has revised the inherited syllabus to better match her own policies and style. Survey results categorized Lane as having a growth mindset about intelligence. We had not interacted

previously, but at the end of the interview, Lane disclosed prior participation in the NDSU Education Doctoral Programs and shared connections to several faculty members.

*Sherry* taught a STEM, upper-level course. She authored the submitted syllabus using a template provided by the institution. Survey results categorized Sherry as having a growth mindset about intelligence. I have known Sherry for several years through professional meetings and indirect connection to a collaborative program she has worked on with one of my staff members. I am aware that she has a positive reputation as a teacher and a colleague across her campus.

*Douwe Egbert* taught a STEM, lower-level course. He was part of a team that originally developed this class specifically for non-majors, and the creation of the syllabus was a joint effort. He now teaches this course by himself in a fully online format. Survey results categorized Douwe Egbert as having a mixed-fixed mindset about intelligence. I had no prior connection to this instructor or the course.

*Zeach* taught a non-STEM, graduate-level course. The course and syllabus were fully self-authored and directly inspired by personal experience. Survey results categorized Zeach as having a fixed mindset about intelligence. I have known this participant for about a decade professionally and have had many collegial and personal discussions with both him and his partner, also a faculty member, over that time period. He was very familiar with my course of study and topics of interest.

*Bella* taught a non-STEM, upper-level course. She has taught this class many times, and has greatly revised the syllabus she inherited from a past instructor as a teaching assistant. Survey results categorized Bella as having a growth mindset about intelligence. Other than a few emails regarding previous student concerns, I had never interacted with this instructor prior to the interview.



*Alice* taught a non-STEM, lower-level course. She adopted the syllabus of a peer who had taught the course, and the syllabus is still shared and jointly revised. Survey results categorized Alice as having a mixed-fixed mindset about intelligence. I had no previous interaction with this participant but was positioned differently as her class was a required part of my own undergraduate curriculum. That gave me a different understanding of the classroom environment and purpose of the material being discussed.

*Jackson* taught a non-STEM, upper-level course. He revised the course and rewrote the syllabus after another faculty member retired. Survey results categorized Jackson as having a fixed mindset about intelligence. I had no previous interaction with this participant.

*Oscar* taught a STEM, lower-level course. He has taught the course many times, and the content of the course is typically uniform across institutions. The syllabus was self-authored. Survey results categorize Oscar as having a growth mindset about intelligence. I have had a few professional interactions with this participant over the years, but no conversations of any depth. I did get to observe his teaching during a “shadow a student challenge” in the fall of 2019. That experience provided greater context for our interview as I had a stronger perception of this particular participant’s practical approach to teaching.

### **Data Analysis**

Participants were assigned a unique identifier based on the institution represented and the order of submission (e.g. 111N). Syllabi were then downloaded from Qualtrics and saved on an institutional server using each participant’s unique identifier as the file name.

The document analysis portion of the study was completed using the NVivo 12 software package. While not formally a grounded theory study, the analytical approach did incorporate characteristics such as a constant comparative approach to allowing theoretical features to emerge from the data (Glaser & Strauss, 1967), with an investigative return to the literature after

to further elaborate findings as they were uncovered. Using constant comparative interactions with the data, and guided by provisional codes, results were allowed to emerge from the data in a continual process of shaping and reshaping. Emerging codes were checked through repeated sampling from the overall data set. A total of 32 codes (Appendix E) emerged in the process.

Coding methods were chosen using Saldana's (2013) work. In describing the coding cycles, he says, "Some methodologists label the progressive refinement of codes in a study as 'stages,' 'levels,' or 'feedback loops.' But to me, the reverberative nature of coding – comparing data to data, data to code, code to code, code to category, category to category, category back to data, etc. – suggests that the qualitative analysis process is cyclical rather than linear" (p. 58). This approach to coding guided the coding procedures in this study.

The first cycle of coding included three iterations of data review. Each syllabus is a complex document, typically broken into multiple sections with multiple purposes. In the first iteration, provisional coding (Saldana, 2013) was used to deconstruct each syllabus into smaller chunks for analysis. The first of two sets of provisional codes were selected based on the theoretical approach from the mindset literature, outlining the three primary components that contribute to growth mindset: 1) assurance of the ability to become competent; 2) explicit communication about purpose; and 3) promotion of a sense of belonging (Quay, 2017). A second group of provisional codes represented typical functional components of syllabus sections I discovered in a pilot study conducted using publicly available syllabi. These included: 1) instructor availability; 2) assignment descriptions; 3) grading systems; 4) mandated statements, and 5) expectations and purpose. With these provisional codes in mind, large sections of text were coded at a time. The initial division of the content of each syllabus into these provisional code groupings provided a path to begin deepening my familiarity with the structure and overall content of each document.

Organizationally, each of these provisional code groupings was assigned with a letter to keep each code within the group together in the NVivo software's listing of "nodes". For example, in NVivo, provisional codes appeared as A – Promote Sense of Belonging, A – Communicate Explicit Purpose, B – Assignment Descriptions, or B – Grading Systems. With one group of provisional codes based on theory and a second based on typical structure of syllabus elements, text was often coded into both provisional code groupings. These provisional code groupings provided an initial lens through which to begin to examine and make sense of data, but did not limit my ability to allow new codes to emerge. In the second and third coding iterations, these provisional code sets allowed me to systematically continue coding within each grouping while staying open to other categories outside of the provisional code groups.

After the text of each syllabus was broken down into the initial provisional codes, the content of each provisional code was further analyzed with a focus on both descriptive and versus coding (Saldana, 2013), and additional codes were allowed to emerge. For example, when examining the provisional code titled A – Assure Ability to Become Competent, the descriptive codes of Encouragement, Road Map, and Warning emerged from the data. These descriptive codes represent the various ways instructors assure students of the ability to become competent, providing a richer understanding of the text and raising questions such as instructor approach, intent, and motivational methods.

Analysis of the material assigned to the second set of provisional codes, those based on functional sections of the syllabus, did not reveal similar patterns within each code. That set of provisional codes proved to be ineffective for analysis, but review of these functional sections did, however, reveal two common themes across the data that emerged as new codes to be explored: "C - Operational Notes" and "D - Extra". These two new categories were placed on

the same level as the original provisional codes in the NVivo nodes listing, and will be further defined in the next chapter.

The identification of these two additional codes prompted a repeat cycle of the second and third coding iterations of descriptive and versus coding. Syllabi were reviewed again and these fresh categories revealed new, related codes in much the same fashion as the first set of provisional codes. As an example of versus coding (Saldana, 2013), “carrots vs. sticks,” emerged when further analyzing the text coded as “C-Operational Notes”.

Based on the results of the first cycle of coding, second cycle coding included iterations of both pattern and focused coding (Saldana, 2013). The NVivo nodes listing provided counts of how many times each code was utilized. Coding stripes in the program also provided a visual representation of where codes overlapped. Overall coding patterns were reviewed using these tools to identify overlap and connection, and a mind map was drawn. This second cycle coding allowed patterns of similarities and differences to be identified, and brought forward crosscutting themes.

After analysis of the first sample of syllabi, I returned to the literature to explore unexpected findings. This return to the literature provided clarity and deepened understanding of what I was seeing, and will be elaborated upon in Chapter 5.

The initial findings, combined with the return to the literature, revealed two additional ideas to be investigated: “E – Me/We/You” and “F – “Mistrust/Trust”. The initial sample was revisited and the second and third iterations of coding were repeated with these themes.

Following the return to the literature, in alignment with the constant comparative method, additional samples of syllabi from the study were selected. The coding processes used with the first sample were repeated to verify the initial findings, look for missing themes, and check for alignment with understandings provided by the most recent literature pieces reviewed.

Theoretical saturation was reached using these two additional stratified random samples provided by Dr. Wood.

A final holistic evaluation of each syllabus examined the patterns found during coding in an effort to categorize each syllabus as likely coming from a faculty member possessing a primarily fixed or growth mindset. Each syllabus analyzed in the study (n=28) was coded blind to the results of the mindset survey. The document analysis revealed clear binaries in approach and either inclusion or omission of cues that mirror fixed and growth mindset theory. After analyzing all syllabi, I evaluated each syllabus holistically and categorized individual documents as coming from an instructor with a fixed, mixed-fixed, mixed-growth, or growth mindset. Seen as one end of a spectrum, syllabi inferred as representing growth mindset were those that most fully include language and cues aligned with the three components of growth mindset (Quay, 2017). At the other end of the spectrum, fixed mindset syllabi were those that most fully omitted language and cues associated with the same three components of growth mindset. Syllabi that were labelled as mixed-growth or mixed-fixed had language and cues that represented a combination of growth and fixed mindset cues, but generally leaned toward one end of the mindset spectrum more than the other.

The syllabus categorization results were then compared to the mindset survey results for each participant in an effort to see if the holistic evaluation of each syllabus aligned with the assessed mindset of the instructor. The degree of alignment informed the creation and refinement of the interview guide for the semi-structured interview portion of the study.

Semi-structured interviews (n=8) were conducted as the final step of the study. They were used to elaborate the dimensions of difference and crosscutting themes found in the document analysis. Interviews also provided an opportunity to clarify confirming cases and to explore disconfirming cases.

This chapter reported methods used for the study. The next chapter will report the initial findings these methods revealed in the document analysis. The fifth chapter will continue exploration and interpretation using comparison to the quantitative mindset assessment results from the survey and the semi-structured interviews.

## **INITIAL FINDINGS – CODES, DIMENSIONS OF DIFFERENCE, AND CROSSCUTTING THEMES**

The purpose of this study was to identify how instructor mindset instantiates in the course syllabus as a foundational, orienting document. A sequential mixed methods design was developed and used. A qualitative document analysis of instructor syllabi served as the primary research method with a quantitative survey assessing instructor mindset and qualitative semi-structured interviews providing additional techniques to use in the constant comparative analysis (Glaser & Strauss, 1967). This chapter describes the initial findings from the document analysis portion of the study and a comparison of those findings to the quantitative mindset assessment results from the survey. Quotes from the data will be cited using the participant identification scheme (e.g. 122N).

The initial coding approach, through the use of provisional codes, first sought to identify aspects of syllabi that might indicate instantiation of instructor mindset as described in the literature review. Subsequent iterations of coding were designed to examine the data more empirically, identifying aspects and differences not anticipated in the literature review. The emergence and application of codes during the analysis led to the identification of dimensions of difference. When referring to dimensions of difference, I am describing dichotomous patterns of choices made by participants. These dimensions of difference illuminated several common patterns of choices made by participants in the language and approach chosen when constructing syllabi. In turn, analysis of these dimensions of difference revealed crosscutting themes. The term crosscutting themes was chosen to describe patterns of choices made by participants that were consistent across the dimensions of difference. These themes reveal commonalities that help to understand the how instructor mindset instantiates in the syllabi, and the possible underlying assumptions behind instructor choices.

## Codes

The provisional code groupings provided a means to being viewing large chunks of data through both a theoretical lens and a practical lens. Coding based on the three components of mindset (Quay, 2017) confirmed that syllabi do contain related language cues. This affirmed the theoretical assumption that instructor mindset, or implicit belief, was likely to instantiate in the language of syllabi.

While coding the practical, functional areas of syllabi, a marked difference was noted that some instructors made regular use of particular formatting techniques such as bolding, italicizing, or using all capitalized lettering to highlight particular points, while other instructors largely did not. Coding based on the practical functional areas of syllabi did not reveal other insights into how mindset might instantiate in particular sections, but did help broader, more applicable, codes emerge from the data.

One example of a code that emerged when analyzing the functional areas of syllabi was “operational notes”. This code took note of language in each syllabus that was designed to inform students how the work of the class would be accomplished, and clarified the responsibilities of the instructor and the student. Within this broader code, several more specific patterns emerged using versus coding that revealed differences in how individual instructors defined roles and their implicit beliefs about how to best motivate student performance.

An iteration of descriptive coding brought forward a code that was simply titled “extra”. A pattern emerged in the data that showed that one group of instructors chose brevity, primarily including only sections and text required by the institution, while another group of instructors chose to include additional descriptive language.

The codes above led to identification of the dimensions of difference. Questions raised by these codes and the dimensions of difference led to a return to the literature and the



identification of two additional code sets that helped to clarify and confirm initial findings. One set involved pronoun usage. It was found that all instructors regularly chose to use the pronouns “you” and “me/I”, but one group specifically chose to also use “we” in the language of the syllabi.

The return to literature specifically pointed to a need to look for language related to trust building. Codes of “trust” and “mistrust” were used to categorize language in the syllabi indicating that either the instructor trusted student intentions or mistrusted them. This coding again revealed support for the dichotomous approach seen in earlier coding, and aided in identifying the crosscutting themes.

### **Dimensions of Difference**

The codes identified during the analysis led to the identification of dimensions of difference. Dimensions of difference refer to common, dichotomous patterns of language or systems choices discovered in which some participants favored a particular approach or technique while others chose a separate, contrasting approach. At times, the dimensions of difference became evident in patterns of inclusion and omission of particular language. Initial analysis of the data revealed two primary dimensions of difference.

#### **Operations - Dimension One**

In the first dimension of difference that emerged in the document analysis, a dichotomous approach appeared in instructor choice of language and systems when describing and defining the *operations* of each class revealed differences in instructor perspective. The term operations refers to statements instructors made in their syllabi that informed students of “how” the course would run in practical terms.

Initial analysis of statements of operations showed they vary widely in purpose and style. At times, operational statements defined the roles of instructor and student, and illustrated the responsibilities of each. Bullet “a.” of the following quote illustrates this.

Important Notes:

- a. Although the main goal of this class is to prepare you for and provide you with experience in..., some of you may not actually.... You may decide – based on readings and class discussion – that you are uncomfortable..., or I may decide – based on your class performance, poor attendance, or tardiness – that I am unwilling to allow you to... (102N)

Most operational statements focused primarily on how to navigate and complete the course. Continuing with the quote above, the last sentence in bullet “a.” and bullet “b.” in the quote provides an example of this type of operational instruction.

