DEVELOPMENT OF A CAREGIVER MINDSET SCALE IN CAREGIVERS OF PERSONS WITH DEMENTIA

By Jordyn M. DeBraal

A growth mindset is defined as the belief that one's basic traits and abilities can be improved upon through continuing effort and learning. In contrast, a fixed mindset is the belief that one's qualities are inborn and unchangeable, which creates a motivation to avoid negative feedback and respond negatively to failure (Dweck, 2006). The mindset that a caregiver of a family member with dementia holds can influence how they approach caregiving duties for persons in their care.

The aim of the current study was to develop a caregiver mindset scale designed to assess the growth and fixed mindsets of people engaged in informal family caregiving of a person with dementia. A concept analysis and literature review was conducted with the goal of developing a scale that measures the mindsets of informal caregivers. Data from 355 family caregivers who were taking care of their family member with dementia at home were collected on Amazon Mechanical Turk. An exploratory factor analysis was performed to uncover the underlying factor structure in the data, and more specifically, to test for the presence of a caregiver growth mindset and a caregiver fixed mindset. The final DCM Scale contained 33 items, which measured a variety of caregiving beliefs regarding growth mindset domains of content, dementia caregiver specific growth skills, and caregiver relationship skills that were organized into two factors.

The caregiver growth mindset factor consisted of 22 items ($\alpha = 0.90$) and the caregiver fixed mindset factor consisted of 11 items ($\alpha = 0.88$), demonstrating excellent internal consistency. Future research should aim to test further the psychometric properties of this dementia caregiver mindset scale.

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by

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Introduction

Approximately, 5.5 million Americans are living with Alzheimer's disease (AD) today and that number is expected to grow substantially in the years ahead. Furthermore, knowledge relating to dementia care is limited. Previous research has focused on the resilience of caregivers in the context of increased caregiving burden. However, there is little information regarding the mindsets or beliefs about one's own caregiving skills of informal caregivers of persons with dementia. Therefore, the need for informal caregivers to develop strong caregiving skills is extremely important. Carol Dweck (Dweck, 2006) has proposed the concepts of growth versus fixed mindsets in the context of the perceived causes of human abilities and skills (i.e., genes versus environment). Moreover, previous research has identified resilience as an overarching factor that includes a growth mindset (Garity, 1997). However, subsequent work has distinguished between growth mindset and resilience (Fisher & Oyserman, 2017). The objective of this research was to develop a scale that measures a growth mindset that is distinct from resilience, in caregivers of persons with dementia. Developing such a scale (Dementia Caregiver Mindset Scale; DCM Scale) is important, given the existing psychological evidence attesting to the beneficial effects of a growth mindset on a variety of skill development and behavioral outcomes (Dweck, 2012a).

A concept analysis and literature review was conducted and led to the proposal of three conceptual dimensions of a dementia caregiver mindset: 1) A general growth mindset construct; 2) A construct underlying dementia caregiver specific growth skills;

and 3) A construct underlying caregiver relationship growth mindset skills. These three conceptual dimensions and the justifications for their selection to measure the construct of a dementia caregiver growth mindset are provided in the next sections.

Growth Mindset

Dweck (2012a) proposed that a person's capacity to adapt, change, and grow is a defining characteristic of human nature. Through socialization, people learn different mindsets, or beliefs about their own and others' abilities, skills, and personality traits. A mindset is a person's belief about the nature of human attributes, such as intelligence or personality. According to Dweck (2006), a growth mindset is based on the belief that one's basic traits and abilities can be improved upon through continuing effort and learning. In contrast, a fixed mindset is the belief that one's qualities are inborn and unchangeable, which creates an urgency to avoid negative feedback and respond negatively to failure. A growth mindset in terms of intelligence includes beliefs such as "Failure is an opportunity to grow" and "My effort and attitude determine my abilities." A fixed mindset for intelligence includes beliefs such as "Failure is the limit of my abilities" and "I stick to what I know" (See Appendix N for Dweck's Theories of Intelligence Scale). In terms of beliefs about personality, examples of growth mindset beliefs include "Anybody can change their personality a lot" and "No matter who somebody is and how they act, they can always change their ways." Examples of fixed mindset beliefs about personality include "Someone's personality is a part of them that they can't change very much" and "People can't really change what kind of personality

they have. Some people have a good personality and some don't and they can't change much" (See Appendix O for Dweck's Implicit Theories of Personality Scale – "Others" Form).

Dweck and Leggett (1988) describe two major patterns of cognitive-affective-behavior and how individual's implicit theories orient them toward particular goals - the maladaptive "helpless" response, and the more adaptive "mastery-oriented" response. The helpless pattern is characterized by an avoidance of challenge and a deterioration of performance in the face of obstacles, whereas the master-oriented pattern involves the seeking of challenging tasks and the maintenance of effective striving under failure. Also identified were two classes of goals: performance goals (individuals are concerned with gaining favorable judgements of their competence) and learning goals (individuals are concerned with increasing their competency). They proposed that conceptualizing one's intelligence as a fixed entity was associated with adopting the performance goal, whereas conceiving of intelligence as a malleable quality was associated with the learning goal of developing that quality. In their study, children classified as "helpless" quickly began to report negative self-cognitions when given a difficult problem to solve. They attributed their failures to personal inadequacy, spontaneously citing deficient intelligence, memory, or problem-solving ability as the reasons for their failure. They also expressed negative affect, reporting an aversion to the task, boredom with the problems, or anxiety over their performance. Moreover, the helpless children showed a clear decline in the level of their problem-solving strategy under failure and more than half lapsed into ineffective strategies.

In contrast, when faced with a difficult problem, the "master-oriented" children engaged in solution-oriented self-instruction and self-monitoring, instructing themselves to exert effort or to concentrate and then monitor their level of effort. These children also appeared to maintain a high level of optimism that their effort would be effective and maintained their positive affect toward the task, with some even showing a heightened positive affect toward the difficult problem. The mastery-oriented children actually taught themselves new, more sophisticated, hypothesis-testing strategies over the several failure trials. It is important to note that this research indicates that those who avoid challenge and show impairment in the face of difficulty are *initially equal in ability* to those who seek challenge and show persistence. Although these patterns were first identified in research with children, they have also been well documented in adults (Brunson & Matthews, 1981).

Likewise, Mangels, Butterfield, Lamb, Good, and Dweck (2006) aimed to understand how students' beliefs and goals could influence their learning success. These authors observed how factors other than ability influence learning success under challenge. Those who believe intelligence is a fixed entity (i.e., had a fixed mindset) tend to emphasize performance goals, leaving them vulnerable to negative feedback and likely to disengage from challenging learning opportunities. In contrast, students who believe intelligence is malleable (i.e., had a growth mindset) tend to emphasize "learning goals" and rebound better from occasional failures. Using Theories of Intelligence (TOI) to represent these factors, the researchers found that incremental theorists (those who believe their intelligence is malleable and can be increased through effort) showed

significantly greater overall gains in knowledge than did entity theorists (those who view their intelligence as being an unchangeable, fixed internal characteristic). Incremental theorists showed greater remediation of errors regardless of their level of confidence with which the error was initially made. It appears that a fixed mindset is more debilitating than a growth mindset, whereas, in contrast, a growth mindset is more protective when individuals must overcome significant barriers to succeed (Yeager et al., 2016).

Furthermore, investigating what we do not yet know is crucial for learning. Self-assessments often correlate poorly with objective measures of skill in a variety of domains, such as intellectual abilities and job performance. Individuals often overestimate their abilities or knowledge and this overconfidence can carry significant consequences for others, especially in a position caring for others. Ehrlinger, Mitchum, and Dweck (2016) examined who exemplifies overconfidence and why, an entity theory of intelligence (TOI) versus those with a more incremental TOI. Through this research, it was shown that participants with an entity TOI, thus known to avoid negative information, showed significantly more overconfidence than those with an incremental TOI. When primed with an entity TOI, participants allocated less attention to difficult problems than those primed with an incremental TOI. In addition, the entity group actually spent more time and attention towards easy items of the test. Finally, the authors showed that directing participants' attention to difficult aspects of the task reduced the overconfidence of those with more entity views of intelligence.

Blackwell, Trzesniewski, and Dweck (2007) examined students' theory of intelligence as a key belief, one that sets up contrasting patterns of achievement

motivation. Their research confirmed that adolescents who endorse an incremental theory of malleable intelligence also endorse stronger learning goals, hold beliefs about effort that are more positive, and make fewer ability-based "helpless" attributions. The result is that these adolescents chose more positive, effort-based strategies in response to failure, boosting their mathematics achievement over the junior high school transition. Furthermore, the longevity of the achievement differences associated with implicit theories of intelligence was observed to be related to students' grades during the next two years of their junior high school experience. Several studies have shown that targeted interventions can help students develop a growth mindset and that such interventions can lead to higher achievement for students facing greater adversity (Claro, Paunesku & Dweck, 2016).

Dweck (2012a) also questioned whether instilling a growth mindset in individuals could have behavioral and attitudinal outcomes that endure across time. To address this, an intervention was implemented to demonstrate growth mindsets for high school students and how to apply them when resolving their peer conflicts. The sample included students attending a high school with high rates of aggression. Students were randomly assigned to one of three groups: a growth mindset group, a coping skills control group, and a no-treatment control group. Those in the growth mindset group received a six-session intervention in which they learned about the brain; how people's thoughts and feelings, which control their behavior, live in the brain; and how, with learning, the brain can be changed. In addition, they learned that change is not easy and practiced applying growth mindset thinking to peer conflicts. Those in the coping skills control group were

taught specific skills for coping with social adversity and about the importance of positive thinking. Students in the growth mindset group and coping skills control group reported a reduction in depressive symptoms compared with the no-treatment group. However, only students in the growth mindset intervention showed a clear reduction in aggression and acting out in the classroom because of the intervention, and these findings yielded consistent and relatively enduring changes over the course of their time in high school.