...In either case, you must complete at least 7 hours of observation to pass the course.

- b. All students will be graded according to the number of completed hours and journal entries: 7 hours earns a D grade; 8 hours earns a C grade; 9 hours earns a B grade; 10 hours earns an A grade.  
(102N)

Operational statements were found at times to be as simple and informative as, “Your lowest two in-class scores will be dropped” (249C). One instructor provides operational instruction on proper class preparation, “Readings are *due* on the *Monday of the week* they are listed (unless otherwise noted or announced). *Be sure to bring some version (paper or electronic) to class, as*

*it will be vital to refer to them during discussion*” (51N). Other statements included much more specific detail designed to clearly establish appropriate use and interaction:

#### Classroom etiquette

Please place backpacks and beverage containers in the cubbies. You may discretely access them whenever you want. You may have a beverage container out during exams. The presence of electronic devices are permitted – during non-exam periods – to the extent that they do not detract from the learning environment. They may not be used for social/entertainment reasons and must be in silent mode. It is the owner’s responsibility to ensure their safety, and it is highly recommended that they be stowed, especially during experimental activities (249C).

Other operational statements outlined methods of communication with the instructor. “Class Procedures: If at any time during the semester you wish to discuss class procedures, schedule, grades, or any class situation, feel free to visit me in my office or send me an e-mail” (254C).

Another instructor provides a more detailed rationale:

The best way to reach me is via email. I check my email on a regular basis throughout the weekday. Please plan ahead with questions – it has sometimes been my experience in the past that students expect and immediate response (i.e., an hour or two before an assignment is due). While I will do my best to respond quickly, particularly in the event of an emergency situation, please plan to allow 24-48 hours for an email response (51N).

Further examination of the language and codes included in this dimension of difference revealed a dichotomy in approach to how instructors framed the operations of each course also. Some instructors used “sticks” while others used “carrots”. Instructors using sticks expounded on the negative consequences related to not performing the student role as desired, while those using carrots focused on the benefits of doing so by outlining incentives for performing that role

well. It was rare to find both sticks and carrots on the same syllabus, indicating that each approach is likely rooted in an implicit theory, or mindset.

One example of a “stick” is found in this statement, “Points earned during class activities/projects cannot be made up and any content discussed in class may be used on exams” (255C). Another instructor says, “Excessive tardiness will be penalized; if you are more than 10 minutes late to class, you will be counted absent for that day” (150N). A third instructor states, “The penalty for plagiarism is a failing grade on the assignment or for the entire course. Such work will be turned over to the Office of Academic Affairs for future action” (249C).

By contrast, an instructor offered this carrot, “To encourage collaborative learning, 5 points will be given for attending and participating in each class period” (102N). Extra credit, framed as a carrot, was also seen, “Additional Opportunity: Think of this as an insurance policy. It is an opportunity to secure the compensation you want for your learning” (126N). Another said, “Quizzes should be viewed as bonus points for students who are attending class faithfully and are staying up to date with the assigned work” (3N).

Another pattern within this dimension of difference emerged when analyzing the data that further differentiated the instructors using carrots from those using sticks. The instructors who utilized “carrots” often indicated a collective learning experience through use of collective pronouns in reference to class operations. For example, one instructor says, “We’ll practice doing these in class before the homework is due” (53N). Others use phrases such as “...we will use mathematics...” (249C), “We will give considerable attention...” (277C), and “...we will carefully discuss and consider...” (51N). In a final example an instructor who uses carrots sets a clear expectation for collective learning by saying, “Let’s make this an amazing learning community. I am in to do my part” (126N).

Instructors who utilized “sticks” tended to frame the learning experience in their class as an individual one, omitting collective pronouns and statements. One instructor says, “You may be required to complete makeup work for any missed class time” (254C). Another says, “If you miss an ‘in class’ quiz or assignment, you will not be allowed to make this up...It is crucial to attend class and listen to experts lecture on topics in order to prepare you...” (101N). In these statements, students are addressed only as individuals.

One final pattern that was seen in this area revolved around the issue of simple text formatting choices. Instructors inclined to use “sticks” often made use of bolding, all-capping, italicization, and other formatting techniques to highlight particular points in the text, while instructors using “carrots” did not make use of these formatting techniques. This phenomenon most often appeared in sections related to operational expectations and role performance. As an example, one instructor writes, “**Questions or concerns about grades should be addressed within 1 week of the test/assignment being returned to the student**” (255C). Another discusses the use of laptops:

I will allow laptops in class as long as they are *only used for class-related purposes*. Any breach of this policy – for example, checking email, chatting, surfing the web, or viewing any sort of documents not related to class – will result in the loss of laptop privileges for that student for the rest of the semester. *This is a zero-tolerance policy*” (51N).

When utilized, these formatting techniques usually carried a tone of warning about negative consequences.

The patterns found in this dimension of difference were explored more thoroughly in the return to the literature and will be discussed in greater depth in the crosscutting themes and in Chapter 5.

## **Descriptive Context - Dimension Two**

A second dimension of difference identified in the document analysis revolved around the inclusion or omission of extra, unrequired, *descriptive context* provided by some instructors, and largely left out by others. Some instructors used this additional descriptive context to explain more than “how” the course would operate. This extra context provided students with “why” particular syllabus elements were included. By explaining why certain elements and strategies were being used in the syllabus, these instructors shifted the purpose of those particular strategies from being implicit to being explicit. In nearly all cases, unrequired descriptive context elaborated on purpose, promoted belonging, or assured the ability to become competent (Quay, 2017). Omission of information related to the three components of growth mindset leaves questions about purpose, belonging, and competency in an implicit state, forcing each student to interpret and assume based on their own personal frameworks. Inclusion of that information makes the instructor’s intent and expectations explicit, and takes away guesswork for the reader.

Before delving into examples of this descriptive context, it is helpful to view examples that lack it. Omission of additional or extra descriptive context is one side of this dimension of difference. Some instructors provided only the basic, institutionally required components and text of the syllabus. An example of this was seen in how one instructor provided the required course description straight from the university bulletin:

Bulletin Description: This is a basic pharmacology course. The chemical structure, medicinal and pharmacological properties of therapeutic agents used in the treatment of cancerous and infectious diseases will be covered in this course. Aspects of microbiology, molecular and cell biology, physiology, immunology and pharmacology related to understanding the therapeutic use of these agents will be discussed (103N).

A second instructor provides a similar restatement of the description found in the university catalog, “**Catalog Description:** This is a fundamental course covering dictation and performance of diatonic melody and harmony, and rhythm in simple and compound meters” (249C).

All syllabi included the general content, like the course descriptions above, required by the institution. However, at the other side of this dimension of difference, some instructors added additional, unrequired language to explain the purpose of that content in more depth. Staying with examples of course descriptions, one instructor added descriptive context to provide connections to purpose and relevance between the historical subject matter, institutional curriculum, and current needs of society:

Understanding diversity both as a historical reality and as a present day concern is central to learning in this course. The course’s U designation refers to United States Diversity. United States society originated and developed from the interactions and contributions of different peoples, cultures, and social groups, many who lacked access to power but who nonetheless were present and mattered – they shaped the past. A contested history around diversity has left a legacy of conflict right down to the present. Concordia College’s statement on diversity is a reminder that the history of American diversity matters here and now in the life of the college and the FM community (277C).

In this example, the instructor goes beyond “what” will be studied in the course to describe “why” the material is relevant.

Descriptive context was used for purposes beyond course descriptions. Speaking in terms of instructional philosophy and methods, another instructor used added unrequired context in another area of the syllabus to promote belonging and assure the ability to become competent in the course:

As your instructor, my goal is to help and encourage you to learn. All students learn differently; therefore, I try to utilize a broad range of methods and assignments. In other words, there will be a lot of different opportunities for you to apply the concepts we will be investigating this semester. Correspondingly, there are many different ways to earn points and demonstrate your understanding of this course (169N).

Rather than simply state that the course will employ group work, the same instructor says, “Teamwork, in group questioning and presentations will provide an active learning environment within and outside of the traditional classroom. Such activities are expected to encourage you to take responsibility for your learning, meanwhile, making learning more enjoyable and interesting” (169N). Another instructor simplifies “why” multiple instructional methods will be used, simply by saying, “In order to accommodate the diversity in students’ learning styles a variety of instructional strategies will be utilized” (297M). Another describes the choice to include group work, “Students in a writing class learn from each other and gain practice at being thoughtful readers of writing. Our classes include many small-group activities and opportunities for peer review, which cannot easily be replicated outside of class” (150N).

At times, descriptive context was also added to standardized policy statements. After stating the English department attendance policy, one instructor includes the following detailed explanation of why the policy exists and is enforced:

Why the Writing Program Values Attendance? You may wonder why the NDSU writing program places so much value on attendance. The NDSU writing program operates on the following principles regarding attendance:

- Regular attendance correlates positively with student success in our courses.
- Regular attendance helps students achieve the goals of our courses.
- Regular attendance is a first step for true participation and engagement in our courses.



- Regular attendance helps foster a positive classroom community, particularly in small classes such as ours where regular interaction with one's peers is expected.
  - Regular attendance is professional. Students who attend class regularly are learning to adopt the habits of mind that will enable them to succeed in the professional world.
- In addition, research has shown that writing is a process-based, social activity. Our classes aim to create the kind of learning environment that will provide students the benefits of going through a writing process to produce larger written texts and interacting with peers to learn from one another (150N).

After listing an academic honesty policy, another instructor provides additional descriptive context to invite communication about the topic, "Two tips on this: do not underestimate my ability to find you out and, when in doubt, ask! Sometimes the line between citing and plagiarizing gets murky – seek guidance from me in such an instance" (51N).

Within this dimension of difference, the use of the word "learn" emerged as another point of difference between the two sides of this dimension. Instructors who included additional, descriptive context for students provided connection to purpose and relevance by using forms of "learn" in different ways within the text of their documents. Every instructor in the initial sample who provided descriptive context included phrases like, "As a community of learners..." (102N), "...so in-class activities and discussions are integral to the learning process" (102N), and "As your instructor, my goal is to help and encourage you to learn" (169N). These statements were also used to reinforce the need for students to take responsibility for their learning, "Please plan to contribute actively to your own learning and that of others – you should hold yourselves accountable for one another's development as readers, writers, and thinkers" (18N).

In contrast, instructors that did not provide additional descriptive context beyond the language required, discussion of the concept of learning was absent and the word "learn" was not

used in any form outside of section headings such as “Learning Outcomes”. While this pattern did not hold strictly in the second and third samples, this pattern of referencing learning in different ways did generally hold true throughout the analysis between those who provided unrequired context and those who did not.

### **Crosscutting Themes**

Across the codes and dimensions of difference discovered in the document analysis, two crosscutting themes emerged that tied strongly back to the literature on mindset. Crosscutting themes are those broader commonalities that emerged from analysis of the dimensions of difference. These crosscutting themes provided important clues to the nature of the dimensions of difference and how manifestations of those differences may be connected to the implicit mindset of each instructor. The crosscutting themes revealed two distinct sets of underlying instructor assumptions used to choose the language selected for the syllabi.

#### **Locus of Power – Crosscutting Theme One**

Power, and who has it in the classroom, emerged as the first crosscutting theme. The idea of power in the classroom shows up in definitions of roles, responsibilities, and control of class outcomes. Across the dimensions of difference, it was found that some instructors generally view and situate power primarily with themselves and the institution, while others generally portray power as shared between the instructor and students.

*Centralized power* emerged as one side of this theme. Power implied as being held primarily at the instructor and institutional levels is seen in the clarification of roles in the class experience. In these cases, role responsibility was typically framed with the instructor as an enforcer of process and behavioral expectations, and students as performers of directed learning tasks. Class outcomes seem dependent on each student’s ability to perform their assigned tasks in ways that meet the instructor’s process expectations.

Looking specifically at the *operations* of the course in terms of power and control over outcomes, this set of participants framed power in the classroom as primarily held and wielded by the instructor. One representative statement indicating instructor-held power was as simple and straightforward as, “Grades in this case are individually determined at the instructor’s discretion” (169N). Another states, “The syllabus may be changed at the discretion of the faculty” (101N). Statements such as these indicate that the instructor alone determines class proceedings and student outcomes.

The instructors claiming centralized power typically defined the student’s primary responsibility as performance of tasks as directed. In essence, students are specifically told how to engage in the course. One example points to instructor-held authority in regard to students who do not follow instruction as directed, “If you fail to follow and address any of the above-mentioned points, I will not accommodate any late work requests. I have final decision regarding what is “reasonable”; typically two days beyond the designated deadline is enough time” (150N). One instructor even provides directions that seem to abdicate accurate grade tracking responsibility to the students.

You should also consult BlackBoard to make sure your grades have been posted on assignments that have been returned to you. You have *two weeks* from the time an assignment is returned to you to check BlackBoard and alert me if your assignment grade has not been properly posted. Final grades are not negotiable (51N).

It was noted that this same group of instructors also often made use of bolding, all-capping, and other formatting techniques to emphasize particular language reinforcing power and performing using the preferred methods of the instructor. Of the operational expectations and rules of the course one instructor writes:

Note that *I must receive your assignments by the beginning of the classes they are due in order to be counted as on-time*. Assignments will generally be submitted through BlackBoard. (There may be times I request a hard copy.) You should generally be able to finish your lab assignments during the lab time, and submit them before you leave; however, you do have until the beginning of the following class to submit them. **There will be no email submissions** (51N).

This quote emphasized the students' need to closely follow the operational steps implemented by the instructor, or risk not being able to have completed work count towards final grading. The formatting serves to draw attention to particular operational instructions, sending a cue that these are non-negotiable. It is an indication that the instructor may impose penalties for not submitting work in the specific fashion they desire, regardless of quality. This type of language clearly places the instructor in a power position.

Some instructors included reference to institutional power to strengthen their own authority or to abdicate their individual power to adjust or make exceptions. One syllabus informed students that, "The MSUM Nursing faculty members strictly enforce the MSUM Student Code of Conduct and the Academic Integrity Policy in the Graduate Nursing Handbook and in the MSUM Graduate student Policies" (300M). This quote refers to up to four different policy documents that it is assumed students will know and abide by, and provides the students with a warning that they will be held accountable to these rules. Other statements such as, "Final examinations are scheduled by the Office of Registration and Records and may not be rescheduled during the final examination period" (169N) indicate to students that the institution requires the instructor to enforce certain policies without exception. In the following example, the instructor relies on a departmental policy and framework to largely remove himself from the responsibility of evaluating student absence excuses:

In this section of..., the following policy regarding attendance is adopted by the English Department (updated January 6<sup>th</sup> 2019):

- A student may not miss more than 3 weeks (that is to say, SIX 75 minutes) of class due to unexcused absences.
- A student may not miss more than 4 weeks (that is to say, EIGHT 75 minutes) of class due to a combination of unexcused and excused absences.
- If a student exceeds the limits delineated above, he/she will automatically fail the class (150N).

All of the quotes above are statements of “what” will happen and “how”, but do not provide reasoning for “why”. They omit any additional *descriptive context* that provides an explicit connection to the purpose of the policy, leaving the reader to identify and make meaning of implicit information.

Descriptions of *decentralized power* emerged as the second side of this crosscutting theme. In contrast to centralized instructor or institutional power, the framing of power, responsibility, control, and opportunity as decentralized, or shared, was used by a different set of instructors. The *operations* of the course were framed in the light of shared accountability rather than something to be enforced by the instructor. One syllabus provided this example:

Discussion will be as important as lecture in this course. Student should expect to be active participants, getting involved in class discussions, presentations, projects, and other activities to the full extent of their ability. You will find this course challenging, and I hope stimulating and enjoyable as well, regardless of your background in... (277C).

The same instructor later reinforces the course as a shared experience by assigning part of the grade for the class to contributions to the communal learning experience, “Citizenship (8%) – a holistic evaluation of your overall citizenship, comportment, engagement, and cooperative

attitude with course objectives and purposes. Citizenship includes all in-class tasks, group discussions, worksheets, and related assignments” (277C).

The two quotes above address many of the same concerns about timeliness and attendance as were seen in examples of centralized power above, but frame those concerns in the light of shared responsibility for class outcomes. Another instructor says, “Please plan to contribute actively to your own learning and that of others – you should hold yourselves accountable for one another’s development as readers, writers, and thinkers” (18N). One instructor invited students to engage with others, “Although this course is primarily lecture format, much can be learned by interacting with classmates and the instructor. Take advantage of time in the classroom! Ask questions. Challenge your instructor” (7N). Finally, an instructor described the course topic, “Physics is something you learn how to do much more than it is something you read and memorize. You should work on problems on your own first, and then discuss them with me or other classmates...” (249C).

This set of instructors, promoting decentralized power, omitted use of the same formatting techniques used by instructors coming from a perspective of centralized power. The pattern of formatting using bolding, all-capping, etc. found in the statements outlining instructor-held power, was rare and nearly absent from the statements framing power and responsibility as shared.

The instructors utilizing a decentralized power model regularly included unrequired *descriptive context* that made purpose and intent more explicit. One example very simply connects attendance to the structure of the course, “Given the nature and organization of the course, your daily attendance and participation are absolutely critical to your success” (243C). Another provides the following context for why particular behaviors are important:

In connection with participation, preparation, and good citizenship I kindly request your courtesy, cooperation, and understanding in turning cell phones, laptops, and other electronic devices off during class sections unless taking notes, consulting readings, or when we are using them for directed class work. It is essential to limit distractions and to ensure that we are fully present and engaged. Expect me to keep you honest regarding technology in the classroom (277C).

In summary, the instructor's underlying beliefs about who should have power in the classroom and how it should be used cut across codes and both dimensions of difference. These implicit beliefs about power influence language chosen to frame the operations of the course, the formatting used to emphasize or deemphasize that power, and the decision to include or omit context about the purpose of instructor choices.

### **Source of Motivation – Crosscutting Theme Two**

Instructor's implicit beliefs about whether students need to be *externally* motivated or may be *internally* motivated emerged as the second crosscutting theme. Instructors who indicated a centralized primary power in the framing of *operations* more often used consequences in an attempt to externally motivate student performance, while those that used descriptions of the operations of their classes to promote shared power and responsibility in the classroom were more likely to attempt to foster internal motivation using incentives. This brings us back around to the same types of sticks and carrots seen in the dimension of difference found in the framing of class operations.

Sticks, or threats of penalty and failure, were commonly used in an attempt to externally motivate student engagement through negative consequences. These sticks rely on statements of “what” will happen and omit elaborative, *descriptive context* regarding “why” the consequences will be applied. They also often used formatting to emphasize particular points. One example

related to missed exams states, “If a student fails to properly notify the instructor about an exam absence, then a make-up exam may be refused, or a deduction of 10 points may be applied to the make-up exam” (103N). A statement about late work was bolded for extra stress, “**Late work will be assessed 5 points per day late and will not be accepted beyond one unit after the assignment was due**” (297M). Regarding makeup exams, one instructor uses all caps to make a point, “Since each student can drop one quiz and one exam from final grade calculations, NO MAKEUP QUIZZES OR EXAMS WILL BE GIVEN” (133N). Another penalty was used to spur regular attendance, “Points earned during class activities/projects cannot be made up and any content discussed in class may be used on exams” (255C). Another example attempts to motivate being on time by saying, “Excessive tardiness will be penalized; if you are more than 10 minutes late to class, you will be counted absent for that day” (150N). Finally, one syllabus includes the following about a particularly egregious violation, “The penalty for plagiarism is a failing grade on the assignment or for the entire course. Such work will be turned over to the Office of Academic Affairs for future action” (249C).

By contrast, the instructors who used *operations* to frame power and responsibility as decentralized also more often used “carrots,” or incentive systems, to foster internal motivation. These carrots often included unrequired, *descriptive context* to elaborate purpose. Formatting was not used for emphasis. One offered this incentive, “To encourage collaborative learning, 5 points will be given for attending and participating in each class period” (102N). The incentive of extra credit was also seen more regularly in these syllabi, “Additional Opportunity: Think of this as an insurance policy. It is an opportunity to secure the compensation you want for your learning” (126N). Another said, “Quizzes should be viewed as bonus points for students who are attending class faithfully and are staying up to date with the assigned work” (3N). Extra credit was also sometimes offered as an incentive to use support services, “Students who visit the



writing center and provide documentation to the instructor will receive an extra 5% added on to their book review's final grade" (7N).

The instructors' underlying beliefs about the nature of student motivational needs was again found across the dimensions of difference in the framing of operations, and the inclusion or omission of descriptive context related to purpose. These implicit beliefs influenced the language chosen to communicate with students.

### **Patterns of Practice**

The dimensions of difference and the crosscutting themes revealed two groupings of related choices in the syllabi, each with distinct patterns of approaches. Contributors to Syllabus Group A utilized negative consequences to motivate performance, omitted descriptive context, framed power as centralized, implied an underlying belief that students need to be externally motivated to learn. By contrast, contributors to Syllabus Group B utilized a different set of choices, utilizing incentives to motivate performance, providing descriptive context, framing power as decentralized, and implied an underlying belief that students are generally internally motivated to learn and succeed. These two patterns are shown here in Table 2. These choice patterns strongly align with mindset theory (Dweck, 2006) in ways that will be further discussed in Chapter 5. Simply put, the framing of language in Syllabus Group B promotes the three components of growth mindset (Quay, 2017), while Syllabus Group A does not. Based on this alignment scheme, the cues in Syllabus Group B can be said to promote and convey a growth mindset, while Syllabus Group A does not. The lack of promotion of a growth mindset in Syllabus Group A indicates conveyance of a fixed mindset.

**Table 3***Syllabus Groups*

	<b>Syllabus Group A</b>	<b>Syllabus Group B</b>
DD1 – Operations	Sticks	Carrots
DD2 – Descriptive Context	Omitted	Included
CT1 – Power	Centralized	Decentralized
CT2 – Motivation	External	Internal

Using the alignments between the dimensions of difference, crosscutting themes, and mindset theory (Dweck, 2006), each syllabus was evaluated holistically and assigned one of four degrees of inferred instructor mindset: fixed, mixed-fixed, mixed-growth, or growth. Syllabi were assigned a label of “fixed” if the cues found in the analysis aligned primarily with the promotion of a fixed mindset, and those assigned a “growth” label aligned primarily with the three components of growth mindset (Quay, 2017). The mixed-fixed and mixed-growth terms were given to those syllabi that included a variety of cues aligned with both fixed and growth. Mixed-fixed syllabi had more cues aligned with fixed mindset than growth, and mixed-growth had more cues aligned with growth mindset than fixed.

One potentially important difference was noted when comparing STEM and non-STEM syllabi. During analysis it was noticed that health-related courses, such as those from the areas of nursing, nutrition, and pharmacy, showed a pattern of more often citing official accreditation rules and standards. These citations typically lacked descriptive context, and were primarily interpreted as aligning with fixed mindset. No other demographic factor, such as the experience level of the instructor, provided other signs of differences between syllabi from STEM or non-STEM areas. Race, ethnicity, gender, and specific discipline were not examined as the Canning et al. (2019) study found them not to be significant factors.

## Results Comparison

At this point in the study, it was important to compare the *inferred* mindset from the holistic evaluation of each syllabus with the *actual* assessed mindset of each author. Actual instructor mindset was assessed in the initial survey, and was reserved for use in this comparison after the document analysis. As described in the methods chapter, the scores of the survey assessment were used to establish the actual mindset of each instructor as fixed, mixed-fixed, mixed-growth, or growth.

A total of 28 syllabi were used in the document analysis. Each was assigned an inferred mindset as described above. Actual mindset assessment results from the survey were calculated for all participants. Inferred and actual instructor mindset were compared to determine how closely the inferred mindset matched actual assessment results. Matching levels can be seen in Table 4.

**Table 4**

### *Inferred and Assessed Mindset Match Levels*

<b>Match Level</b>	<b>Number</b>	<b>Percentage</b>
Full Match	9	32%
Match within One Degree	9	32%
Did Not Match	10	36%
<i>Total Syllabi</i>	28	

This comparison provided evidence of both confirming and disconfirming cases. The degrees of alignment and misalignment were considered when selecting participants for the semi-structured interviews. A mix of confirming and disconfirming cases were chosen to clarify and elaborate findings.

### **Exploration of Confirming and Disconfirming Cases**

Given the strong patterns of choices that emerged in the document analysis, it stood to reason that instructor mindset may accurately be inferred from the syllabus each submitted.

However, the comparison of inferred mindset to the actual mindset of each instructor revealed that the language of the syllabus was an accurate mindset predictor for some but not all instructors. As seen in Table 4, inferred mindset matched actual mindset in only about a third of cases, partially matched in another third of cases, and did not match in the final third of cases.

15 participants, representing both confirming and disconfirming cases from the document analysis were invited to participate in semi-structured interviews. Confirming cases were those that had a match between inferred and actual mindset. Disconfirming cases were those in which inferred mindset did not match actual mindset. Participants were also selected to represent a diverse range of disciplines and course levels. Eight invited participants responded to the invitation for semi-structured interviews to explore and clarify differences.

The questions for the interview protocol were designed to better understand what instructors hope to communicate through the syllabus, and how they introduce the document to students at the beginning of each course. A question was also asked about the origin story of the syllabus they submitted in order to learn whether the syllabus truly represented their own thoughts and choices or were primarily the thoughts and choices of others.

Four participants were selected as representative confirming cases. Three (Alice, Bella, and Oscar) showed direct alignment between the inferred mindset from the evaluation of the syllabus and assessed mindset (2 growth, 1 mixed-fixed). One interview participant (Douwe Egbert) had only one degree of difference with an inferred mindset evaluated as representing a fixed mindset, and actual mindset assessed as mixed-fixed.

Four other participants were selected as disconfirming cases to be explored. Two of the disconfirming cases (Sherry and Lane) provided syllabi that were evaluated as coming from a fixed and a mixed-fixed mindset respectively, while the participants were actually assessed as possessing a growth mindset. Conversely, two interview participants (Jackson and Zeach) had

syllabi evaluated as representing a growth and mixed-growth mindset respectively, but were themselves assessed as possessing a fixed mindset about intelligence.

### **Confirming Cases**

Bella and Oscar were both assessed in the survey as possessing a growth mindset. Their syllabi were evaluated as aligning fully with that assessment. Each viewed the primary role of the instructor as getting students engaged in the course material and thinking critically about it, indicating a focus on student learning. Both identified as having taught their respective courses many times, and discussed how they had been intentional over the years in writing and revising the syllabus each submitted. Bella discussed how her syllabus had evolved from being a document used to anticipate and deal with potential problems in her early years of teaching, to being more focused now on big ideas and what she wants students to learn in the class. This represents a shift in motivational attitude, from believing that students must be externally instructed to avoid negative, natural behaviors to a belief that students possess internal motivation to learn that can be fostered.

In the syllabus Oscar submitted, he included sections written only for his teaching assistants. These sections discussed how to orient students to the material, facilitate group learning sessions, and assist the students in engaging in communal learning practices in ways that all aligned with growth mindset practices. This very descriptive context was designed to “teach the teachers”, working to align the teaching assistants’ expectations and methods with his own. In doing so, he clearly outlined a strong focus on student engagement and learning rather than simple knowledge transfer in his subject area.

Alice was assessed as having a mixed-fixed mindset, and her syllabus was evaluated as being in full alignment. As a music instructor, Alice seemed to consider the concept of intelligence to be a quantifiable entity related specifically to traditional academic or classroom

learning and performance. When asked if the words “musical ability” were to replace “intelligence” in the mindset assessment, her answers shifted to indicate a mixed-growth mindset. As someone teaching a skills improvement course, at the end of the interview she stated that “growth mindset is very important for skills acquisition.” Her answers separate intelligence out as being different than and mostly unrelated to the other ideas of musical ability and skills development. She is more readily able to affirm the fluidity of musical learning and performance based on practice and effort rather than solely on talent or a fixed ability.