According to the aforementioned research discussed, there is evidence that the mindset we hold, growth or fixed, can influence ways in which we form skills and attitudes. The mindset we hold can affect our daily lives in terms of work, school, and relationships. Especially important is the fact that we have the ability to change mindsets. A growth mindset can be learned through intervention programs and can have a lasting impact on our lives and on others' welfare (Dweck, 2012a). Currently, there is no research regarding the dementia caregivers' mindsets (e.g., no measure of the growth and fixed mindsets of caregivers of family members with dementia) and how instilling a growth mindset in these caregivers would assist in implementing skills and attitudes that are required of a successful caregiver.

Based on a review of the literature about growth mindsets, several dimensions were selected to be a part of the DCM Scale based on this previous research. Dimensions one through five are considered a part of the *general growth mindset skills* portion of the DCM Scale. These dimensions include Nature Versus Nurture Beliefs (1); Beliefs about Obstacles and Difficulties (2); Beliefs about Effort (3); Value of Success and Failure (4);

and the Attribution of Success and Failure (5). In addition, several *dementia caregiver specific growth skills* were identified to be included in the DCM Scale that are distinct from that of a general growth mindset. These are dimensions five, six, and seven: Beliefs about Learning/Self-Change (5); Caregiving Skills (6); and Beliefs about the Other (7). These dimensions are described in more detail in the next sections.

Caregiver Resilience

Resilience is a concept that has been examined in the context of skills of caregivers of persons with dementia (Fernandez-Calvo et al., 2016) and is conceptually related to growth mindset (Garity, 1997). Because of conceptual relatedness of resilience and growth mindset, work establishing a measure of dementia caregiver mindset needs to include items that will facilitate differentiating between these two concepts.

Resilience can be defined as the successful adaptation or response during or following adverse conditions that challenge or threaten adaptive functioning or healthy development (Masten &Wright, 1998). The resilience perspective stresses the importance of promoting competence through positive models of intervention and change (Yates & Masten, 2004). Variables associated with better outcomes following risks or adversities are referred to as "resilience factors." These are assets or resources that generally predict good outcomes, so that given high-risk conditions better results would be expected for people with these assets (Masten &Wright, 1998).

Fernandez-Calvo and colleagues (2016) conducted a literature review that explored the concept of resilience in caregivers of persons with Alzheimer's disease.

These authors define a resilient mindset as a protective element against caregiver burden and list elements of a resilient mindset as optimism, persistence, internal locus of control, self-efficacy, affective family bonds, and external support. Developing a resilient mindset requires the ability to overcome various barriers and actively cope with dysfunctional thoughts and irrational beliefs. The authors found that a resilient mindset was associated with better adaptation to changes during care, better-perceived physical health of the caregivers, and less burden.

Garity (1997) investigated the relationship between stress level, learning style, resilience factors, and ways of coping in family caregivers of persons with Alzheimer's disease. Caregiver stress is often associated with a lack of knowledge about caregiving tasks and knowledge of learning styles may strengthen the way these individuals process information and problem solve to meet changing patient/family circumstances. The ability to adapt to stresses created by the need for care also has been shown to have an effect on the concept of caregiving as a strain of burden. A positive correlation ($r = .30$, $p < .01$) was identified between resilience and careful problem solving. Caregivers with higher resilience used coping behaviors like: knowing what had to be done, redoubling efforts to make things work; making a plan of action and following it; and coming up with a couple of different solutions to the problem.

Maneewat, Lertmaharit, and Tangwongchai (2016) developed a caregiver resilience scale (CRS) for Thai caregivers of persons with dementia and examined its validity and reliability. These authors defined resilience as a process of growth and adaptation, which encompasses the ability to cope with stress. To develop the scale, the

authors analyzed literature reviews and conducted semi-structured interviews with 10 caregivers in order to confirm the pre-specified structure of caregivers' resilience and congruence with Thai caregivers' context. The final version of the CRS for Thai caregivers was composed of 30 items within six domains: physical, relationship, emotional, cognitive, moral, and spiritual competence. These six domains focus on the caregiver and how they deal with their caregiver responsibilities. For the purpose of the DCM Scale, the focus was on the common and distinguishing characteristics of these two concepts.

Prior work suggests that a resilient mindset and a growth mindset are two separate constructs. For instance, Fisher and Oyserman's (2017) research focused on assessing interpretations of experienced ease and difficulty as motivational constructs. They tested convergent and discriminant validity of experienced ease and difficulty with several measures of motivation including resilience, described by mental toughness, grit, and a growth mindset. Theoretically speaking, they argue that grit, mental toughness, and growth mindsets are correlated but distinct constructs. Mental toughness is defined as the ability to resist, manage, and overcome doubts or worries to achieve goals. Grit is defined as strength of character and persistence. They found these two constructs to be moderately positively correlated, $r = .46$. The authors also measured correlations between growth mindset, grit, and mental toughness and found the growth mindset had a positive correlation of only $r = .27$ with grit, and $r = .31$ with mental toughness. This suggests that the growth mindset is a distinct construct from resilience-like concepts (grit and mental

toughness). This indicates the importance of developing a dementia caregiver mindset scale that measures a growth mindset as opposed to a resilient mindset.

Caregiver Relationship Skills

Relationship skills are an important part of being a caregiver for a person with dementia. These skills have the potential to cultivate a more positive outcome of the caregiving experience and actual care for the person with dementia. Because the goal of the study was to measure mindset beliefs among caregivers of family members with dementia (a specific class of caregivers), it was important to measure beliefs about relationship skills, given that how caregivers manage the relationship with the family member with dementia is inherently connected to their caregiving experience and performance.

Several caregiver relationship skills have been identified in previous research that help or hinder the relationship between the caregiver and the person with dementia. Shim, Barroso, and Davis (2012) found that spousal caregivers of people with dementia could be encouraged toward more positive caregiving experiences through empathy-building interventions and enhanced understanding and acceptance of changes in the care recipient. Caregivers of people with dementia, who describe positive caregiving experiences, tend to focus on their spouse's needs rather than their own, show a high level of empathy and understanding toward the losses of their spouse, accept the many caregiving-related changes in their lives, and are still able to find caregiving meaningful. Positive group caregivers were affectionate, appreciative, and sensitive to the mood and

feelings of their spouses and were attentive to their body language. In addition, maintaining the dignity, autonomy, and sense of self of the individual with dementia, were found to be not only beneficial to that person, but also to the caregiver, and to the relationship between the two people. Thus, some relationship skills that are specific to the dementia caregiver-person with dementia relationship are: empathy, keeping the focus on the other, patience, and perspective taking.

A literature search suggests there is strong evidence supporting the beneficial roles of perspective taking and empathic concern in dementia interactions (Miron, Thompson, Ebert, & McFadden, 2017). Empathic concern is considered an outcome of perspective taking and valuing of the other person's welfare (Batson, Eklund, Chermok, Hoyt, & Ortiz, 2007). Kuhn (1998) conducted semi-structured interviews with caregivers of relatives with Alzheimer's disease (AD) to understand better the challenges unique to caring for a person with this disease. He found that the majority of caregivers identified concern for the emotional needs of their relative with AD as foremost compared to practical needs. Most caregivers also expressed the need to consider the viewpoint of their relatives with AD in order to gain a better understanding of their changing roles and responsibilities. When asked to provide advice to those facing a similar situation, most of the caregivers emphasized a need for patience and understanding when caring for their relative with AD. These findings point to the importance of perspective taking skills in dementia caregiving relationships.

In addition to including items assessing beliefs about dementia-specific relationship skills, items measuring beliefs about general relationships skills were also

included in the original scale. These items are similar to those of Knee, Patrick, and Lonsbary (2003) in their work on implicit theories of relationships, which was based on Dweck and colleagues' work (see Dweck, 2012, for a review). The Implicit Theories of Relationships Scale (see Appendix P) informed the development of the current scale because dementia caregiving includes a strong relationship component, and hence a growth relationship mindset should be an essential part of a dementia caregiver mindset universe of content.

Knee et al. (2003) distinguished between two types of beliefs about relationship growth: destiny belief (fixed mindset) and growth belief (growth mindset). *Destiny belief* is defined as the belief that potential relationship partners are either compatible or they are not. *Growth belief* is defined as the belief that relationship challenges can be overcome. When problems arise, those who have a stronger belief in destiny are more likely to view the problem as a sign that "the relationship is not meant to be." In contrast, those with a strong growth belief about relationships tend to view successful relationships as being developed by conquering obstacles and growing closer. They designed a 22-item scale containing 11 destiny items and 11 growth items. An example of a destiny belief item is, "Potential relationship partners are either compatible or they are not" and an example of a growth belief item is, "The ideal relationship develops gradually over time." The destiny belief mindset was correlated positively with the belief that partners cannot change themselves or their relationship. The growth belief mindset was correlated negatively with the belief that partners cannot change and positively correlated with a gradual, friendship-based approach to love. Their results suggest important ways in

which a general motivation toward growth in relationships is beneficial by allowing people to approach threats as challenges, adversity as opportunity, and conflict as the potential for new appreciation and understanding.

The final construct of the DCM Scale includes *Caregiver Relationship Skills.* Dimension 9, Beliefs about Relationship Skills, will be the basis of this construct. This dimension is described in more detail in the next section.

Overview of Current Study and Goals

In the proposed work, I developed a scale designed to measure the mindset (growth or fixed) of informal caregivers of persons with dementia based on the prior work reviewed above, but specific to the context of the unique dynamics of dementia caregiving relationships. Communication with a person with dementia requires patience, understanding, and good listening skills. Moreover, being a caregiver for a person with dementia requires a flexible caregiving approach to produce efficacy (Polk, 1997). The ability to create and maintain relationships is critical to the person with dementia's sense of identity and feelings of personhood (Tester, Hubbard, Downs, MacDonald, & Murphy, 2004). These dynamics, which include communication, obstacles, flexibility, and cohesion, can have a great impact on how a caregiver will interact with their family member with dementia. Additionally, dementia caregiving is unique from other types of caregiving because this disease typically deteriorates the condition of the person with dementia in terms of mental and physical abilities. Maintaining a growth mindset

throughout this decline may be more beneficial to caregivers of family members with dementia because of its core beliefs in effort and persistence.