The syllabus Alice submitted was a shared document that she inherited from a past instructor of the course, and still shared as a unified syllabus with other instructors teaching the same course. She had very little personal investment in the actual construction of the syllabus. As a shared document, it focused on generalities and operations that all instructors could agree on, and was not truly representative of any one instructor.

Douwe Egbert was assessed in the survey as having a mixed-fixed mindset about intelligence, and his replies to identical assessment statements in the interview moved him closer to a fixed mindset. This shift towards fixed mindset more closely aligns with the evaluation of his syllabus as representing a fixed mindset. Douwe Egbert typically does not include the amount of detail that is found in the syllabus he submitted, but felt it was needed for this course as the course is delivered in an online format. With international teaching experience, he has taught in countries where no syllabus was required, and where they were required with stringent requirements. This experience provided him with a wide perspective on the value and possible uses of syllabi. Aligning with fixed mindset, Douwe Egbert placed the most emphasis on the need to convey operational instructions for this online course. In face to face classes he would include less specific operational detail, and leave more room for the flexibility to meet the needs of the group. This participant also stated that his answers to the mindset assessment would

change depending on how the word intelligence is defined. He interpreted the mindset assessment questions as defining intelligence in narrow, specific ways related to academic learning.

### **Disconfirming Cases**

Sherry and Lane were each assessed as possessing a growth mindset about intelligence, but submitted syllabi that were evaluated as representing a fixed or mixed-fixed mindset. Each described their syllabus as “typical”, with Lane referring to hers as “bland”. In Sherry’s interview, it became clear that she did not place much value on the syllabus as a tool for communication, and saw its use in a more traditional, contractual context as simply a “black and white outline of expectations”. She described not putting in much time or effort on the drafting or refining of the syllabus as she saw it as an ancillary, required document. The lack of value placed on the tool likely explains why her inferred mindset based on the language of her syllabus does not align with her assessed mindset. Sherry’s actual growth mindset was more evident in how she described conducting the initial class period of each course. The in-person verbal and non-verbal cues she described sending align much more directly with her assessed mindset.

The misalignment between the inferred mindset from the syllabus evaluation and assessed mindset for Lane seemed to also be rooted in a lack of value placed on the syllabus as a communication tool. In her case the document was viewed more as a record of policy, procedure, and expectation, largely driven by the course’s connection to professional criteria in the medical field. She cited the syllabus as a primary source for reinforcing professional standards. This confirmed a possible pattern noted of similar practice in syllabus construction in the document analysis for courses connected to medical professions with clearly defined standards and criteria to be met for professional practice.

This pattern within the health and medical fields of study also highlighted a difference in the practical use of syllabi and a change in audience. In examples from these disciplines the audience shifted from being solely students to include accreditors and licensure agencies. The syllabi act as artifacts documenting what was taught and that students were informed. Typically, the standards and criteria included were content-heavy, describing “what” would be learned, but left out the more descriptive context explaining “why” items were being covered.

Jackson and Zeach were each assessed in the survey as having an actual fixed mindset about intelligence, but the syllabi submitted were evaluated as inferring a growth or mixed-growth mindset. For different reasons, both Jackson and Zeach placed strong emphasis on the value of the syllabus as a tool for communication, motivation, and orientation to the course.

Jackson’s course was taught as an elective, not required for any particular course of study. When asked why he provided extra context to the course description, he discussed a need to provide easily accessible, descriptive information to students in order for them to make a good choice about whether or not to take the class. He wanted to build interest in the material to be covered as well as provide an understanding of the workload and expectations for the course. Jackson’s attention to the syllabus and inclusion of components aligned with growth mindset, is likely not an indication of his actual mindset, but rather of his alternate needs to both attract students to the course as an elective and to ensure their understanding of “what they’re getting in to.” Based on his description of his course, I would expect to see teaching methods and techniques in class more aligned with fixed mindset.

Zeach sees the syllabus as a psychological contract with students in addition to being a written contract of expectations. He tells students, “This is my personal commitment to you.” He was very purposeful in making choices about details of the syllabus, from the use of a quote from an American President to open the document to the choice of an atypical font. Zeach wants



his courses to be evaluated as different than typical courses students experience, and sees the syllabus as a tool to establish that difference. He works to clarify roles and build relationships in class, and wants his students to know that he himself “comes to class as a student first,” acknowledging that he is still constantly learning.

Because of our personal positionalities and past relationship, Zeach connected the mindset assessment questions directly to Dweck’s work. He expressed that his interpretation of the word intelligence comes from a traditional sense of intelligence, represented by the Intelligence Quotient (IQ) measurement, as a separable, quantifiable entity. In this case, I believe the misalignment between syllabus evaluation and assessed mindset is due primarily to that interpretation of the word intelligence. Zeach clearly believes, and clearly articulated, the value of student effort and engagement in producing achievement. Based on his description of his teaching methods, I would expect to see techniques in the classroom and student outcomes more aligned with growth mindset, despite his working definition of the word intelligence.

As seen in the interview notes above, two primary explanations emerged that clarified the discrepancies found between inferred and actual mindset. The first is simply the idea and definition of intelligence each instructor holds. Instructors assessed as having a growth mindset typically described the concept of intelligence as being somewhat fluid and nebulous. Intelligence was seen by these instructors as a very general concept, malleable and applicable across many learning situations. In contrast, instructors assessed in the fixed mindset categories defined the concept of intelligence as a quantifiable, clear and separate entity and made reference to the formal Intelligence Quotient (IQ) measure. That more specific definition of intelligence informed their answers to the mindset assessment questions asked in both the survey and the interview. Their beliefs about IQ seemed to be linked not to the limits of what a student was

capable of accomplishing in the classroom, but how the student would need to approach the learning.

The second factor that emerged was the value each instructor placed on the syllabus as a communication tool. Some instructors sent mixed messages when the value they placed on the syllabus as a communication tool did not match their actual mindset. For example, if the instructor placed high value on the syllabus as a communication tool that syllabus was likely to imply a growth mindset, despite the instructor's actual mindset. These instructors paid close attention to what their syllabus was meant to communicate to students. They invested time and energy in making particular choices related to language and phrasing. Conversely, if the instructor indicated placing low value on the syllabus in general, that document was likely to omit descriptive context and imply a fixed mindset. These instructors saw the syllabus simply in terms of a means to document required components of the course. They did not invest significant time and energy in the crafting of the syllabus, as they didn't see the syllabus as being a meaningful communication tool in the course.

### **Summary**

As hoped, the language of the syllabus provided rich data for the initial portions of this study. Completing the initial document analysis through the lens of mindset science (Dweck, 2000), human motivation (Maslow, 1946), and the orienting (Frankl, 1946) role of the syllabus allowed dimensions of difference to emerge.

While the initial analysis brought forward answers to the research question, it also illuminated several areas in need of further exploration. Disconfirming cases were found and presented questions about the ability to determine actual instructor mindset through the language of the syllabus. Finding literature related directly to the motivational influence of the syllabus stood out as a need. Another need identified was a return to the literature to further explore

factors that influence college students' interpretation of cues, particularly those factors that may help account for the racial achievement gap seen in the Canning et al. (2019) study. Additional literature was sought on the power structure of college classrooms, psychologically wise intervention methods, and expectancy-value theory. This return to literature and exploration of disconfirming cases provided clarification and elaboration of the initial findings that will be discussed in Chapter 5.

The analysis showed four general types of cues and choice patterns that can be used to accurately infer the mindset of the instructor through the syllabus. The exceptions to this rule can be explained by the mixed messages sent when instructor mindset did not match their level of intentionality when creating the syllabus as a communication tool. The exceptions also seemed to be at least partially accounted for by the instructor's personal definition of intelligence, or perhaps by the culture of use around syllabi in majors with highly defined standards for licensure and accreditation. The next chapter will discuss how the syllabus tacitly communicates the assumptions and expectations of the instructor to students.

## **INTERPRETATION AND EXPLORATION**

Chapter 4 showed evidence that the syllabus does convey cues that students will use to implicitly infer the instructor's mindset. Cues that frame the operations of the course, particularly in the form of incentives or threat of negative consequences, play a role in the inferences students will make. These types of cues inform students of their place in the power structure in the classroom. Other cues, such as the types of personal pronouns used, also illuminate the instructor's intentions of retaining power or distributing it amongst the class, and signal to students the level of control over their own outcomes they may be able to expect. The inclusion or omission of descriptive context about the purpose and relevance of particular course elements also sends cues to the reader about the instructor's mindset. Instructors' underlying beliefs about the motivational needs of students also result in cues that impact student expectations of the instructor and the course.

Instructor mindset will be inferred by students through the syllabus and a wide variety of other verbal and non-verbal cues. While the syllabus provides only a very small portion of the total cues delivered by an instructor, it does convey cues about instructor intentions, expectations, and implicit beliefs. Instructor mindset can be accurately inferred from the syllabus in many cases. This becomes more difficult when the value the instructor places on the syllabus as a communication tool does not match their actual mindset. Accuracy also varies based on the instructor's definition of the concept of intelligence, and on whether or not the intended primary audience of the syllabus is actually students or accrediting bodies.

More important than whether or not the syllabus allows the reader to accurately infer the mindset of the instructor, is the notion that students, with over a decade of prior experience interpreting instructor cues, are likely to interpret cues in consistent ways. The consistency of their individual interpretations is important in how they experience each course. This chapter

will discuss the messages conveyed to students by these cues, how students will each interpret cues through different lenses, and the implications of these cues on student learning outcomes.

### **Syllabus Construction Cues as a Mechanism to Convey Mindset**

The current study suggests that orienting cues are present in course syllabi. A recent study by Wheeler, Palmer, and Aneece (2019) underscores the relevance of the syllabus as a source of orienting cues for students. These researchers completed a mixed-methods study on college students' perceptions of a course syllabus and the subsequent impact on motivation. The researchers used a valid rubric to develop both a "content-focused" syllabus and a "learning-focused" syllabus for the same fictional course, then measured student perceptions both quantitatively and qualitatively. The researchers discussed themes such as tone, orientation, and framing. The syllabi developed for their study used purposeful, differentiated language cues, intentionally chosen to test for the impact on the perceptions and resultant expectations of the reader.

The results of the Wheeler, Palmer, and Aneece (2019) study displayed that the language in syllabi do indeed deliver a set of cues that affect student perception and motivation. The learning-focused syllabi correlated to stronger perceptions of trust in the instructor's intentions and willingness to engage with students, increased expectation of student engagement in the class, and expectancy to learn more useful concepts and skills. The effects of the learning-focused syllabi aligns with the Canning et al. (2019) findings that students were more motivated by growth mindset instructors, and found them to "emphasize learning and development" (p. 3).

By comparison, the content-focused syllabi crated by Wheeler, Palmer, and Aneece (2019) align with the Canning et al. (2019) findings that students find fixed mindset instructors to more "demotivating pedagogical practices" and felt less "motivation to do their best work" (p. 3). One student said of the content-focused syllabus, "The tone of the syllabus makes the

professor seem cold, uncompromising, and unfriendly...I would immediately think the professor is a hard ass” (Wheeler, Palmer, & Aneece, 2019, p. 5). The syllabus directly affected student perception of, and orientation to, the instructor and the course (Wheeler, Palmer, & Aneece, 2019). The researchers go on to say, “Given that syllabi articulate key aspects of the learning environments, even if only as an approximation, it is reasonable to assume the document is able to affect students’ motivation” (p. 2).

Analysis of the syllabi collected for this study generated a rich variety of codes. These codes identify sets of cues that each syllabus author is choosing and delivering. As shown by Wheeler, Palmer, and Aneece (2019), these written cues will be interpreted by students in somewhat routine ways. Students use these cues to come to their own conclusions about the instructor and predict what they are likely to experience in the course. These perceptions are shaped both by the language chosen by the instructor, and each student’s own lived experiences.

The present study shows that instructor mindset can be perceived through language cues in the syllabus. Wheeler, Palmer, and Aneece (2019) show that language cues in the syllabus do influence student perceptions, motivation, and intention to engage in a course. Again, the syllabus is just one artifact of the classroom containing these types of cues. Looking at the results of the totality of course experience, Canning et al. (2019) shows that instructor mindset does have an impact on general student performance outcomes, particularly for racially underrepresented students. The results of these studies suggest the cues based on the instructor mindset have an effect on the engagement and motivation levels of the student, thereby impacting the course outcomes. The syllabus is indeed an orienting document for students, and attending to the language and formatting cues in the syllabus can be used as one tool in the course to direct students towards differing levels of motivation and engagement.

## **How Syllabus Cues Convey Mindset**

Three components for fostering growth mindset were summarized by Quay (2017). Component 1 (GMC-1) is the promotion of a sense of belonging in the group. Component 2 (GMC-2) is assurance of the ability to become competent. Component 3 (GMC-3) is direct communication about purpose and relevance. When these components are present, a growth mindset is fostered and reinforced. Conversely, when these components are absent, a fixed mindset is conveyed and reinforced. Instructors are likely to send a variety of cues that promote each mindset, but as mindset is based on unexamined, implicit beliefs, the majority of those cues are likely to lean one way or the other in a consistent pattern.

The dimensions of difference (DD) and crosscutting themes (CT) found in the initial analysis align with these three components of growth mindset (Quay, 2017). Using the syllabus groupings from Chapter 4, Table 3 compares the choice patterns made by instructors from Syllabus Group A against the three components of growth mindset. The growth mindset components are largely absent from this group of syllabi, indicating that Syllabus Group A can be considered as stemming from and reinforcing a fixed mindset.

For example, power and control of outcomes centralized with the instructor takes responsibility for and control of outcomes away from the students. A statement such as, “Grades in this case are individually determined at the instructor’s discretion” (169N) does nothing to clarify purpose or promote belonging. Rather than assuring the ability to become competent, it indicates that individual students may be evaluated differently and leaves them unsure of a clear path to competence and success.