The goal was to assess the mindsets of dementia caregivers with the long-term goal of designing programs that will create stronger growth mindset-based caregiving skills for caregivers of persons with dementia. Currently, a scale of this sort is missing and it is important to measure dementia caregiver's mindsets given the evidence showing that mindsets can affect motivation and behavior in other domains ranging from aggression, helping, and achievement, etc. Dweck (2000) and Knee et al. (2003) have developed growth mindset scales, but these scales are too general or only applicable to specific types of relationships. Maneewat et al. (2016) also developed a scale measuring caregiver resilience. However, as established previously, resilience and growth mindset measure two separate constructs (Fisher & Oyserman, 2017). Therefore, there is a pressing need for a dementia caregiver-specific mindset scale.

Review of Conceptual Dimensions of DCM Scale

Based on the review of the growth and fixed mindset work and prior work of related concepts, I proposed that the following conceptual dimensions are relevant to assessing a growth versus fixed mindset, as seen in Table 1.

Table 1

DCM Conceptual Dimensions

Universe of Content	Conceptual Dimension
Growth Mindset Domains of Content	Nature vs. Nurture Beliefs Beliefs about Obstacles and Difficulties Beliefs about Effort Value of Success and Failure Attribution of Success and Failure
Dementia Caregiver Specific Growth Skills	Beliefs about Learning/Self-Change Caregiving Skills Beliefs about the Other
Caregiver Relationship Growth Mindset Skills	Beliefs about Relationship Skills

Growth mindset domains of content.

Nature vs. nurture beliefs. This dimension measures beliefs about the causes of one's dementia caregiving skills. An example of a scale item for this dimension includes, "I have the right personality to be a good caregiver" (reverse coded). This dimension was based on the work by Carol Dweck (Dweck, 2000), which identified whether a person believes their abilities are fixed or malleable.

Beliefs about obstacles and difficulties. This dimension was concerned with how the caregiver approaches obstacles or difficulties in terms of a caregiver's own limitations or actual difficulties stemming from the challenging behaviors of the person with dementia. An example of this dimension is, "I keep trying to improve even when I feel like I'm failing at caregiving." This dimension was based on the findings of Blackwell, Trzesniewski, and Dweck (2007), indicating that those with a growth mindset chose more

positive, effort-based strategies in response to failure, boosting their achievement in an academic setting. These findings should apply to how caregivers approach obstacles and difficulties when providing care for a family member with dementia.

Beliefs about effort. This dimension relates to whether or not a caregiver believes hard work and effort will pay off. An example of this dimension is, "With great effort and willingness to learn and improve, I can become a much better caregiver." This dimension was also based on the research of Blackwell et al. (2007), which found that adolescents who endorse an incremental theory of malleable intelligence (growth mindset), also endorse stronger learning goals, hold more positive beliefs about effort, and make fewer ability-based "helpless" attributions. Also relevant is the research by Dweck and Leggett (1988), who found that when faced with a difficult problem, children with a growth mindset engaged in solution-oriented self-instruction and self-monitoring, instructing themselves to exert effort or to concentrate and then monitor their level of effort. These children also appeared to maintain a high level of optimism that their effort would be effective and maintained their positive affect toward the task.

Value of success and failure. This dimension measures the relevance of caregiving success or failure to one's self-definition or self-concept. An example of this dimension is, "I took on the responsibility of being the caregiver for my family member with dementia because I wanted to help even though I knew it would be difficult." This dimension was constructed based off the work by Dweck (2017). Those with a fixed mindset found challenges, setbacks, and even high effort to be risky as they could result in a judgment that your fixed ability was inadequate. In contrast, for those with a growth

mindset, learning and becoming smarter is their goal. Here, challenges, setbacks, and high effort are important parts of learning. Thus, the growth mindset led to improved performance and achievement.

Attribution of success and failure. This dimension measured how a person attributes their success or failure, whether it is from the self or the other as a cause. An example of this is, "I believe my success as a caregiver is due to my personality traits, such as empathy" (reverse coded). This dimension was adapted from the work by Dweck and Leggett (1988). The authors found that those holding a fixed mindset reported negative self-cognitions and began attributing their failures to personal inadequacy, citing deficient intelligence, memory, or problem-solving ability as the reasons for their failure. In contrast, those with a growth mindset appeared to maintain an unflagging optimism that their efforts would be rewarding. They exhibited constructive self-instructions and self-monitoring, a positive prognosis, positive affect, and effective problem-solving strategies.

Dementia caregiver specific growth skills.

Beliefs about learning/self-change. This dimension measured whether or not a caregiver embraces a belief in learning and self-change that is specific to a caregiving context. An example of this dimension is, "Caregiving has helped me grow as a person." This dimension is based on the work of Mangels et al. (2006). These authors' findings were consistent with the view that individuals with fixed and growth mindsets differ in how they appraise performance-relevant information and attend to learning-relevant information. Those with a growth mindset demonstrated significantly greater

improvement on a retest than did those with a fixed mindset. Consequently, those with a growth mindset showed significantly greater overall gains in knowledge than did a fixed mindset, in that they demonstrated greater remediation of errors.

Beliefs about caregiving skills. This dimension included beliefs about possessing a combination of caregiving skills such as patience, knowledge, ability to cope, and empathy. An example of this is, "I have always been good at sensing the needs of others" (reverse coded). This dimension is based on the work by Shim et al. (2012), who found that caregivers of people with dementia, whom describe positive caregiving experiences, tend to focus on their spouse's needs rather than their own, show a high level of empathy and understanding toward the losses of their spouse, and accept the many caregiving-related changes in their lives. In addition, positive group caregivers were affectionate, appreciative, and sensitive to the mood and feelings of their spouses and were attentive to their body language.

Caregiver relationship skills.

Beliefs about relationship skills. This dimension can be described as beliefs about skills regarding working through conflict and relationship issues. An example of this is, "Successful caregiving relationships require regular maintenance." This dimension is based on the work of Knee et al. (2003). The present DCM Scale adapted items from their Implicit Theories of Relationships Scale to fit the context of the relationship between caregiver and persons with dementia. Examples of the scale items from Knee et al. (2003) include, "A successful relationship is mostly a matter of learning

to resolve conflicts with a partner" and "Successful relationships require regular maintenance."

Method

Materials

Demographics Questionnaire (Appendices C & L). Participants reported on their gender, age, ethnicity, employment status, relationship with their family member with dementia, extent of caregiving involvement, how well they know their family member with dementia, and the demographic characteristics of their family member (e.g., age, sex, severity of symptoms, and length of diagnosis). Extent of caregiving involvement was evaluated on an 11-point Likert scale where 0 = not at all involved and 10 = extremely involved. Participants evaluated how well they knew their family member with dementia on an 11-point Likert scale where 0 = not at all, 5 = moderately well, and 10 = very well. Participants evaluated how often they saw their family member with dementia by selecting 1 = once a year or less, 2 = several times per year, 3 = several times per month, 4 = once per week, 5 = several times per week, or 6 = every day. Severity of symptoms was evaluated on an 11-point Likert scale where 0 = very mild, 5 = moderately severe, and 10 = very severe. Changes in their family member with dementia was measured through an 11-point Likert scale where 0 = extremely positive change, 5 = no change, and 10 = extremely negative change. Experience interacting with people with dementia was evaluated by selecting 1 = none, 2 = very little, 3 = some, 4 = quite a bit, or 5 = a lot. Gender was evaluated as male = one and female = two.

DCM Scale (Appendix D). Forty-four items were included in the initial version of the DCM Scale. These items were drawn in part from related measures (e.g., Dweck,

2000; Knee, Patrick, & Lonsbary, 2003) and from four interviews with dementia family caregivers to determine content validity of our dimensions and items. Items on the DCM Scale were then revised from these discussions. Following the initial item development, pilot testing was conducted to ensure clarity and conciseness in wording and to establish content validity (i.e., that the scale provides adequate coverage of the subject being studied and clarity of survey). To achieve this, seven participants completed the DCM Scale and their answers were reviewed to assess clarity of scale instructions, time to complete the survey, and items that may be missing, etc. Based on their results, instructions were modified for clarity.

Participants

Adults (18 years and older) residing in North America who indicated being a caregiver for their family member with dementia participated in the study via an advertisement placed on Amazon Mechanical Turk® (MTurk®). Although 364 adults met eligibility requirements and agreed to participate in the study, nine participants were removed from the data file due to validity concerns (e.g., outliers and/or responding incorrectly to four or more attention check items out of a total of 9 attention checks). An example of an attention check item is, “How many letters are in the word ‘house’?” Our final sample comprised of 355 adults (190 men and 163 women, 2 preferred not to answer about their gender) who were predominantly Caucasian (62%), with a mean age of 33.58 years (*SD* = 9.42; range = 20 - 68 years). The majority of participants characterized their family member as their “father” (18.6%) or “mother” (15.5%), with

the remaining participants indicating that their family member was their "great-grandparent" (20.8%), or "other" (e.g., spouse, aunt, uncle, sibling, child etc.) (45.1%). On average, participants reported being very involved in providing care for their family member with dementia (M = 8.12; SD = 1.56) on an 11-point Likert scale and 58% of participants reported seeing their family member with dementia every day. Participants reported the severity of their family member's symptoms as moderate on average (M = 6.38, SD = 2.21) on an 11-point Likert scale. Of the participant's family members, 50.1% were male and 49.3% were female (see Tables 1-4 for demographic information of participants and family members).

Table 2

Demographics of Participants

Factor	Total Sample
Gender	
n	353
Male	53.5%
Female	45.9%
Ethnicity	
n	350
European American/White	62.0%
African American/Black	20.8%
Asian American/Asian	5.4%
Hispanic/Latino(a)	8.7%
Indian/Pakistani	0.6%
Middle Eastern	0.3%
American Indian	0.8%
Education level	
n	355
Some high school	0.6%
High school/GED	4.2%
Some college	12.7%
Bachelor's Degree	57.5%
Master's Degree	21.7%
Advanced Graduate Work/Ph.D.	3.4%

Table 3

Characteristics of Relationship with Family Member with Dementia

Factor	Total Sample
Relationship	
n	355
Father	18.6%
Mother	15.5%
Great-grandfather	8.7%
Great-grandmother	12.1%
Grandfather	1.7%
Grandmother	4.2%
Wife	1.4%
Husband	1.1%
Uncle	6.5%
Aunt	8.2%
Great-Uncle	5.9%
Great-Aunt	3.4%
Son	0.8%
Daughter	0.8%
Sister	3.7%
Brother	5.1%
Mother-in-law	0.8%
Father-in-law	0.3%
How often do you see him/her face-to-face?	
n	355
Once a year or less	3.7%
Several times per year	7.9%
Several times per month	9.6%
Once per week	10.1%
Several times per week	10.7%
Everyday	58%
How much experience do you have interacting with people with dementia?	
n	355
None	2.5%
Very little	22.5%
Some	31%
Quite a bit	29.6%
A lot	14.4%
Have you ever worked with people with dementia as a part of your job?	
n	353
Yes	51.3%
No	48.2%

Table 4

Means and Standard Deviations for Characteristics of Participants

	n	*Mean*	*SD*
Involvement in care	354	8.12	1.56
How well do you know him/her?	354	7.83	2.16

Table 5

Means and Standard Deviations of Family Member with Dementia Characteristics

	n	*Mean*	*SD*
Severity of symptoms	352	6.38	2.21
To what extent has he/she changed since he/she received a diagnosis of dementia?	353	6.09	2.43
To what extent has he/she changed since he/she started showing symptoms of dementia?	354	6.17	2.38
To what extent has his/her personality changed since he/she started showing symptoms of dementia?	354	6.17	2.38

Procedure

After receiving ethics approval from the institution's IRB, participants were recruited via MTurk®. An initial section of eligibility criteria (see Appendix B) was completed by participants containing several questions related and unrelated to caring for a family member with dementia in order to ensure that participants were not fabricating a relationship with a family member with dementia in order to participate (and receive compensation). Participants meeting the criteria (caring for a family member with dementia at home) were then directed to a consent form containing information about the study. Those not meeting the criteria received a message describing our appreciation for their interest, but that they were not eligible for the study at this time. After providing

consent, eligible participants completed the survey, which took approximately 30 minutes and received $1.00 compensation.

Results

Exploratory Factor Analysis

After data cleaning, the multidimensional nature of the DCM Scale was assessed using a maximum likelihood exploratory factor analysis (EFA) with a varimax rotation via SPSS Statistics software (version 25). A maximum likelihood EFA was selected because of the theoretical nature of the scale (Reise, Waller, & Comrey, 2000) and a varimax rotation was determined appropriate in order to account for the potential relatedness between factors. The results from the KMO test (0.92) and Bartlett's test of sphericity ($\chi^2[946] = 6930.33$, $p < .001$), revealed that the sampling adequacy and inter-correlations between items were appropriate for an EFA. After determining that an EFA was appropriate, the results from the EFA revealed five factors with eigenvalues greater than one and the scree plot depicted an elbow at the third factor. The eigenvalue for the first factor was 8.62, accounting for 26.12% of the variance, the second factor had an eigenvalue of 5.13, accounting for 15.55% of the variance, while the third factor had an eigenvalue of 1.20, accounting for only 3.62% of the variance. Given this information, it was decided that a two-factor solution was the most parsimonious explanation for the data.

Thus, a second maximum likelihood EFA with a varimax rotation that restricted the model to two factors was conducted. Scale items were retained if they had a factor loading of .40 or above on one of the factors (Howard, 2016), but no cross loadings (i.e., equal to or greater than .40 on two or more factors). Items were eliminated if the

difference between the factor loadings was .20 or less. Eleven items failed to load on any of the two factors and three items loaded on more than one factor. Thus, the 11 items that cross-loaded or failed to load were removed and a final EFA was conducted with the remaining items (see Table 6 for all omitted items).

Table 6

Items Omitted from the DCM Scale

Items omitted
EFA
Some people have the right personality to be a good caregiver.
Some individuals are born with the right skills to be a good caregiver.
Effort can only help so much when it comes to becoming a better caregiver for their family member with dementia.
The effort a person puts into taking good care of their family member with dementia can help improve his/her condition.
Successful caregivers primarily use knowledge they have acquired about dementia to help care for their family member with dementia.
Success as a caregiver is due to personality traits, such as empathy.
On occasions when caregivers are not able to properly take care of their family member with dementia, they feel like a failure.
The caregiving relationship between a caregiver and family member with dementia will improve as care continues to be provided.
Early troubles in a caregiving relationship signify a poor match between the caregiver and the family member with dementia.

Note. Scale instructions read as follows, "Below are several statements that caregivers of a family member with dementia may or may not agree with about interacting and caring for him/her. Using the rating scale of 1-5, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree; 5 = Strongly Agree, please indicate to what extent you agree or disagree with each of the following statements, keeping in mind your role as a caregiver for a family member with dementia."

Using the final 33 items, the final constrained two factor EFA with a varimax rotation was conducted. The KMO test result for the final EFA was 0.92 and the Bartlett's test of sphericity was significant, $\chi^2(528) = 4529.88$, $p < .001$. The two resulting factors

were then named based on the items loading in each factor (see Table 7 for final factor loadings and communalities) and accounted for 41.67% of total variance. The first factor, *caregiver growth mindset* (accounting for 26.12% of the variance), was comprised of 22 items related to the belief that traits can be improved upon through effort and continued learning. The second factor, *caregiver fixed mindset* (accounting for 15.55% of the variance), consisted of 11 items related to the belief that one's abilities are inborn and unchangeable. The internal consistency for each factor was high, as evidenced by their Cronbach alphas: caregiver growth mindset = 0.90 and caregiver fixed mindset = 0.88 (see Table 8 for the subscale items). There was a negligible and non-significant positive correlation between a caregiver growth mindset (M = 3.84, SD = .51) and a caregiver fixed mindset (M = 3.48, SD = .76), r = .097, p = .067. In sum, the results indicate that two distinct mindsets exist and are operating when providing care for a family member with dementia.

Table 7

Factor Loadings for the Items in the DCM Scale Based on the Final Maximum Likelihood Exploratory Factor Analysis with a Varimax Rotation

DCM Scale Items Scale instructions read as follows: "Below are several statements that caregivers of a family member with dementia may or may not agree with about interacting and caring for him/her. Using the rating scale of 1-5, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree; 5 = Strongly Agree, please indicate to what extent you agree or disagree with each of the following statements, keeping in mind your role as a caregiver for a family member with dementia."	1	2	h^2
Caregiving skills can improve while taking care of a family member with dementia.	**.58**	-.04	.34
People can learn from the mistakes they have made when providing care to a family member with dementia.	**.57**	-.04	.33

Caregivers should keep trying to improve, even when they feel like they're failing at providing good care for a family member with dementia.	**.61**	-.13	.39
When it becomes extremely challenging to take care of a family member with dementia, caregivers should try different strategies to take care of him/her.	**.55**	-.00	.30
When it becomes increasingly difficult, caregivers should relinquish their role as a caregiver and place the person with dementia under someone else's care.	.19	**.54**	.33
When it becomes extremely hard to take care of a family member with dementia, caregivers should place him/her in a nursing home.	.15	**.58**	.36
With a great willingness to learn and improve, someone can become a much better caregiver.	**.66**	-.03	.44
The effort someone puts into taking good care of their family member with dementia can make their relationship stronger.	**.47**	.16	.25
Successful caregivers spend a lot of time researching and learning information (on the internet, support groups, books) about dementia.	**.61**	.13	.39
When someone encounters an issue while taking care of a family member with dementia, they should use the same strategies they have used in the past.	.12	**.57**	.34
Good caregivers seek out information on how to deal with issues that arise when providing care for a family member with dementia.	**.62**	.02	.38
Accepting that there will be setbacks and moving forward after encountering them are important parts of caregiving for a family member with dementia.	**.69**	-.08	.48
A person may take on the responsibility of being the caregiver for a family member with dementia because they want to help him/her even though they know it will be difficult.	**.65**	.07	.43
The mistakes made while taking care of a family member with dementia can only worsen the person's success as a caregiver.	-.08	**.73**	.53
A person may take on the responsibility of being the caregiver despite feeling that they may not always do a good job and have some failures/conflicts.	**.55**	.07	.31
Success as a caregiver is due to certain personality dispositions that people cannot change.	.09	**.63**	.41
Empathy and patience are skills/abilities caregivers can learn and improve.	**.60**	.06	.36
Empathy and patience are skills that we are born with and cannot be changed.	.09	**.68**	.47
To succeed as a caregiver, it is a caregiver's responsibility to learn effective problem-solving strategies.	**.70**	.11	.51
Success as a caregiver is a matter of investing a lot of effort and time in helping a family member with dementia.	**.63**	.07	.40

Success as a caregiver is a matter of continuously learning new skills and knowledge about dementia and caregiving.	**.66**	.06	.44
Caregiving helps individuals grow.	**.56**	.08	.32
Caregiving skills can always be improved.	**.67**	-.04	.45
Caregiving skills rarely improve throughout the course of caring for a family member with dementia.	-.09	**.75**	.42
Caregivers can learn to be sensitive to the mood and feelings of a family member with dementia.	**.64**	.08	-.02
Some people have always been good at sensing the needs of others.	**.62**	-.00	.39
When a family member with dementia becomes upset or aggressive, it is important for caregivers to try to understand what is frustrating them.	**.63**	.00	.40
When a family member with dementia becomes upset or aggressive, there is not much a person can do to make them feel better.	-.05	**.74**	.55
Caregivers can always change their caregiving style.	**.60**	.12	.37
If the relationship between a caregiver and a family member with dementia does not start off well, it will not get better.	-.11	**.72**	.53
In order for a caregiving relationship with a family member with dementia to be successful, the relationship needs to be worked on regularly.	**.67**	.08	.46
A relationship that does not get off to a perfect start between a caregiver and family member receiving care will never work.	-.03	**.75**	.56
Early troubles in a caregiving relationship signify a poor match between the caregiver and the family member with dementia.	.06	**.75**	.57

Note: Factor loadings over .40 appear in bold.