In another example, using sticks, or punitive methods, to drive performance sends a message that the instructor assumes students are naturally disinterested in the subject and must be externally motivated to learn. This approach is counter to increasing motivation and student

engagement, as seen in a variety of literature (Christ, Sedatole, & Towry, 2012; Deci & Ryan, 2010; Ryan & Deci, 2000; & Utman, 1997). Used to motivate attendance through threat of negative consequences, one instructor says, “Attendance (7%) – I will keep daily attendance. More than five unexcused absences will lead to failure of this component and will establish a ceiling of B- for the citizenship grade” (277C). There is no descriptive context provided to explain the purpose of this procedure, it does not convey any assurance of the ability to become competent, and does nothing to promote belonging in the class. The language chosen does send a message that students who miss class will suffer consequences. There is no discussion of the benefits of attendance.

**Table 5**

*Syllabus Group A*

	Syllabus Group A (Fixed Mindset)	GMC-1 (Belonging)	GMC-2 (Assurance)	GMC-3 (Purpose)
DD1 – Operations	Sticks	No	No	No
DD2 – Descriptive Context	Omitted	No	No	No
CT1 – Power	Centralized	No	No	No
CT2 – Motivation	External	No	No	No

In contrast, Table 6 compares the choices made by instructors from Syllabus Group B against the three components of growth mindset. The growth mindset components are present in this group of syllabi, indicating that Syllabus Group B can be considered as stemming from and reinforcing a growth mindset.

One instructor places the power to become competent and succeed in the hands of the students. “Given the nature and organization of the course, your daily attendance and participation are absolutely critical to your success” (243C). In contrast to the attendance statement related to fixed mindset, this statement provides descriptive context about the purpose and benefits of attendance. This message implies that students will understand the importance of



engagement in the class and will comply. The lack of a specific penalty for non-attendance implies that the instructor believes students are internally motivated to do well, and does not believe external motivation tools are necessary.

Another instructor promotes belonging, assures the ability to become competent, and explains the purpose of a certain teaching method by stating,

We'll practice doing these in class before the homework is due. For each question, you get three attempts to get the correct answer. Don't just guess until you get the right one – you'll see questions like these on the quizzes, and the homework problems do a great job of preparing you for them (53N).

Multiple attempts on problems sends a cue that initial failure is not final, and mistakes can be used to further learning. Using the pronoun “we” sends a cue that learning in this class is a shared effort and responsibility. The last phrase in the quote makes the purpose of the homework problems and this method of completing them clear.

**Table 6**

*Syllabus Group B*

	Syllabus Group B (Growth Mindset)	GMC-1 (Belonging)	GMC-2 (Assurance)	GMC-3 (Purpose)
DD2 – Operations	Carrots	Yes	Yes	Yes
DD3 – Descriptive Context	Included	Yes	Yes	Yes
CT1 – Power	Decentralized	Yes	Yes	Yes
CT2 – Motivation	Internal	Yes	Yes	Yes

These two tables begin to illustrate how instructor mindset instantiates in the syllabus. Instructors' underlying, implicit beliefs do show up in the choices they make for their courses and how they communicate those choices.

The work on content-focused versus learning-focused syllabi (Palmer, Wheeler, & Aneece, 2016; Wheeler, Palmer, & Aneece, 2019) supports this alignment as well. Content-

focused syllabi hold choice patterns of language cues consistent with promotion of a fixed mindset while learning-centered syllabi display choice patterns aligned with promotion of a growth mindset. Syllabi focused on content often make use of the same type of bolding, all-capping, and other formatting techniques (Palmer, Wheeler, & Aneece, 2016) regularly seen in Syllabus Group A, which conveys a fixed mindset. Descriptive context about purpose and relevance was omitted from content-focused syllabi. Comparatively, the learning-focused syllabus aligned with growth mindset and Syllabus Group B, providing more descriptive context about purpose, and omitting the pattern of bolding, all-capping, etc. found in the more negatively framed statements (Palmer, Wheeler, & Aneece, 2016).

### **Syllabus Cues and Expectations of Having Basic Needs Met**

Wigfield and Eccles (2000) expectancy-value theory of achievement motivation addresses how motivation and engagement are encouraged or discouraged by the cues they receive. This theory delved into individual's perceptions of how successful they can be on a given task or in a given setting. "Theorists in this tradition argue that individuals' choice, persistence, and performance can be explained by their beliefs about how well they will do on the activity and the extent to which they value the activity" (p. 68). The article approached a student's motivation to achieve by looking at the connections between the value they place on doing well on the task at hand and the cost of performing the task (Wigfield & Eccles, 2000). They define cost as, "...how the decision to engage in one activity (e.g., doing schoolwork) limits access to other activities (e.g., calling friends), assessments of how much effort will be taken to accomplish the activity, and its emotional cost" (Wigfield & Eccles, 2000, p. 72).

In essence, the cues an instructor sends are evaluated by students in ways that inform their perception of whether or not needs will be met. These cues help them perform the cost-benefit analysis described in expectancy-value theory (Wigfield & Eccles, 2000). Cues that

promote a sense of belonging (safety/love needs); assure the ability to become competent (safety need); and explain purpose and relevance of the tasks being undertaken (esteem/self-actualization needs) are likely to meet the basic motivational needs of students and allow them to spend a maximum amount of time in the esteem building and self-actualization realms of Maslow's Hierarchy (Maslow, 1943).

The syllabus provides just one set of cues to be interpreted. Cues are constantly exchanged and interpreted in the classroom setting. They shape and reshape the meaning of interactions and the perception of intent. Interpretation of these cues, through the lens of the receiver, orient the receiver to the meaning of the interaction at hand (Frankl, 1959). The interpretation of the cues motivates action and behavior, by either satisfying basic motivational needs or decreasing satisfaction levels (Maslow, 1943).

The patterns of cues found in the codes, dimensions of difference, and crosscutting themes in this study serve to help students perceive how their own basic needs (Maslow, 1943) will be met in the microcosm of each class setting. If cues provided by the instructor lead to students feeling unsupported, marginalized, or unable to succeed in class, they are likely being motivated towards disengagement with that particular course and will need to spend more time and energy satisfying lower level needs. If cues are interpreted as meeting basic needs, students are more likely motivated to expend time and energy on the course.

As a dramatic example, a fire alarm during a class period sends a cue that physiological and safety needs must be immediately attended to. In the moment, all time and energy is devoted to assessing those needs. Students will follow the instructor's lead in choosing whether or not to evacuate, and each person will be evaluating a host of cues such as the fear expressed by others, the presence or absence of smoke, and sounds such as the crackling of flames or sirens. If this is a temporary situation, the needs will be quickly satisfied and the class may

return time and energy to learning. If the building does indeed burn to the ground, it will take longer to meet even the most basic needs of warmth and shelter before the course can continue. Time and energy spent on the learning that occurs when basic needs are met will be diverted.

Directly from the document analysis, the cue patterns found in the dimensions of difference and crosscutting themes can be viewed through Maslow's (1943) lens to gauge potential impact on the time and energy students will spend satisfying differing levels of need. McGregor's (1960) theory of enterprise motivation is useful here as well. He posited that managers generally approach workers from one of two implicit theories. Managers with Theory X mindset typically believe that workers will do the bare minimum necessary to be paid, and must be continually motivated to perform. Managers with Theory Y mindset believe that workers are primarily guided by internal motivation, and will perform at high levels give the right amounts of challenge and recognition. Each side of the crosscutting theme of motivation conveys different messaging. For instance, an instructor who implies a belief that students are internally motivated to achieve and learn (Theory Y) likely sends cues that may meet safety, love, and esteem needs at differing levels, allowing the students to spend more time and energy in self-actualization. Instructors who communicate an underlying belief that students will do the bare minimum requested (Theory X) and must be motivated through threat of negative consequence likely send cues that have the effect of leaving the safety, love, and esteem needs less satisfied.

Instructors who conveyed an underlying assumption of power as centralized regularly included formatting cues such as bold type, all caps, and italicization designed to draw attention to particular instructional and consequence details. These cues intentionally communicate points the instructor wishes to emphasize, and leaves the reader to interpret the meaning behind that

emphasis. The omission of such formatting choices, as seen with instructors with an implicit assumption of decentralized power, may send other cues to students.

Similarly, instructors who provide descriptive content regarding relevance and purpose may be satisfying portions of the safety and esteem needs by assuring the ability to become competent. The omission of descriptive context leaves those particular needs less satisfied, meaning the student must invest additional time and energy finding ways to satisfy their needs in these areas.

The choice to frame operations using sticks or carrots (penalties or incentives), sends cues to the student about how the instructor views students in general, and delivers cues the student will interpret about what “kind” of instructor is teaching the course. Providing or omitting unrequired context to better explain purpose also sends orienting cues to the reader, leaving intent in an open state for student interpretation, or making instructor intent more explicit. All of these cues lend to the formation of each student’s own underlying assumptions about the course, the instructor, and their likelihood of being able to achieve success.

The cues given by syllabi are likely to influence student motivation and behavior through the level of satisfaction of needs they provide. The variety of work inspired by Dweck’s (2006) mindset theory has shown that instructors who foster a growth mindset are able to improve student outcomes, while those that foster a fixed mindset do not. As shown above, the dimensions of difference and crosscutting themes that emerged during the document analysis align with mindset theory (Dweck, 2006). The same dimensions of difference and crosscutting themes align with the satisfaction of Maslow’s (1943) set of motivational needs. This connection between mindset and satisfaction of needs helps to further explain why mindset impacts outcomes.

In the mindset literature, Canning et al. (2019) show that instructor mindset not only influences overall student achievement, but has a particular effect on racial achievement gaps. The connections made above begin to explain the achievement differences in overall student achievement, but do not provide immediate clues to why the racial achievement gaps would be more significantly affected by instructor mindset. It's important to begin considering how students from different identities and lived experiences may initially have varying levels of need to be met, and varying lenses through which they are making meaning of instructor cues.

### ***Trust***

In the return to literature, trust emerged as a key, foundational component of collaborative learning relationships, particularly in situations in which difference is involved (Ennen, N. L., Stark, E., & Lassiter, A., 2015; Seyfried, 2014; & Sousa-Lima, Michel, J. W., & Caetano, A., 2013). The relationships between students and instructors are interactive relationships by nature. In any relationship between humans, trust is foundational to feelings of safety, motivation and the willingness to engage (Yeager, et al., 2014). If trust is not present or if it is damaged, the lower levels of need in Maslow's Hierarchy (Maslow, 1943) become prepotent, consuming more energy and effort, and leaving less resources for self-actualization and achievement. Yeager, et al. (2014) found that, "...chronic mistrust, measured over the 2 years of middle school, was strongly predictive of minority students' ability to benefit from a teacher's critical feedback" (p. 820).

Identity differences may affect trust. Gee's (2014) frame problem explains the inherent differences found between the intent of the author and the interpretations or perceptions of the reader. The frame problem acknowledges that an author can never fully anticipate the prior experiences of every reader, and therefore cannot be completely explicit in meaning. In turn, the reader cannot be fully aware of instructor intent and must make inferences to interpret meaning.

Individuals have unique lived experiences based on identities such as race, ability, and gender. These lived experiences create differing lenses through which cues are interpreted. In a recent research synthesis, Healey and Stroman (2020) state:

Individual students can experience the same environment differently - and come to different, well-informed conclusions about whether they belong in that environment - both because we each have unique prior experiences and because groups are situated differently in society due to historical power dynamics. (p. 7)

How cues are interpreted impacts trust levels of the individual(s) sending the cues.

Yeager, et al. (2014) said:

A person's trust should be most important when attributional ambiguity is great, because it is in these moments when mistrust can "fill in the blanks" about an interaction partner's intentions. Attributional ambiguity is heightened when stigma is visible...By contrast, African American students' visibly different group membership may cause them to question a teacher's intentions. The resulting ambiguity may leave relatively greater opportunity for mistrust to filter their interpretations. In summary, mistrust, like any prior belief or schema, should shape interpretations in ambiguous situations rather than unambiguous ones. Academic situations for many minorities are often more ambiguous, due to cultural stereotypes and historical events" (p. 820).

Van Robertson and Chaney (2015) add that "...faculty opinions or perceptions of those opinions can go a long way in determining the degree to which the African American male student feels comfortable and that he can be successful in the White college environment" (p. 29). Students who don't trust the instructor, or believe the system is designed in ways which are intended to impair their performance will underperform (Wigfield & Eccles, 2000), drop the class, change

majors, transfer, or leave higher education altogether depending on the severity and weight of the accumulated evidence.

Walton and Wilson's (2018) research on wise feedback supports building trust through small cues and intentional framing that can clarify meaning. When the reasons for critical feedback from the instructor are ambiguous, or implicit, marginalized students often interpret that feedback through the lens of salient identity. For instance, a student who is aware of a negative stereotype that people of his race are not good in science fields may perceive that critical feedback given by the instructor of a chemistry lab on an assignment may be based on the instructor's belief in the stereotype. No matter the intent of the instructor, the feedback provided may lessen the level of trust the student has with the teacher and reduce the satisfaction level of basic needs such as safety, love, and esteem. Framing the delivery of feedback as specifically given because of the high expectations of the instructor, paired with a statement of the instructor's belief the student can meet those expectations, clarifies why the instructor is providing the feedback and reduces the impact of stereotype threat. When ambiguity is reduced or eliminated, students of color experienced the same learning gains from the feedback as their White peers (Yeager, et al., 2014). Writing about wise feedback, Walton and Yeager (2020) reminded us that, "...social contexts also afford psychological opportunities. They make possible, or they foreclose, particular ways of experiencing, interpreting, and responding to events" (p. 219). Wise feedback interventions provide people a perspective, or orientation, that they then seek to confirm or disprove. The syllabus can be used as such a trust-building tool, setting tone and offering perspective (Wheeler, Palmer, & Aneece, 2019).