Table 8

Means and Standard Deviations for the Items in the Final DCM Scale

DCM Scale Items Scale instructions read as follows, "Below are several statements that caregivers of a family member with dementia may or may not agree with about interacting and caring for him/her. Using the rating scale of 1-5, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neither Agree or Disagree, 4 = Agree; 5 = Strongly Agree, please indicate to what extent you agree or disagree with each of the following statements, keeping in mind your role as a caregiver for a family member with dementia."	*Mean*	*SD*
Growth Mindset Domains of Content		
Caregiving skills can improve while taking care of a family member with dementia.	3.99	0.84

People can learn from the mistakes they have made when providing care to a family member with dementia.	4.00	0.88
Caregivers should keep trying to improve, even when they feel like they're failing at providing good care for a family member with dementia.	3.96	0.92
When it becomes extremely challenging to take care of a family member with dementia, caregivers should try different strategies to take care of him/her.	4.04	0.87
When it becomes increasingly difficult, caregivers should relinquish their role as a caregiver and place the person with dementia under someone else's care.	3.58	1.06
When it becomes extremely hard to take care of a family member with dementia, caregivers should place him/her in a nursing home.	3.60	1.10
With a great willingness to learn and improve, someone can become a much better caregiver.	3.90	0.84
Successful caregivers spend a lot of time researching and learning information (on the internet, support groups, books) about dementia.	3.81	0.89
The effort someone puts into taking good care of their family member with dementia can make their relationship stronger.	3.86	0.85
When someone encounters an issue while taking care of a family member with dementia, they should use the same strategies they have used in the past.	3.63	0.96
Good caregivers seek out information on how to deal with issues that arise when providing care for a family member with dementia.	3.98	0.91
Accepting that there will be setbacks and moving forward after encountering them are important parts of caregiving for a family member with dementia.	3.93	0.91
A person may take on the responsibility of being the caregiver for a family member with dementia because they want to help him/her even though they know it will be difficult.	4.10	0.90
The mistakes made while taking care of a family member with dementia can only worsen the person's success as a caregiver.	3.37	1.14
A person may take on the responsibility of being the caregiver despite feeling that they may not always do a good job and have some failures/conflicts.	3.75	0.98
Success as a caregiver is due to certain personality dispositions that people cannot change.	3.61	1.01
Empathy and patience are skills/abilities caregivers can learn and improve.	3.85	0.91

Empathy and patience are skills that we are born with and cannot be changed.	3.51	1.15
To succeed as a caregiver, it is a caregiver's responsibility to learn effective problem-solving strategies.	3.95	0.85
Success as a caregiver is a matter of investing a lot of effort and time in helping a family member with dementia.	3.99	0.91
Success as a caregiver is a matter of continuously learning new skills and knowledge about dementia and caregiving.	3.95	0.91
Dementia Caregiver Specific Growth Skills		
Caregiving helps individuals grow.	3.97	0.93
Caregiving skills can always be improved.	3.97	0.89
Caregiving skills rarely improve throughout the course of caring for a family member with dementia.	3.39	1.25
Caregiver Relationship Skills		
Caregivers can learn to be sensitive to the mood and feelings of a family member with dementia.	3.99	0.88
Some people have always been good at sensing the needs of others.	2.01	0.87
When a family member with dementia become upset or aggressive, it is important for caregivers to try to understand what is frustrating them.	3.91	0.93
When a family member with dementia becomes upset or aggressive, there is not much a person can do to make them feel better.	3.40	1.13

Additional Analyses

In addition, several correlation analyses were conducted to assess the relationships between participant characteristics and characteristics of the person with dementia on one hand and a growth and fixed mindset on the other hand (see Table 9).

There was a strong positive correlation between endorsing a growth mindset and the extent to which the participant was involved in caring for their family member with dementia, $r = .54$, $p < .001$. There was also a positive correlation between endorsing a growth mindset and how well they knew the person they were caring for, $r = .38$, $p < .001$. Seeing their family member with dementia often was negatively correlated with endorsing a fixed mindset, $r = -.29$, $p < .001$, and positively correlated with a growth

mindset, $r = .18$, $p < .001$. Individuals that worked with people with dementia as a part of their job were more likely to endorse a fixed mindset, $r = -.35$, $p < .001$. Increased experience interacting with people with dementia was positively correlated with endorsing a growth mindset, $r = .20$, $p = .007$. Finally, men were more likely to endorse a fixed mindset than women were, $r = -.16$, $p = .002$.

Table 9

Correlations between Growth/Fixed Mindset and Participant Characteristics

	Caregiving Growth Mindset	Caregiving Fixed Mindset
How well caregiver knows family member w/ dementia	.184**	-.171**
Participant gender	.100	-.159**
Frequency of seeing person w/ dementia	.184**	-.293**
Involvement in providing care	.539**	-.018
Experience interacting w/ people w/ dementia	.195**	-.142**
Worked with people w/ dementia as a part of a job	.015	-.353**

Note: **Correlation significant at the 0.01 level (2-tailed); *Correlation significant at the 0.05 level (2-tailed). Extent of caregiving involvement was evaluated on an 11-point Likert scale where 0 = not at all involved and 10 = extremely involved. Participants evaluated how well they knew their family member with dementia on an 11-point Likert scale where 0 = not at all, 5 = moderately well, and 10 = very well. Participants evaluated how often they saw their family member with dementia by selecting 1 = once a year or less, 2 = several times per year, 3 = several times per month, 4 = once per week, 5 = several times per week, or 6 = every day. Severity of symptoms was evaluated on an 11-point Likert scale where 0 = very mild, 5 = moderately severe, and 10 = very severe.

Changes in their family member with dementia was measured through an 11-point Likert scale where 0 = extremely positive change, 5 = no change, and 10 = extremely negative change. Experience interacting with people with dementia was evaluated by selecting 1 = none, 2 = very little, 3 = some, 4 = quite a bit, or 5 = a lot. For the purpose of these analyses, participant gender was recoded as male = 1, female = 2, with “other” and “prefer not to say” recoded as missing values.

Discussion

The primary objective of the current research was to develop and refine a comprehensive measure assessing growth and fixed dementia caregiver mindsets. The final DCM Scale, demonstrating excellent internal consistency and factorability, contained 33 items. These items measured a variety of caregiving beliefs regarding growth mindset domains of content, dementia caregiver specific growth skills, and caregiver relationship skills (see Appendix D for a comprehensive list of dimensions and items) that were organized into two factors: a caregiver growth mindset (22 items) and a caregiver fixed mindset (11 items). The two-mindset scale had excellent internal consistency, as both Cronbach's alphas for the scales were high (0.90 for the Caregiver Growth Mindset Scale and 0.88 for the Caregiver Fixed Mindset Scale). Several conceptual dimensions that were anticipated to appear in the factors prior to the EFA were examined in the final two factors.

Growth Mindset Domains of Content

Only one of three items remained from the Nature vs. Nurture dimension, which mapped onto the caregiver growth mindset factor (item 1). This may suggest beliefs about the causes of one's dementia caregiving skills are not an important part of holding a caregiver growth or fixed mindset. All items from the Beliefs About Obstacles and Difficulties dimension were included in the caregiver growth mindset factor (items 2-4) and the caregiver fixed mindset factor (items 5 and 6), suggesting this dimension is

important in developing a caregiver growth or fixed mindset. The Beliefs About Effort dimension retained five out of eight items on the caregiver growth mindset factor (items 7-9; 11) and the caregiver fixed mindset factor (item 10), which may indicate that if a caregiver finds effort to be an important part of caring for a family member with dementia, it will lead to a growth mindset. All items from the Value of Success and Failure dimension were included in the caregiver growth mindset factor (items 12, 13, and 15) and the caregiver fixed mindset factor (item 14), suggesting that learning from failures in caregiving will lead to a growth mindset. Six of the seven Attribution of Success and Failure dimension items remained in the caregiver growth mindset factor (items 17; 19-21) and the caregiver fixed mindset factor (items 16 and 18). The way a person attributes their success or failure, whether it be from the self or the other as a cause, appears to determine whether an individual will hold a caregiver growth or fixed mindset.

Dementia Caregiver Specific Growth Skills

The Beliefs About Learning/Self-Change dimension retained three out of the four items on the final factors. The caregiver growth mindset factor included items 22 and 23, while the caregiver fixed mindset factor included only item 24. It appears that individuals with fixed and growth mindsets differ in how they appraise performance-relevant information and attend to learning-relevant information. The Beliefs About Caregiving Skills dimension retained five out of the seven original scale items on the caregiver growth mindset factor (items 25-27; 29) and the caregiver fixed mindset factor (item 28).

Beliefs about possessing a combination of caregiving skills such as patience, knowledge, ability to cope, and empathy may not be as important as the ability to learn how to be sensitive to the needs of their family member with dementia and the ability to develop skills/traits to improve and succeed at caregiving.

Caregiver Relationship Skills

The Beliefs about Relationship Skills dimension retained four out of the six items on the original scale. The caregiver growth mindset factor included item 31 and the caregiver fixed mindset factor included items 30, 32, and 33. This may imply that although a caregiver growth mindset and a caregiver fixed mindset can be meaningful on their own, they can also interact with each other in predicting or moderating a dementia caregiving relationship. It may also suggest that the relationship between a caregiver and family member with dementia does not play a role in holding a caregiver *growth* mindset, but it influences a caregiver *fixed* mindset.

Some caregivers may have a global set of beliefs that are in favor of a caregiver growth mindset; however, the same caregiver may also believe particular aspects of caregiving are especially fixed. Consequently, caregiver growth and fixed mindsets may be subject to situational influences. This prediction is based on the near-zero and non-significant correlation between the caregiver growth and fixed mindset scales ($r = .097$, $p = .067$). It is also possible that a caregiving mindset can change overtime. For example, a caregiver who initially has a tendency to favor a fixed mindset may witness the benefits of learning to resolve issues after caring for a family member with dementia for some

time and move forward with beliefs that align more with a caregiver growth mindset. This prediction is based on the strong positive correlation between a caregiver growth mindset and the extent to which caregivers are involved in caring for their family member with dementia ($r = .54$, $p < .001$). Caregiving mindsets can be a useful framework for conceptualizing how particular beliefs and orientations can influence caregiver's goals, inferences, success, and attributions.

The additional analyses that were examined indicate significant and small to moderate-size correlations between caregivers' beliefs and their caregiving experiences. One interpretation of these correlations is that endorsing a growth mindset may lead to more involvement in caring for a family member with dementia. However, another interpretation is that being more involved in caring for a family member with dementia may lead to endorsing a growth mindset. Dweck (2017) suggested that motivation is the basis of personality. She proposed that as individuals experience needs and pursue need-fulfilling goals, they develop representations of their experiences that are fundamental to their motivation and that play a role in the formation of their personality. She also states that beliefs are a key part of motivation, personality, and development. This may suggest that influencing people's beliefs can have a great impact on their behaviors, whereas people's experiences can influence their personality and by extension, their beliefs. A positive relationship between caregiver growth beliefs and their experiences could indicate that their caregiver experiences guided them towards endorsing a growth mindset or that their growth mindset leads them towards certain caregiving experiences. Alternatively, a negative relationship between caregiver growth beliefs and their

experiences might suggest they did not have the opportunity to encounter experiences that might instill growth beliefs or their fixed mindset may have prevented them from engaging in caregiver experiences that would instill growth beliefs.

Practical and Clinical Implications

Blackwell, Trzesniewski, and Dweck (2007) found that, in an academic setting, adolescents who endorsed an incremental theory of malleable intelligence (growth mindset) also endorsed stronger learning goals and held more positive beliefs about effort. Similarly, we found that a caregiver growth mindset was associated with stronger beliefs about effort and beliefs about learning or self-change. In terms of caregiver relationship skills, our results are very similar to that of Knee et al. (2003). Similar to Knee et al.'s relationship destiny mindset, we found that a caregiver fixed mindset on a relational beliefs dimension was associated with fatalist beliefs that assume that if the relationship does not start well, it will never get better.

Growth mindset interventions have been effective in academic settings as shown by Dweck (2012a) and Yeager et al. (2016). Growth mindset interventions may also help caregivers develop and use a growth mindset while caring for a family member with dementia by reducing fixed-trait, person-focused attributions, and performance avoidance goals as shown by Yeager et al. (2016). These authors found that a growth mindset intervention revised to use design thinking, which is "problem-centered" that seeks to solve predictable problems for specified user groups was an effective method for raising the grades of previously low-achieving 9th grade students. The intervention they used

involved three elements. First, participants read a scientific article titled, “You Can Grow Your Intelligence,” which describes the idea that the brain can get smarter the more it is challenged. Then participants were asked to generate a personal example of learning and getting smarter. Finally, participants were asked to write a letter encouraging a future student who might be struggling in school. This “saying-is-believing” exercise is thought to be effective because it makes the information more self-relevant, which may make it easier to recall. In addition, by mentally rehearsing how one should respond when struggling, it can be easier to enact those thoughts or behaviors later. Thus, completing an intervention specifically tailored to caregivers of a family member with dementia may be important for refining and holding growth mindset skills or beliefs. The implication of this intervention may not be limited to the family caregiver, as growth mindset programs based on this scale could also be implemented in nursing homes for professional caregivers of persons with dementia.

Limitations and Future Directions

Several limitations of the current research must be noted. First, the data we gathered was self-reported by the participants. Although, participants were assured that anonymity would be maintained, socially desirable responding may still have influenced participant’s responses. Thus, future research should include measures of social desirability to control for their effects. Second, the DCM scale only accounted for 41.67% of the total variance, which is lower than the suggested cut-off of 60% proposed by Hinkin (1998). This suggests that random error is present in our measure and may

limit the validity of the measure. This error might be a result of variability associated with the nature of their relationship with the family member (e.g. parent, grandparent, or child), length of caregiving, and/or severity of dementia.

Future research should replicate these results by assessing potential covariates in order to investigate the source of some of the unexplained variation. In addition, future research should attempt to verify the factor structure by establishing construct validity of the two factors. Convergent and discriminant validity should be assessed to determine whether the DCM scale is measuring a caregiver growth or fixed mindset as opposed to a different construct (e.g. caregiver resilience, dementia knowledge, caregiver self-efficacy, or a more general growth/fixed mindset). Then predictive validity should be estimated by examining the association between the scale scores and the criterion in question. An example of a behavior that the scale should be able to predict is how caregivers would react to difficulties (e.g. making a decision to continue providing care or release to a nursing home). Family caregivers holding a fixed caregiver mindset would be more likely to disengage from the person they are caring for and decide to move them into institutionalized care sooner. In addition, as part of a test of discriminant validity of the DCM Scale, the DCM Scale should be able to predict better caregiver well-being than Dweck's general Implicit Theories of Intelligence Scale.

Conclusions

Caring for a family member with dementia is challenging and requires hard work. However, despite the constant adversities experienced by caregivers over extended

periods, caregivers can experience personal growth and improvement of caregiving skills. These aspects may strengthen a caregiver's ability to care for their family member with dementia. As seen from our additional analyses, the more a caregiver is involved in caring for their family member with dementia, the greater the endorsement of caregiving growth mindset beliefs. Follow-up studies should be done with the specific goal of testing the relationship between opportunities for learning caregiver skills and development of a growth mindset. More generally, future studies should systematically test the convergent and discriminant validity of the scale, in addition to its psychometric properties.

Consequently, it is important to measure these caregiver mindsets and understand how to refine skills required to be a successful caregiver. Overall, as the prevalence of dementia increases in our society and family members continue to care for their loved ones with dementia, there is a growing need to improve upon caregiving skills by cultivating caregiving growth mindset beliefs. Thus, the DCM scale can offer a variety of applications for future investigators, educators, and practitioners interested in improving caregiving skills using a growth caregiver mindset. By identifying the correlates and antecedents of a growth mindset, future interventions can teach family caregivers these growth beliefs directly, but also indirectly by fostering the conditions that promote growth mindset beliefs (e.g. reducing fixed-trait, person-focused attributions, and performance avoidance goals

APPENDIX A

Recruitment Posting for Mechanical Turk®

Recruitment for survey on interpersonal interactions (20 minutes)

We are researchers studying interpersonal relationships at the University of Wisconsin Oshkosh. We are currently recruiting participants for a study on emotions experienced when interacting with others. If interested, please click this link for more information.

To participate you must:

- Be at least 18 years of age
- Be a resident of the United States

APPENDIX B

Eligibility Items

In order to participate in the study, you must meet eligibility criteria. If you meet the criteria, you will be presented with the consent form outlining details of the study. If you do not meet the criteria, you will not be penalized in any way.

1. Do you have a living relative or family member who was diagnosed with dementia?
___ Yes
___No
__ Not sure

2. Are you a primary caregiver for a family member with dementia?
____Yes
____No
__ Not sure

1. Do you have a living relative or family member who was diagnosed with autism?
___ Yes
___ No
___ Not sure

2. Are you a primary caregiver for a family member with autism?
____Yes
____No

3. Are you currently in a long-term romantic relationship?
___Yes
___ No
___ Not sure

4. How often do you play video games?
___Never
___Sometimes
___Often
___Very Often

Participants continue to the survey only if they answered yes to the first two questions.

APPENDIX C

Care Recipient Information

In this questionnaire, you will be asked to answer questions about your CURRENT relationship with <u>a living close family member who has dementia for whom you are the primary caregiver.</u> We ask that you read each question carefully and select your answer thoughtfully. There are no right or wrong answers; we are simply interested in your relationship with this person and your perceptions of his/her characteristics and behaviors. Your responses are anonymous and confidential.

1. Do you have a living close *living* family member who was diagnosed with dementia?
_____Yes
_____No

1a. If you have a living family member with dementia, how long ago was he/she diagnosed with dementia? (in years/months):
Years (1) _____
Months (2) _____

2. What is this person's age? _____

3. What is this person's sex?
- Male
- Female
- Other

4. Are you the primary caregiver for this person?
   - Yes
   - No

5. To what extent are you involved in providing care for this person?

0	1	2	3	4	5	6	7	8	9	10
Not at all Involved										Extremely Involved

6. What is your relationship with this person? This person is my:
   - Great-grandfather
   - Great-grandmother
   - Father
   - Mother
   - Great-uncle
   - Great-aunt
   - Uncle

- ☐ Aunt
- ☐ Sister
- ☐ Brother
- ☐ Other: please specify: _____

7. To what extent has he/she changed since he/she received a diagnosis of dementia?

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

Extremely negative change No Change Extremely positive change

8. To what extent has he/she changed since he/she started showing symptoms of dementia?

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

Extremely negative change No Change Extremely positive change

9. To what extent has his/her personality changed since he/she started showing symptoms of dementia?

-5 -4 -3 -2 -1 0 +1 +2 +3 +4 +5

Extremely negative change No Change Extremely positive change

10. How severe are his/her symptoms of dementia?

0 1 2 3 4 5 6 7 8 9 10

Very mild Moderately severe Very severe

11. How well do you know him/her?

0 1 2 3 4 5 6 7 8 9 10

Not at all Moderately well Very well

12. Is the person living in a nursing home or at home? (check one)

- ☐ Nursing home
- ☐ At home
- ☐ Other: _____
- ☐ This person has died

13. How often are in contact with this person (face-to-face, by email, or by phone):

0 1 2 3 4 5 6 7 8 9 10

Not at all often | Moderately often | Very

14. How often do you see this person face-to-face?
- Once a year or less
- Several times per year
- Several times per month
- Several times per week
- Once per week
- Every day

15. How often do you communicate with this person by phone or email?
- Once a year or less
- Several times per year
- Several times per month
- Several times per week
- Once per week
- Every day

16. If you have a family member with dementia, is he/she still living?

- Yes (1)
- No (2)

APPENDIX D

Dementia Caregiver Mindset Scale

Below are several statements that caregivers of a family member with dementia may or may not agree with about interacting and caring for him/her. Using the rating scale of 1-7, where 1=strongly disagree, 2=disagree, 3=mostly disagree, 4=neither agree or disagree, 5=mostly agree, 6=agree, 7=strongly agree, please indicate to what extent you agree or disagree with each of the following statements, keeping in mind your role as a caregiver for a family member with dementia.