### ***Stereotype Threat***

Canning, et al. (2019) found that the racial achievement gap widened in classes with an instructor holding a fixed mindset and narrowed in classes with an instructor holding a growth



mindset. Searching for literature to better understand why instructor mindset would have a disproportionate impact on racial achievement gaps, stereotype threat emerged from the return to literature as key to understanding this linkage. Steele and Aronson (1995) first described the concept of stereotype threat. They posited that people are typically very aware of the common stereotypes held in society. When a person is aware that others expect their race, gender, or class to impact their performance in a particular activity, they experience a “self-evaluative threat” (p. 797). Steele and Aronson (1995) state:

“Consider the stereotypes elicited by the terms yuppie, feminist, liberal, or White male. Their prevalence in society raises the possibility for potential targets that the stereotype is true of them and, also, that other people will see them that way. When the allegations of the stereotype are importantly negative, this predicament may be self-threatening enough to have disruptive effects of its own” (p. 797).

In essence, linking performance to group or identity membership can limit the power and control students feel they have over their own performance (Hennessey, 2015). This is supported by the expectancy-value theory of achievement motivation (Wigfield & Eccles, 2000). Loss of power or control is likely to increase the time and energy spent on the need of safety, and decrease the amount available for use in subsequent need levels (Maslow, 1943).

Stereotypes are used as a marker for what is “typical” of the groups they are applied to. A homosexual man displaying feminine tendencies is considered “typical for his type”. The 1980’s stereotype that “white men can’t jump” sets an expectation that White men typically possess substandard physical ability. Asians are typically supposed to be good at math and playing classical string instruments. If “typical” is associated with stereotype confirmation, it can be inferred that a “typical” syllabus would be seen as confirming stereotypes about what to expect in a regular college course.

When a person is subjected to stereotype threat, the person's cognitive resources get split. Instead of only needing to focus on completing the task at hand, they are forced to also watch for cues that others expect them to perform poorly, and actively attempt not to confirm the stereotype in question. Stereotype threat divides cognitive resources and affects performance:

As we have shown, when a setting contains threatening situational cues, it raises the specter of identity threat – prompting heightened cognitive and physiological vigilance, decreased feelings of belonging, and decreased desire to participate in the setting (Murphy, Steele, and Gross, 2007, p. 884).

Napoleon and Peterson (2017) conducted a pilot focus group with NDSU students in preparation for a larger study. One participant stated that students of color, such as himself, often come to NDSU, a predominantly white institution (PWI), “needing to have one foot out the door” in case the institution did not turn out to be welcoming or inclusive. This statement was immediately confirmed by other participants, and was confirmed again in the subsequent study with NDSU students of color (Napoleon, Peterson, Hanson, & Davis-Wallette, 2018). This work highlights that stereotype threat is already at work in the minds of students of color before they even attend a PWI such as NDSU. They are fully aware that the people and systems of the institution may be biased against them because of existing stereotypes, and enter the institution with some of their overall cognitive resources necessarily devoted to heightened awareness of how others may be applying stereotypes to them, and working not to confirm those stereotypes.

Stereotype threat must affect the lens through which each student perceives their own ability to have basic needs (Maslow, 1943) met in each course setting. It adds another factor to the cost-benefit equation in expectancy-value theory (Wigfield & Eccles, 2000). Cues provided by the syllabus, instructor, and classmates will be interpreted through the additional lens of stereotype threat and confirmation. At a PWI such as NDSU, underrepresented students are

likely attuned to cues that confirm or disconfirm their own expectations of being subjected to stereotyping. Cues in the syllabus or in the classroom perceived as potentially confirming stereotype threats by students of color are likely to promote mistrust, whereas cues that disconfirm perception of stereotype threat may promote trust. This may help account for difference in racial achievement gaps found in Canning, et al. (2019).

An example of how stereotype threat plays out in academia for students is found in a course podcast (Case, 2020) in which Dr. Kim Case interviews scholar Valerie Ruffin on the topic of navigating White spaces. Ruffin began her education as an aerospace engineering major, but realized at orientation that she would be the only Black female in the graduating class for that program. She outlined another early cue of her uniqueness she received from an instructor when he returned a paper to her in class without asking her name as he had to do with the White students. She realized he knew who she was because of her race and gender. She understood she stood out and may be scrutinized more closely than others. It confirmed that she did not fit the “norm” for the program of study. Ruffin soon adjusted her path based on the cues that indicated she likely didn’t belong in this program, and instead graduated with degrees centered around race, gender, and history. Her experience aligns with the idea that “The classroom’s loom of figured worlds and their associated norms and practices celebrate certain subject positions and marginalize others” (Carlone, Scott, & Lowder, 2014, p. 4).

To summarize, the results of the document analysis provide evidence of differences in how language and systems in classes are framed by instructors. These differences in framing align both with the differences between fixed and growth mindset as delineated in mindset theory (Dweck, 2006) and the differences found between content-centered and learning-centered syllabi (Palmer, Wheeler, & Anece, 2016; & Wheeler, Palmer, & Anece, 2019). Gee’s (2014) framing problem supports the idea that every student will interpret these cues differently based

on their own expectations and experience in similar systems. College-aged students have many years' experience in a variety of classrooms, and are very practiced at interpreting the cues of instructors. Stereotype threat (Steele & Aronson, 1995) may help explain why instructor mindset has been correlated with widened racial achievement gaps. Whether chosen intentionally or unintentionally, the language of the syllabus will be interpreted by the reader, and this interpretation will influence the reader's perception of the instructor and the course in a variety of ways (Wheeler, Palmer, & Aneece, 2019). This orientation (Frankl, 1959) will influence motivation and behavior of the students (Maslow, 1943).

### **Conclusion**

Choice patterns consistent with instantiations of instructor mindset can be found in syllabi, particularly when the instructor places value on the syllabus as a communication tool. How instructors choose to communicate through the construction and language of the syllabus provides a set of written cues that are interpreted by the reader. The interpretation of these cues influences motivation and resultant behaviors and levels of engagement.

Despite the intentionality of the instructor, students will infer instructor mindset and their subsequent expectations and behaviors will depend in part on those inferences. Students will make these inferences through the lens of their past educational and lived experiences, determining how well their basic needs will be met and how likely they are to be able to succeed. Varying students will come to different, logical conclusions based on their individual lenses. Instructors should be aware of the patterns of cues they are delivering to students, and be intentional about sending the types of cues that will promote the best learning environment for students.

This chapter has interpreted and explored the findings of the study through connections between data, literature, and theory. The final chapter will provide discussion about the conclusions drawn and the implications for both practice and further research.

## **DISCUSSION AND IMPLICATIONS**

### **Summary of Findings and Interpretation**

Comparing and combining the findings of the survey, the document analysis, and the semi-structured interviews led to several answers to the original research question: How is instructor mindset instantiated in syllabi?

In general, it appears that mindset instantiates in the syllabus in recognizable patterns of choice described in previous chapters. This study found choice patterns related to items such as the locus of power, motivational strategies, and even the use of text formatting methods. Whether instructors are intentional or not in authoring it, the syllabus should be considered a tool that conveys underlying assumptions to students.

Assessed instructor mindset did align exactly or closely (within one degree) in about two-thirds of cases in which syllabi were evaluated and compared to results. Based on this result, the ability to consistently infer the actual mindset of the instructor solely through the language of the syllabus is not fully possible.

It is important to note that students only have access to an inferred mindset. They only have the communication cues presented by the instructor to use in creating their own perceptions of the instructor and the course. The syllabus contains just one initial set of orienting cues, but has the ability to increase or decrease student motivation and subsequent engagement in the course. Just as instructor mindset is typically implicit and unexamined, students will make many implicit conclusions about the instructor, the course, and their likelihood of success based on the initial cues sent by the instructor through the syllabus and other first interactions. Instructors who deliver cues through the syllabus that are not actually in alignment with their own mindset may be sending mixed messages, and may need to spend time and energy reorienting student expectations and behaviors.

In the confirming cases that showed alignment, instructors were intentional about crafting their syllabi in a way that represented their teaching styles, philosophies, and beliefs about what students should be expected to do. For example, in his interview, Oscar stated that when reviewing a colleague's syllabus, he believes he can almost "see" their teaching philosophy.

Disconfirming cases in which the inferred mindset from the syllabus evaluation and the actual mindset were incongruent, a variety of explanations came through from the semi-structured interviews. The primary explanation found is that misalignment often occurs when instructor mindset does not match the value an instructor places on the syllabus as a communication tool. Instructors, such as Sherry and Lane, with a growth mindset sometimes do not see value in the syllabus as a meaningful tool of communication. When seen as unimportant, it is natural not to pay close attention to how it aligns with personal values and intentions, and to focus only on required elements. The actual growth mindset of the instructor in these cases is likely more evident in the ongoing verbal and nonverbal cues they deliver in class, but they may need to work to correct the initial impressions students form based on the document presented. Conversely, some instructors, such as Jackson and Zeach, with a fixed mindset actually place great value in the syllabus as a communication tool and spend much time and effort elaborating and clarifying process and intention in these documents.

Individual instructor's definition of the word "intelligence" also seems likely to play a role in whether or not mindset can accurately be inferred from the language of the syllabus. When viewed primarily through the lens of the traditional measurement of IQ, intelligence is sometimes seen as very separate from the ability to achieve in the classroom. Zeach represents a primary example of someone who strongly believes all students can succeed and learn through effort, which is an indicator of growth mindset, but his strict definition of the word intelligence leads him to score as having a fixed mindset. This theme first came to light with Zeach, but was

repeated in interviews with Alice, Douwe Egbert, and Jackson. Discussion with these participants reinforced ideas of intelligence as fixed, but learning as fluid.

Another explanation accounting for the inability to accurately infer mindset from the syllabus may be tied to the culture and needs of specific programs. For example, programs related to medical professions typically have high levels of accreditation requirements, technical skill, and standardization rules to document and convey. In these cases, it seems that the syllabus serves as a primary confirmation document for outside agencies that ensures students were adequately informed of the necessary policies, standards, and regulations. This type of use shifts the document's audience from being centered on the students to also meeting the needs of accreditors. Lane actually has her students sign a statement that they have fully read and understand the syllabus as documentation that these structural components have been conveyed.

Despite the ways in which instructor mindset does or does not instantiate in the syllabus, I believe the most basic and important answer to the research question comes through viewing the syllabus through the eyes of the student. While the syllabus is likely only a semi-accurate source for determining the actual mindset of the instructor, language cues aligned with creating perceptions of either a growth or fixed mindset were readily evident in all syllabi. Every syllabus is given to multiple students who in turn are required to interpret the meaning of the language and the intent of the instructor. Gee's (2014) idea of the frame problem illustrates the inherent disconnect between instructor intent and how each student will perceive the language of the syllabus through past experience and their own expectations of what the classroom experience is, will be, or should be. Stereotypes and stereotype threat (Steel & Aronson, 1995) play a role in the frame problem (Gee, 2014) as they impact interpretation and perception of the syllabus language. As an initial orientation tool, whether or not the instructor is intentional about its crafting, the syllabus plays a role in establishing first impressions of the course and the



instructor for the student. The tone of the syllabus has an impact on student expectations, engagement, and motivation (Wheeler, Palmer, & Aneece, 2019). This impact and its effects on engagement are supported by Lakoff's (2004) work on frames. Language and cues activate particular frames for individuals. This study suggests that language and cues associated with fixed or growth mindset activate different frames for students, particularly those with marginalized identities. In essence, the syllabus begins to activate a frame and inform the student perception of the mindset of the instructor regardless of whether or not the syllabus is an accurate representation of the instructor's actual mindset. Lakoff (2004) suggests that whoever speaks first sets the frame, and that much work must be done to change that frame. Being intentional to set a growth mindset frame through the syllabus and other initial interactions is likely important.

Analysis of the syllabi supports direct alignment between mindset (Dweck, 2006), instructor mindset (Canning et al., 2019), and Wheeler, Palmer, and Aneece's (2019) work on the role of syllabi in motivating students. Thinking of the racial achievement gaps found in the Canning, et al. (2019) study, a learning-focused syllabus, which aligns with the principles of growth mindset, works to make more of the implicit explicit. Judged as atypical (Wheeler, Palmer, & Aneece, 2019), this more explicit type of syllabus may act to disconfirm the norm and serve to reduce stereotype threat or keep it at bay, particularly when it intentionally acknowledges difference. Something as simple as providing an explicit message that "no one gets left behind" has been shown to improve engagement (Hazari, Cass, & Beattie, 2015) and promotes a sense of belonging across difference. In contrast, a typical, content-focused syllabus, aligned with fixed mindset, leaves the implicit implicit, and may act as a cue that confirms stereotype threat for students of color. This leaves students of color with divided cognitive

resources, unable to devote their full attention and energy to learning in the class, as most of their White peers are able to do (Steele & Aronson, 1995).

Instructors make thousands of choices during the length of a course that directly impact student perceptions of safety and belonging, thereby influencing student behaviors. These choices can be intentional or unintentional. The results of this study and a wide body of related literature indicate benefits to students if more of those choices are intentional and explicit.

In discussing racism and antiracism, Kendi (2019) describes some racism as the result of active choice, but most racism as actually stemming from a passive complicity with the “typical” – not thinking about what is implicit and accepting the outcomes of the current systems and the ideas they are built upon. Instructors can begin to eliminate the effects of stereotype threat, and potentially reduce racial achievement gaps, by being intentionally explicit about purpose and relevance, about students’ ability to become competent, and about who belongs in their class (Quay, 2017).

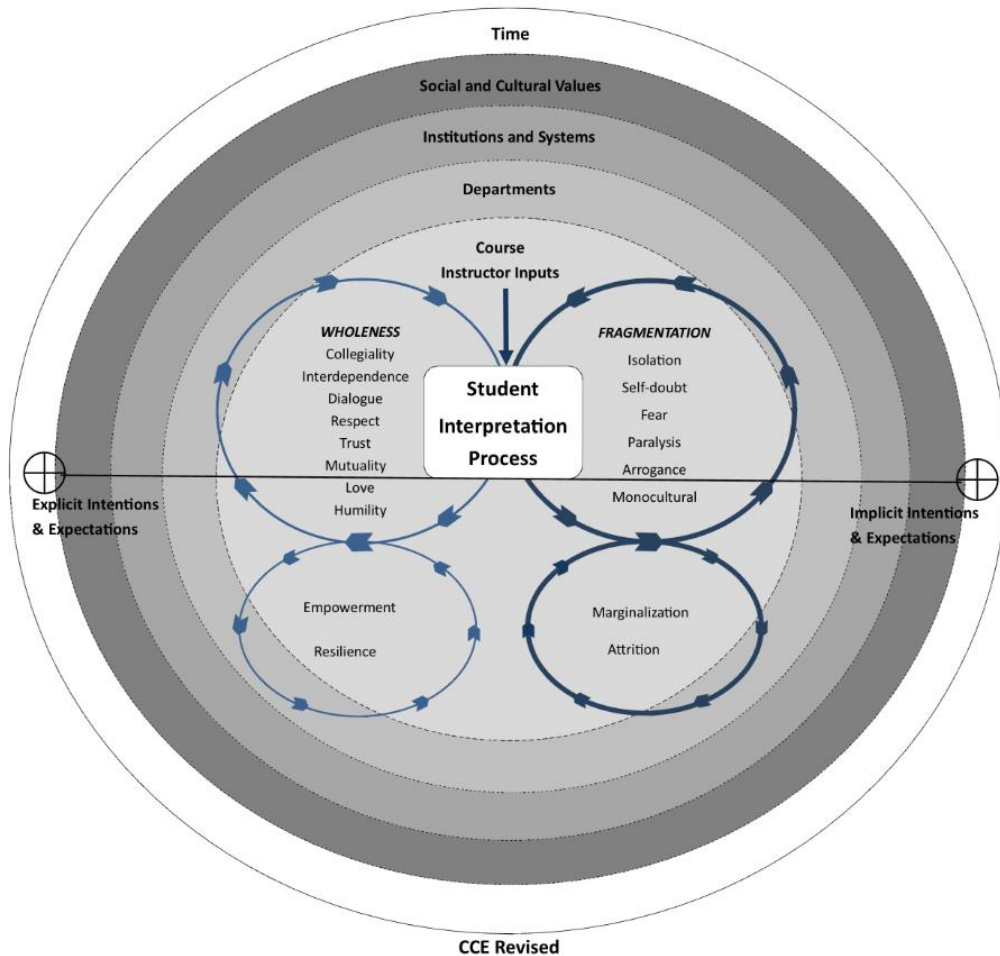
### **Implications for Theory**

This study provides additional clarity and development of the CCE model (Beseler Thompson, Wood, & Klaman, 2019), more clearly defining the role and power of the instructor, the benefits of making the implicit explicit, and the understanding that stereotype threat is likely inherently present for students of color and students with other marginalized identities as they enter and complete the course. This study also confirmed the idea that the experience and outcomes described in the fragmentation side of the model as perceived by students as typical.

The evidence found in this study supports and helps to clarify the workings of the CCE model (Beseler Thompson, Wood, & Klaman, 2019) as illustrated in Figure 2 in Chapter 2. Figure 4 below adjusts some of the specific language of the original CCE model based on the findings of this study.

**Figure 4**

*CCE Revised*



Discussion in Chapter 5 highlighted stereotypes, stereotype threat, and how individual student perceptions vary based on their awareness of race, gender, class or any number of identities held. The nesting of the class as the smallest circle and most specific environment demonstrates the depth of what students and instructors are already bringing to class from the larger environments. I have changed the title of the inner circle to “Course” to better represent the context studied. “Instructor Inputs” is not found in the original CCE model (Beseler Thompson, Wood, & Klamann, 2019), but has been included to represent the differentiated role and the power held by the instructor to largely shape class inputs. The syllabus is one of the first

instructor inputs provided to students and should be treated as a foundational document.

“Vulnerability” has been replaced with “Student Interpretation Process” to reflect the reality that a process of meaning making is occurring at that point. As the outcomes of that meaning making process are always unpredictable for individual students, it is inherently filled with vulnerability. It is at this point that students are making sense of the syllabus and other inputs through the lenses of their own salient identities. They are actively identifying cues that may be indicative of racism or anti-racism, just as other students are paying attention to cues that may signal sexism or anti-sexism, ableism or anti-ableism, etc.

Students’ interpretations and perceptions move their collective expectations and resultant behaviors to the wholeness or fragmentation areas of the model. The arrows in the outlining of these sections indicates the continual process of input and interpretation. Through this continuous cycle, evidence mounts, and students begin to perceive behaviors and opinions as aligned with one side or the other. Students adjust their own behavior accordingly in order to best survive (and thrive) in the course.

The fragmentation side of the model uses purposefully darker outlining, as the team that initially created the model saw that side as representing the typical classroom experience, or at least had a perception of its typicality. The words placed at the center of the fragmentation cycle as descriptors of behaviors and outcomes certainly align with stereotype threat and perceptions of structural or interpersonal racism. If students expect the classroom to be a place of fragmentation because of their individual or collective experiences in the outer circles, the instructor has immediate reorientation work to attend to if they desire the class to function primarily in the wholeness cycle.

Mindset theory (Dweck, 2006) was an appropriate place to begin developing an understanding of the phenomenon, and growth mindset is a concept and a practice that can be

used to foster a wholeness environment in the classroom. However, through this study I have come to see the spectrum added to the center of the model in Figure 4 as something different and broader than mindset alone. I believe the wholeness side of the model benefits from increasingly explicit intentions and expectations associated with growth mindset, while fragmentation is served by the implicit intentions and expectations associated with fixed mindset. This is supported by the Yeager, et al. (2013) discussion of the interplay of mistrust in ambiguous and unambiguous situations. Implicit understandings are rooted the same types of “typical” practices students perceive in content-based syllabi (Wheeler, Palmer, & Aneece, 2019), and typical practice is perceived as having negative consequences by “outgroup” members (Case, 2020). The descriptive context associated with growth mindset provides more explicit cues regarding intention and purpose. Explicit understandings, like those also found in learning-centered syllabi (Wheeler, Palmer, & Aneece, 2019), increase perception of situations as being atypical, and may have the effect of reducing stereotype threat and orienting students to the wholeness side of the CCE model.

Casad, Petzel, and Ingalls (2019) laid out a chain of reaction caused by stereotype threat and stigma that aptly illustrates how the theoretical threads and findings of this study weave together and become operationalized in the classroom. They found that:

...greater stigma consciousness predicted greater gender-based rejection sensitivity. Gender rejection sensitivity predicted more negative perceptions of campus climate. More negative perceptions of campus climate predicted more experiences of stereotype threat, which in turn predicted lower perceived control. Lower perceived control predicted greater disengagement from STEM domains, which predicted lower self-esteem (p. 469).

This chain reaction illustrates the perpetual cycle of fragmentation in the CCE model (Beseler Thompson, Wood, & Klaman, 2019) and how it impacts not only the course experience but each of the broader circles of the model.

This study contributes to the understanding of how instructor mindset likely influences the racial achievement disparities found by Canning, et al. (2019). Instructors with a fixed mindset are more likely to omit descriptive context in their syllabi, and potentially in their teaching. This means more expectations are left in an implicit state and are open for broad interpretation. Unclear expectations and purpose require the reader to interpret based on their own experience. This may trigger stereotype threat for racially marginalized groups due to the perception as fitting the typical classroom systems, having the undesirable effects of lower performance and less motivation to achieve. By contrast, instructors possessing a growth mindset are more likely to be explicit about purpose and relevance, the ability to become competent, and the ability to belong (Quay, 2017). When more specific and descriptive information is presented to clarify intentions and expectations, stereotype threat can likely be reduced. The reduction of threat allows the students to focus more cognitive resources on engagement and learning in the course, which improves performance.

### **Implications for Practice**

At the most specific level, this study suggests that instructors should be intentional in the development and crafting of their syllabi. The syllabus is a foundational document that provides part of the initial baseline of cues delivered by the instructor.

On a broader level, this study provides evidence that instructor cues, including those found in the syllabus, have meaning and influence student behaviors and outcomes. It supports further dissemination and use of the CCE model (Beseler Thompson, Wood, & Klaman, 2019) in training instructors to create environments that promote wholeness in learning. Methods and

techniques aligned with a growth mindset framework (Dweck, 2006) can be used in practical ways to foster a wholeness environment. Mindset-aligned tools work to make expectations as explicit as possible and create perceptions of atypicality. Speaking specifically about developing dissertation expectations, Lovitts (2007) states:

Too often success in education – kindergarten through doctoral – is a function of “guess my rule”...The goal of explicating the rules (performance expectations) is *not* to grade or rate dissertations...and provide a summary score. Rather, the goal is to make the expectations for the dissertation more transparent to graduate students while they are in the process of researching and writing their dissertations, thereby helping them achieve higher levels (p. *xi*).

The learning-focused syllabi described by Wheeler, Palmer, and Aneece (2019) represent one such tool for making the implicit more explicit in the syllabus. The Syllabus Challenge (Case, 2020) may be another aligned tool to assist in removing micro-aggressions from syllabi that may heighten stereotype threat, and instead add micro-affirmations in their place. Further tools such as these should be identified and developed.

Being intentional in these choices may save faculty time and energy in addition to improving class outcomes. In the case of the two faculty members who possessed a growth mindset, but submitted syllabi evaluated as aligned with fixed mindset, they missed a foundational opportunity to foster growth mindset, and may be providing initial impressions that their course will be “typical”. These instructors will likely need to spend additional time and energy reorienting and reassuring students because of the unintentional misalignment.

The problem of implicit beliefs and their impacts on instruction may be exacerbated at the post-secondary level. College and university instructors are not required to be trained as teachers or educators – their expertise in a discipline is their teaching credential. When left in an

unexamined state, most people will teach as they were taught. This research has implications for highlighting the importance of professional development for college-level instructors in the areas of both mindset and teaching methods.

### **Limitations**

As a dissertation, this study was conducted as independent research. This means that no other researchers were consulted during the qualitative analysis, thereby precluding interrater reliability. Future projects related to this research should be collaborative.

This study focuses primarily on the syllabus as a representation of broader thinking by the instructor. The syllabus is simply a small sample of this thinking. Recognition needs to be given to the fact that the syllabus is situated with a much larger, very complex socio-cultural context. The syllabus only provides one window through which to view the instructional environment.

Given the complexity of the socio-cultural context of the classroom, it is also evident that mindset is not the sole factor influencing student achievement and the opportunity gaps that are prevalent in today's institutions of higher education. It is an underlying influencer that should be considered and studied.

### **Future Research Recommendations**

More research is needed to explore and define the complexities of the socio-cultural dynamics instructors must navigate. While there are likely some generalizable, somewhat standard components that can be applied across college classrooms, many of these dynamics are likely dependent upon institutional mission, culture, and geographic situation. Classroom dynamics in a biology class at a PWI may require different approaches and techniques than the same class at a HBCU (Historically Black College or University) or HIS (Hispanic Serving Institution). Understanding these socio-cultural systems may lead to more equitable outcomes.



The results of this study and the literature reviewed point to a connection between mindset and stereotype threat. There is initial evidence through the Wheeler, Palmer, and Aneece (2019) study that students see the content-focused syllabus (fixed mindset) as indicating the likelihood of a “typical” classroom experience, and the learning-centered syllabus (growth mindset) as indicating an “atypical” experience. Understanding that “typical” at a PWI is likely interpreted as being aligned with an institution built on systemic racism (Kendi, 2019; & King, 2018), it may be that the cues sent by an instructor with a fixed mindset are being interpreted by students of color in a way that heightens stereotype threat. Investigation of the strength of the connection between mindset and stereotype threat on performance may help to confirm findings present in the literature and provide doors to finding ways of operationalizing this knowledge in an effort to eliminate achievement gaps related to race or other factors.

Most mindset research has involved the implementation of interventions with students to shift their implicit beliefs towards a growth mindset. Knowing that instructor mindset has an impact on student outcomes, the same types of interventions should be implemented with instructors. It may be possible to document shifts in instructor mindset through changes in the language and cue patterns in their syllabi and in other course documents. It should also be possible to document improved student achievement, particularly with underrepresented racial/ethnic minority students. Along this vein, it would be interesting to determine if fostering growth mindset with instructors helps them to achieve their intended outcomes.

Measuring student self-efficacy may be another way to reinforce the findings of this study. A key element of growth mindset is fostering a student’s belief that they have the ability to be competent (Quay, 2017). It may be possible to measure a student’s level of self-efficacy when presented with a syllabus from a fixed mindset instructor versus one from a growth mindset instructor. Higher reported levels of self-efficacy related to growth mindset syllabi

would reinforce findings that instructor mindset leads to cues that impact motivation and engagement. The strategies employed by Wheeler, Palmer, and Aneece (2019) may provide good methodological insights for such a study.

Research involving student interviews to explore perceptions of instructor mindset through both syllabi and actual classroom experiences may yield a wealth of evidence to confirm or disconfirm the findings of this study.

While syllabi provided a promising entry point to begin understanding how instructor mindset impacts student learning, classroom observations would be beneficial and likely provide a more reliable method of inferring instructor mindset. Classroom observations across the duration of a course would provide many more data points, and may show differences in impact at the orientation stage versus the middle or completion stages of the course. Initial orientation communication about specific assignments, events, or exams could provide interesting insights into how initial framing related to mindset is reinforced at different junctures.

To further establish the level of importance of the syllabus, research could be conducted on which students read the syllabus and when. Are students with certain characteristics more likely to invest time into reading and interpret the document? How do students who miss the first class and the instructor's introduction to the syllabus use and react to it? Do students use it as a re-orienting document throughout the semester? Many instructors believe that "no one reads the syllabus". Before providing strong recommendations on syllabus construction, it could be useful for actual utility to be verified.