Growth Mindset Domains of Content

Nature vs. Nurture

Item 1: "Caregiving skills can improve while taking care of a family member with dementia." (Growth)

Beliefs About Obstacles and Difficulties

Item 2: "People can learn from the mistakes they have made when providing care to a family member with dementia." (Growth)
Item 3: "Caregivers should keep trying to improve, even when they feel like they're failing at providing good care for a family member with dementia." (Growth)
Item 4: "When it becomes extremely challenging to take care of a family member with dementia, caregivers should stick with the same strategies to take care of him/her." (Growth)
Item 5: "When it becomes increasingly difficult, caregivers should relinquish their role as a caregiver and place the person with dementia under someone else's care." (Fixed)
Item 6: "When it becomes extremely hard to take care of a family member with dementia, caregivers should place him/her in a nursing home." (Fixed)

Beliefs About Effort

Item 7: "With a great willingness to learn and improve, someone can become a much better caregiver." (Growth)
Item 8: "The effort someone puts into taking good care of their family member with dementia can make their relationship stronger." (Growth)
Item 9: "Succesful caregivers spend a lot of time researching and learning information (on the internet, support groups, books) about dementia." (Growth)
Item 10: "When someone encounters an issue while taking care of a family member with dementia, they should use the same strategies they have used in the past." (Fixed)
Item 11: "Good caregivers seek out information on how to deal with issues that arise when providing care for a family member with dementia." (Growth)

Value of Success and Failure

Item 12: “Accepting that there will be setbacks and moving forward after encountering them are important parts of caregiving for a family member with dementia.” (Growth)

Item 13: “A person may take on the responsibility of being the caregiver for a family member with dementia because they want to help him/her even though they know it will be difficult.” (Growth)

Item 14: “The mistakes made while taking care of a family member with dementia can only worsen the person’s success as a caregiver.” (Fixed)

Item 15: “A person may take on the responsibility of being the caregiver despite feeling that they may not always do a good job and have some failures/conflicts.” (Growth)

Attribution of Success and Failure

Item 16: “Success as a caregiver is due to certain personality dispositions that people cannot change.” (Fixed)

Item 17: “Empathy and patience are skills/abilities caregivers can learn and improve.” (Growth)

Item 18: “Empathy and patience are skills that we are born with and cannot be changed.” (Fixed)

Item 19: “To succeed as a caregiver, it is a caregiver’s responsibility to use effective problem-solving strategies.” (Growth)

Item 20: “Success as a caregiver is a matter of investing a lot of effort and time in helping a family member with dementia.” (Growth)

Item 21: “Success as a caregiver is a matter of continuously learning new skills and knowledge about dementia and caregiving.” (Growth)

Dementia Caregiver Specific Growth Skills

Beliefs About Learning/Self-Change:

Item 22: “Caregiving helps individuals grow.” (Growth)

Item 23: “Caregiving skills can always be improved.” (Growth)

Item 24: “Caregiving skills rarely improve throughout the course of caring for a family member with dementia.” (Fixed)

Beliefs About Caregiving Skills:

Item 25: “Caregivers can learn to be sensitive to the mood and feelings of a family member with dementia.” (Growth)

Item 26: “Some people have always been good at sensing the needs of others.” (R) (Growth)

Item 27: “When a family member with dementia becomes upset or aggressive, it is important for caregivers to try to understand what is frustrating them.” (Growth)

Item 28: “When a family member with dementia becomes upset or aggressive, there is not much a person can do to make them feel better.” (Fixed)
Item 29: “Caregivers can always change their caregiving style.” (Growth)

Caregiver Relationship Skills

Beliefs About Relationship Skills:

Item 30: “If the relationship between a caregiver and a family member with dementia does not start off well, it will not get better.” (Fixed)
Item 31: “In order for a caregiving relationship with a family member with dementia to be successful, the relationship needs to be worked on regularly.” (Growth)
Item 32: “A relationship that does not get off to a perfect start between a caregiver and family member receiving care will never work.” (Fixed)
Item 33: “Early troubles in a caregiving relationship signify a poor match between the caregiver and the family member with dementia.” (Fixed)

*(R) denotes a reverse-coded item.

APPENDIX E

Behavior Changes Index

For each of the following behaviors listed below, please rate the extent to which your family member has changed with regard to that behavior by using the following scale:

-5 -4 -3 -2 -1 0 +1 + 2 +3 +4 +5
Has became worse No Change Has become better

_____Concentrating when doing simple tasks
_____Making simple decisions
_____Performing a familiar task
_____Enjoying everyday activities (eating, sleeping, sexual activity)
_____Controlling negative emotions
_____Experiencing basic emotions such as happiness, sadness, anger, fear, or disgust
_____Experiencing complex emotions such as guilt, pride, or shame
_____Lying or engaging in socially unacceptable activities without feeling guilty or remorseful
_____Enjoying formerly enjoyed hobbies or activities
_____Stealing or engaging in other illegal activities without feeling guilty or remorseful
_____Following a conversation
_____ Remembering past events
_____ Remembering current events
_____ Identifying a friend or family member
_____ Knowing right from wrong
_____Becoming confused about the time (month, day, or time of day) or the place (where he/she is and how he/she got there)
_____Taking care of himself/herself
_____Reacting with distress when someone is in distress
_____Comforting someone close to him/her who is in distress
_____Making changes in his/her life based on information she receives from others
_____Initiating and carrying out an interesting engaging conversation
_____Understanding jokes
_____Expressing or experiencing curiosity about new things
_____Showing imagination
_____Showing warmth toward close others
_____Being open to new ideas
_____Showing love or positive feelings toward close others
_____Initiating activities or proposing changes in his/her life or the lives of others
_____Wanting to learn new things
_____Making decisions about his/her own life
_____Being polite or civil in his/her interactions with others
_____Following conversation etiquette (e.g., say Hello, Good-bye, waiting for his/her turn in conversations)
_____Using proper language during a conversation with others

_____Displaying inappropriate table manners during meals and activities
_____Participating in conversations about the current world events
_____Carrying conversations about culture (music, novels, etc.)
_____Having outbursts when dealing with a problem when clear solutions to the problem are present
_____Figuring out simple tasks or answering simple questions
_____Having the understanding to ask for help when she cannot finish a task on his/her own
_____Following timelines in a story or conversation
_____Being creative when performing various tasks
_____Improvising unique solutions to problem-solve everyday issues

_____Showing his/her individuality—his/her unique personality that distinguishes him/her from others
_____Understanding common metaphors (i.e. – a fork in the road or a blanket of snow)
_____Showing self-restraint and instead choosing to engage in self-indulging behaviors
_____Being warm in his/her interactions with others
_____Being safe by himself/herself
_____Misplacing things and being unable to retrace steps to find them
_____Not being able to find the right word or calling things by the wrong name
_____Understanding visual images and spatial relationships such as judging distance and determining color or contrast

APPENDIX F

Changes in Activities of Daily Life (Mausbach et al., 2013)

To what extent does your family member with dementia depend on you for help with each of the following activities?

0 1 2 3 4
Not at all Completely

1. Bathing (i.e., ability to bathe without assistance in washing or getting into the bathtub or shower)
2. Toilet Use (i.e., ability to use the toilet and clean oneself afterwards)
3. Control or Continence of Urine and Bowels (i.e., ability to wait for the right time and the right place)
4. Dressing and Grooming (i.e., ability to button a shirt, choose appropriate clothing)
5. Mobility (i.e., ability to move in and out of a chair or bed, walking)
6. Eating (i.e., ability to eat without having to be fed by someone else)
7. Managing Money (i.e., writing checks, handling cash, maintaining a budget)
8. Managing Medications (i.e., taking the appropriate dose of medication at the right time)
9. Cooking (i.e., preparing meals or snacks, microwave/stove usage)
10. Housekeeping (i.e., performing light and heavy chores such as dusting or mowing the lawn)
11. Using Appliances (i.e., using the telephone, television, or vacuum appropriately)
12. Shopping (i.e., purchasing, discerning between items)
13. Extracurricular Activities (i.e., maintaining a hobby or some other pastimes)

APPENDIX G

The Self-Efficacy Scale (Steffen et al., 2002)

How confident are you that you can do the following activities? (If this is absolutely not applicable to your situation select "N/A"). Read **"How confident are you that you…"** in every item; place this phrase just before the first word of each sentence.

Self-Efficacy for Obtaining Respite

1)…Can ask a friend/family member to stay with your family member with dementia for a day when you have errands to be done?
2)...Can ask a friend/family member to stay with your family member with dementia for a day when you feel the need for a break?
3)...Can ask a friend/family member to stay with your family member with dementia for a day when you need to see your doctor?
4)...Can ask a friend/family member to do errands for you?
5)...Can ask a friend/family member to stay with your family member with dementia for a week when you need time for yourself?

Self-Efficacy for Responding to Disruptive Patient Behaviors

6) When your family member with dementia asks you four times in the first hour after lunch when lunch is, …can answer without raising your voice?
7) When he/she interrupts you for the fourth time while you're making dinner, …can respond without raising your voice?
8) When you get angry because he/she repeats the same question over and over, …can say things to yourself that calm you down?
9) When he/she forgets your daily routine and asks when lunch is right after you've eaten, …can answer without raising your voice?
10) When he/she complains to you about how you're treating him/her, …can respond without arguing back?

Begin each item with the phrase, **"How confident are you that you can control…"** (If you have absolutely never had the thought, put "N/A").

Self-Efficacy for Controlling Upsetting Thoughts about Caregiving

11)...Thinking about what a good life you had before your family member's illness and how much you've lost?
12)...Thinking about what you are missing or giving up because of care recipient?
13)...Worrying about future problems that might come up with care recipient?
14)...Thinking about unpleasant aspects of taking care of care recipient?
15)...Thinking how unfair it is that you have to put up with this situation?

APPENDIX H

Perspective Taking Index

1. How often do you think of his/her situation as he or she is experiencing symptoms of dementia?

0	1	2	3	4	5	6	7	8	9	10
Never										Often

2. How often do you think about how he/she is feeling about what is happening to him/her as he or she is experiencing symptoms of dementia?

0	1	2	3	4	5	6	7	8	9	10
Never										Often

3. How often do you think of how dementia is affecting his/her life?

0	1	2	3	4	5	6	7	8	9	10
Never										Often

4. How often do you think of his/her need for assistance as he or she is experiencing symptoms of dementia?

0	1	2	3	4	5	6	7	8	9	10
Never										Often

APPENDIX I

Relationship Satisfaction Index

Please answer the following questions about your relationship with your family member with dementia you are taking care of:

1. How would you rate your relationship with him/her?

-5	-4	-3	-2	-1	0	1	2	3	4	5
Very negative										Very positive

2. How would you rate your interactions with him/her?

-5	-4	-3	-2	-1	0	1	2	3	4	5
Very negative										Very positive

3. How comfortable or uncomfortable do you feel when interacting with him/her?

-5	-4	-3	-2	-1	0	1	2	3	4	5
Very uncomfortable										Very comfortable

APPENDIX J

Burden Scale for Family Caregivers (Pendergrass et al., 2018)

The following 10 items are designed to gather additional information regarding your thoughts and feelings related to the care that you provide for your family member with dementia. Using the response scale provided, please indicate the extent to which you agree with each item.

1. My life satisfaction has suffered because of the care.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

2. I often feel physically exhausted because of the care.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

3. Since I have started providing care my financial situation has decreased.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

4. Sometimes I don't really feel like "myself" as before.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

5. My health is affected by the care situation.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

6. The care takes a lot of my own strength.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

7. I feel torn between the demands from my own life (such as my work or my spouse) and the demands of the care.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

8. I am worried about my future because of the care I give.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

9. From time to time I wish I could “run away” from the situation I am in.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

10. My relationships with other family members, friends, and acquaintances are suffering as a result of the care.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

11. To ensure you are paying attention, please select the number 1 bubble.

1	2	3	4
Strongly agree	Agree	Disagree	Strongly Disagree

APPENDIX K

Desire to Place Family Member in a Nursing Home (Morycz, 1985)

1. In the last six months, how often have you considered moving your family member with dementia into a nursing home or assisted living?

1	2	3	4	5	6	7	8	9	10
Not at all									Very Often

2. In the last six months, how often have you felt that your family member with dementia would be better off in a nursing home or assisted living?

1	2	3	4	5	6	7	8	9	10
Not at all									Very Often

3. In the last six months, how often have you discussed moving your family member with dementia with family or others or assisted living?

1	2	3	4	5	6	7	8	9	10
Not at all									Very Often

4. In the last six months, how often have you discussed with your family member with dementia her moving to a nursing home or assisted living?

1	2	3	4	5	6	7	8	9	10
Not at all									Very Often

5. How likely are you to move your family member with dementia in a nursing home or assisted living?

1	2	3	4	5	6	7	8	9	10
Very unlikely									Very Likely

6. To what extent have you taken steps toward moving your family member into a nursing home or assisted living?

1	2	3	4	5	6	7	8	9	10
Not at all									Very much

7. Have you completed a nursing home application to move your family member with dementia in a nursing home or assisted living?

- Yes
- No

APPENDIX L

Demographic Information

Please answer a few demographic questions for us.

1) What is your age? Please write a number in the space provided _____

2) What is your sex?
- Male
- Female
- Other
- Prefer not to say

3) What is your ethnicity?
- African American/Black
- Asian American/Asian
- European American/White
- Hispanic/Latino(a)
- Indian or Pakistani
- Middle East
- American Indian
- Multi-Ethnic
- Other

4) What is your education level?
- Some high school
- High school/GED
- Some college
- Bachelor's Degree
- Master's Degree
- Advanced Graduate Work or Ph.D.
- Not sure

5) What is/was your occupation? _____

6) How much experience do you have interacting with people with dementia?
- None
- Very little
- Some
- Quite a bit
- A lot of experience

7) Have you ever worked with people with dementia as part of your job? YES NO

8) If you answered Yes to Question 7, describe your job responsibilities:
_____
_____
_____

9) How many people with dementia do you personally know? Write down a number:
_____

10) What is your Amazon Mechanical Turk ID? _____

APPENDIX M

Debriefing Form

Thank you for participating and completing our survey.

Your completion code is: 307801

You **MUST** enter this code on the Mechanical Turk HIT in order to complete the work and receive compensation. Once your survey completion has been confirmed you will receive compensation. We try to approve work as quickly as possible, although sometimes this can take up to 24 hours.

The goal of the study is to gain insight into the nature of interactions with relatives and family members with dementia. The specific goal of the study is to examine whether or not caregivers of family members with dementia hold distinctive mindsets. Specifically, whether they hold a growth mindset or a fixed mindset in caring for their family member with dementia.

Please feel free to visit the following websites to get more information about dementia. The information included below each resource has been taken directly from the resources website.

TimeSlips Project: https://www.timeslips.org/

Alzheimer's Association: http://www.alz.org/gwwi/

Thank you again for taking the time to complete this survey. If you have any questions or comments, please feel free to contact the principal investigator:

Dr. Anca Miron
Department of Psychology
UW Oshkosh, Oshkosh, WI 54901
920-424-2328
mirona@uwosh.edu

If you have any complaints about your treatment as a participant in this study, please call or write: Kelly Schill, Institutional Review Board, c/o Grants Office, UW Oshkosh, Oshkosh, WI 54901, 920-424-1415. All complaints are kept in confidence.

To be compensated for taking part in the study, please provide your Mechanical Turk® worker ID in the space provided. _____

APPENDIX N

Implicit Theories of Intelligence Scale-Self Form for Adults (Dweck, 2000)

This questionnaire has been designed to investigate ideas about intelligence. There are no right or wrong answers. We are interested in your ideas.

Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements by writing the number that corresponds to your opinion in the space next to each statement where 1 = strongly agree, 2 = agree, 3 = mostly agree, 4 = mostly disagree, 5 = disagree, 6 = strongly disagree.

1. You have a certain amount of intelligence, and you really can't do much to change it.
2. Your intelligence is something about you that you can't change very much.
3. No matter who you are, you can significantly change your intelligence level.
4. To be honest, you can't really change how intelligent you are.
5. You can always substantially change how intelligent you are.
6. You can learn new things, but you can't really change your basic intelligence.
7. No matter how much intelligence you have, you can always change it quite a bit.
8. You can change even your basic intelligence level considerably.

APPENDIX O

Implicit Theories of Personality Scale - “Others” Form (Dweck, 2000)

Using the scale below, please indicate the extent to which you agree or disagree with each of the following statements by writing the number that corresponds to your opinion in the space next to each statement where 1 = strongly agree, 2 = agree, 3 = mostly agree, 4 = mostly disagree, 5 = disagree, 6 = strongly disagree.

1. People can't really change what kind of personality they have. Some people have a good personality and some don't and they can't change much.
2. Someone's personality is a part of them that they can't change very much.
3. A person can do things to get people to like them, but they can't change their real personality.
4. No matter who somebody is and how they act, they can always change their ways.
5. Anybody can change their personality a lot.
6. People can always change their personality.

APPENDIX P

Implicit Theories of Relationships Scale (Knee et al., 2003)

Destiny Belief Items

.45-1. Potential relationship partners are either compatible or they are not.
.45-3. A successful relationship is mostly a matter of finding a compatible partner right from the start.
.48-5. Potential relationship partners are either destined to get along or they are not.
.54-7. Relationships that do not start off well inevitably fail.
.36-9. If a potential relationship is not meant to be, it will become apparent very soon.
.59-11. The success of a potential relationship is destined from the very beginning.
.61-13. To last, a relationship must seem right from the start.
.56-15. A relationship that does not get off to a perfect start will never work.
.55-17. Struggles at the beginning of a relationship are a sure sign that the relationship will fail.
.34-19. Unsuccessful relationships were never meant to be.
.53-21. Early troubles in a relationship signify a poor match between partners.

Growth Belief Items

.41-2. The ideal relationship develops gradually over time.
.49-4. A successful relationship evolves through hard work and resolution of incompatibilities.
.39-6. A successful relationship is mostly a matter of learning to resolve conflicts with a partner.
.42-8. Challenges and obstacles in a relationship can make love even stronger.
.42-10. Problems in a relationship can bring partners closer together.
.37-12. Relationships often fail because people do not try hard enough.
.26-14. With enough effort, almost any relationship can work.
.48-16. It takes a lot of time and effort to cultivate a good relationship.
.29-18. Without conflict from time to time, relationships cannot improve.
.41-20. Arguments often enable a relationship to improve.
.35-22. Successful relationships require regular maintenance.

Note: Destiny and growth items are typically alternated when administered. Destiny items are averaged to yield a destiny score. Growth items are averaged to yield a growth score. The resulting scores and independent (r = -.01).

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