One item that came to light in this study that could use further clarification is the effect of the instructor's definition of the word intelligence. By definition, fixed mindset instructors believe that intelligence is a quantifiable quality that is largely inherited and unchangeable. Interviews in this study provided evidence that while this assumption about the term intelligence

is a defining characteristic between fixed and growth mindset, some instructors, such as Zeach, saw learning ability as separate and more fluid. Intelligence and learning ability are not necessarily synonyms, and clarifying instructors' definitions of the two may lead to greater insights into the application of mindset science.

As seen in the syllabi of Jackson and Zeach, both assessed as possessing a fixed mindset about intelligence, placing strong value on the syllabus as a communication tool may inadvertently help students to assume a growth mindset environment is in place. As growth mindset syllabi encourage motivation and engagement, it would be helpful to better understand whether or not this type of intentionality in authoring syllabi should be considered a best practice.

Mode of instruction is a factor that may deserve further analysis. In an interview, Douwe Egbert detailed how he constructs syllabi for online courses differently than he does for face to face instruction. For online instruction, he provides much more detailed language. It may be important to learn whether or not these changes impact student perceptions, and even whether or not the mode of instruction itself impacts those perceptions.

One finding that emerged was a difference seen in the framing and construction of syllabi related to the medical profession (nursing, dietetics, etc.). It may be interesting to see if that difference is indicative of the culture of those disciplines, and if that culture has an impact on mindset. The inclusion of such detailed professional criteria aligns primarily with content-focused syllabi, which could be a demotivating factor. It also shifts the primary audience of the syllabus from students to accreditors. Are there mediums other than the syllabus through which to convey those criteria and standards? A critical analysis of the impact of professional accrediting bodies on the curriculum and student experience may be warranted.

Each syllabus includes sections authored by the instructor and sections of text prescribed by the institution. With different authors, the messages conveyed may be mixed. It could be helpful to further examine the interplay between instructor authored and institutionally mandated language, and how instructors choose to frame the required language. It would also be interesting to see if students can identify the mandated language and how they react to its presence in every syllabus. Repetition and familiarity with the mandated language may reinforce perceptions of the institution rather than the individual instructor.

Related to the notion of repetition and familiarity, there may be a path to uncover the impact of mindset across the cumulative classroom experience, rather than focusing on each course individually. It would be interesting to know the impact of pre-college teachers on the expectations of the student, or to know if the mindsets of a student's first college instructors influences how they perform in subsequent years.

Instructor self-awareness is yet another avenue of research that could yield important insights. Are instructors aware of the words they choose, why they choose them, and how students may interpret them? How do instructors frame their role in the classroom? Are they a guide, a leader, an enforcer, or simply a "sage on the stage"? How does the perception of their role influence their sense of responsibility in the classroom and the methods they choose to use? It could be enlightening to see how basic self-awareness influences action.

This study begins to draw possible connections between students' perceptions of "typical" systems in classrooms as being representative of the overarching "typical", structural racism of institutions. Establishing that link more firmly could further our understanding of how to identify and dismantle structural racism that exists in institutions of higher education.

Speaking as a professional in the field of student affairs, this research could be expanded beyond instructor mindset and its impacts in the classroom to include an exploration of

supervisor mindset and its impact on team performance in the workplace. Examining parallels first within the divisions of university life could also lead to application in the corporate world.

### **Conclusion**

This study has provided an opportunity not only to identify how instructor mindset instantiates in the syllabus, but also to explore how these instantiations likely affect student behaviors and the equity of course outcomes. It has involved acknowledging and deconstructing past assumptions and actively seeking new connections.

In writing this study, I have come to believe that academic inequity is reinforced by implicit assumptions about purpose. Unacknowledged and unexamined assumptions underlie much of how our systems are built and how we educate students. It is past time for us all to be explicit about purpose in the classroom and across campus, and to recognize the impact of the myriad assumptions about “the way things work”. It is time to see and teach with new perspective.

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## APPENDIX A. DISSERTATION SURVEY

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### Start of Block: Default Question Block

Q1 Dear -----participant:

My name is Casey Peterson. I am a doctoral candidate in Institutional Effectiveness at North Dakota State University (NDSU), and am conducting a research project to investigate how instructors communicate expectations to their students in the syllabus.

Because you are a current instructor at Concordia College, Minnesota State University Moorhead, or North Dakota State University, you are invited to participate in this research project. You will be asked to complete a short survey (1-3 minutes) and to attach one syllabus of your choosing that you are using during spring semester 2020. A qualitative document analysis will be conducted on the syllabus provided.

After the document analysis, you may be contacted to participate in a semi-structured interview to clarify and enrich the initial findings. If you agree to participate in an interview it should take no longer than one hour. You may find it interesting and thought provoking to participate in the interview. If, however, you feel uncomfortable in any way during the interview session, you have the right to decline to answer any question(s), or to end the interview. If selected, it should take less than one hour to complete the interview. I will ask about components of the syllabus you submitted and how you make decisions in relation to your teaching. The interview will be audio recorded. I will keep private all research records that identify you. When the interview is transcribed, you will be given a pseudonym, and other potentially identifying information will be left out of the transcripts. In any written documents (including publications) regarding the study, only the pseudonym will be used.

All data collected, in any form, will be stored in a password protected NDSU server that is only accessible to the principal investigator and co-investigator. Electronic copies of the interview transcripts will be saved and protected in the same fashion.

If you have any questions about the study, please contact me at 701.231.7750 or [casey.peterson@ndsu.edu](mailto:casey.peterson@ndsu.edu), or my advisor at Nate Wood, 701.231.9771 or [nathan.wood@ndsu.edu](mailto:nathan.wood@ndsu.edu).

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8995, toll-free at 1-855-800-6717, by email at

nds.urb@nds.edu, or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050.

Thank you for your taking part in this research.

**Clicking forward and continuing with this survey indicates your consent to participate.**

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Page Break

Q2 To be honest, students have a certain amount of intelligence, and they really can't do much to change it.

- Strongly Agree (1)
- Agree (2)
- Somewhat agree (3)
- Somewhat disagree (4)
- Disagree (5)
- Strongly disagree (6)

---

Page Break

Q3 Your intelligence is something about you that you can't change very much.

- Strongly Agree (1)
- Agree (2)
- Somewhat agree (3)
- Somewhat disagree (4)
- Disagree (5)
- Strongly disagree (6)

---

Page Break

Q4 Which of the following best describes your status as an instructor?

- Full Professor (1)
- Associate Professor (2)
- Assistant Professor (3)
- Lecturer (4)
- Adjunct (5)
- Graduate teaching Assistant (6)
- Other (7) \_\_\_\_\_

Q5 Have you attended training specifically about the use of mindset theory in the classroom?

Yes (1)

No (2)

---

Q6 Please attach the most recent syllabus you have used in your teaching. (If unable to attach, a request will be made via email.)

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Q7 Thank you! Study results will be available upon request.

Yes, please share a summary of the study results when available. (1)

No, I am not interested in reviewing the results of the study. (2)

## APPENDIX B. INTERVIEW PROTOCOL

### Dissertation Interview Guide

**Participant ID #** \_\_\_\_\_ **Pseudonym Preference** \_\_\_\_\_

Begin with introductions and thank them for participating. Ask if it's ok to record the interview. Remind them of 1) the purpose of the study, 2) other relevant information from the consenting information on the survey, and 3) that participation is voluntary.

Please indicate how strongly you agree or disagree with the following two statements:

1. To be honest, students have a certain amount of intelligence, and they really can't do much to change it.  
StA            A            SoA            SoD            D            StD
2. Your intelligence is something about you that you can't change very much.  
StA            A            SoA            SoD            D            StD

What are the primary roles of the instructor? Would your answer be the same for any course?

Paint me a picture of what your first class session with students, at the beginning of a new term, is typically like.

What do you want students to say about you and your class after that first session?

What is the origin story of the syllabus you submitted? How did you learn?

How do you decide upon placement of the mandatory language components?

From your professional perspective, please describe how you see the purpose and importance of a syllabus?

If a student missed the first day of your class, and only had the syllabus to get a sense of expectations, what is most important for them to understand when they read it?

How do you typically go about creating or revising a syllabus? How much time is typically required for you to do this?

How do you decide when you've been explicit enough in the syllabus and consider it complete?

How much variability do you believe exists between syllabi?

Would you describe your syllabus as "typical/standard"? How similar or dissimilar is your syllabus to the "standard" syllabus? In what ways do you believe it differs?

Ask two to three questions about the specific syllabus submitted by the participant. (These questions will need to be generated for each interview, but will be based on language, general structure, and process choices made by the participant in crafting the syllabus.)

Is there anything else you'd like to add or discuss?

## **APPENDIX C. INTERVIEW INVITATION EMAIL**

Hello!

I am writing today to ask for a short interview next week. Last April, you completed a survey and submitted a sample syllabus for my research. I have completed the first portion of the study, and am hoping you will agree to this final interview to discuss the syllabus you submitted.

If you are willing, the interview should take less than one hour to complete. The interview will be conducted via Zoom.

I have interview times set aside next Tuesday and Wednesday, but can also arrange times outside of those days. Please let me know if there is a convenient time for you.

Thank you for your time and consideration!

Casey



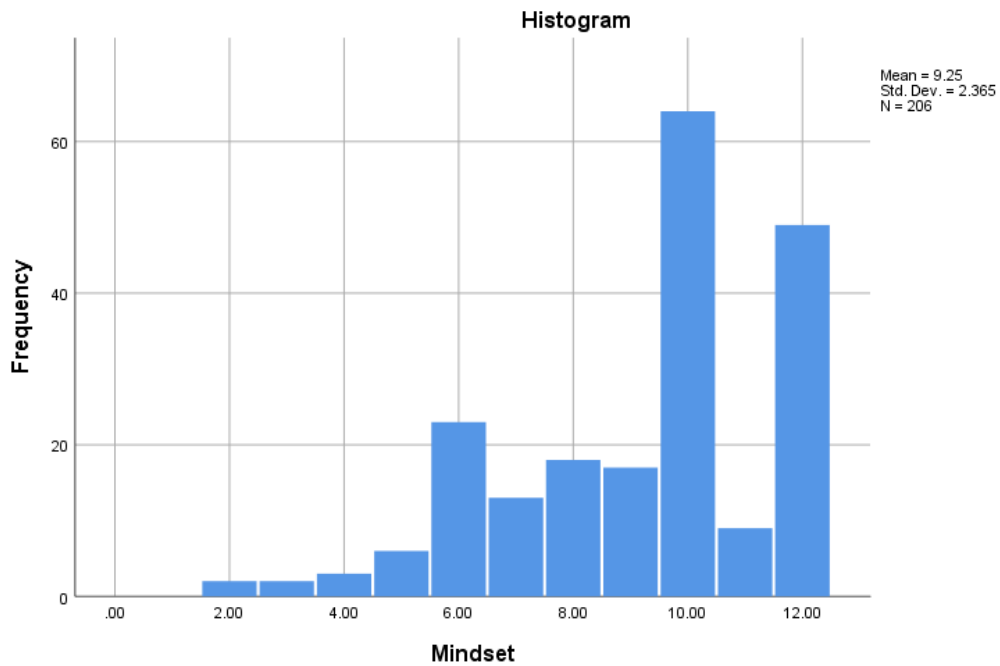
## **APPENDIX D. SAMPLING DOCUMENTATION FROM DR. WOOD**

Total scores on the mindset assessment instrument were computed as a simple sum of responses to the two items. The resulting distribution of total scores was strongly negatively skewed, with only 17.5% of scores below the center point (7) on the scale (range: 2-12), as shown in Figure 4. The purposeful sampling strategy for selecting syllabi to be subjected to qualitative analysis called for the inclusion of instructors who clearly evidenced a growth mindset and those who clearly evidenced a fixed mindset, while avoiding extreme cases. However, the mindset assessment instrument has not been standardized, so unambiguous cut-off scores were not available to categorize participants a priori. Therefore, the scoring distribution was analyzed to identify scoring ranges that met the purposeful sampling criteria. In an ideal case, the mean for the distribution would be near the center of the scoring range, in which case it would be logical to select scores more than 1 sd, but less than 2 sd, above (growth mindset) and below (fixed mindset) the mean. This would eliminate individuals in the center of the scoring distribution, whose mindset could be too ambiguous to characterize, and those in the tails, whose mindset might be too idiosyncratic. In this sample, scores in the range 4-6 were therefore identified as indicating a fixed mindset (i.e., between 1-2 sd below the mean and also below the centerpoint of the scale). However, the mean for this sample was shifted so far in the positive direction, the calculated score of 2 sd above the mean was beyond the possible range. Therefore, scores of 10-11 were identified as indicating a growth mindset as they were above both the mean and the centerpoint of the scale, but omitted the most extreme possible score. The resulting sampling frame for qualitative analysis included a total of 105 records: 32 individuals evidencing a fixed mindset and 73 evidencing a growth mindset (the unbalanced sizes of the groups could not be further adjusted without violating purposeful sampling criteria). This group of 105 was also characterized by discipline (STEM or nonSTEM) based on their submitted syllabus. A first

stratified, random sample (n=12) was then drawn to represent equal numbers of FIXEDxSTEM, FIXEDxNONSTEM, GROWTHxSTEM, and GROWTHxNONSTEM. Subsequent samples were drawn (n=8), satisfying the same stratification rules, to be used for constant comparisons in the qualitative analysis.

**Figure D1**

*Mindset Distribution*



## APPENDIX E. LIST OF CODES

### A – Assure Ability to Become Competent

Encouragement

Road Map

Warning

### A – Communicate Explicit Purpose

Connection to Student Purpose

Expected Outcomes

Program Standards

Standard Course Descriptions

### A – Promote Sense of Belonging

Communal

Inclusion

Individual

### B – Assignment Descriptions

### B – Grading Systems

### B – Instructor Availability

### B – Mandated Statements

Class Schedule

### C – Operational Notes

Carrot

Institutional Power

Instructor Power

Management

Stick

Student Empower

### D – Extra

Learning

E – Me

E – We

E – You

F – Mistrust

F - Trust