

Slow Life Strategists Hold More Growth Mindsets (for Intelligence not Physical Attractiveness)

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A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree of Bachelor of Arts
with Honors in Psychology from the University of Michigan 2018

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The authors thank Oliver Sng and Joshua Ackerman for helpful comments and
suggestions.

This research was financially supported by research funds provided to Joshua Ackerman
by University of Michigan.

Abstract

This study examined the relationship between mindsets and life history strategy. There were two studies conducted with questionnaires: Study 1 ($N = 129$) examined which traits people in the United States perceive as important for succeeding in their life so that we can use them in Study 2. Study 2 ($N = 100$) examined the relationship between mindsets and life history strategy with a correlational design. We focused on two traits (intelligence – high score in Study 1; physical attractiveness – low score/ no correlation with life history strategy in Study 1) for measuring mindsets in Study 2. The results show that slow life history strategists are likely to hold more growth mindsets for intelligence but not for physical attractiveness. The results of this study may be able to provide a possible explanation of why people have different mindsets in the first place and why people have different mindsets for different domains.

Slow Life Strategists Hold More Growth Mindsets (for Intelligence not Physical Attractiveness)

How can you be successful in your life? Although this is such a vague question, it may be one of the most common questions we often ask and hear throughout our lifetime. Of course, there is a wide range of answers to such an ambiguous question. Among many different answers, believing in improving one's traits such as intelligence –often called a growth mindset (or, an incremental theory) –has been claimed as the key to success (Dweck, 2006). There have been a multitude of studies about growth and fixed mindsets, also known as an incremental and entity theory of implicit theories, in the psychology field. These mindset studies often look at the importance of having a growth mindset for a better and successful life while suggesting a way to acquire a growth mindset rather than a fixed mindset (Dweck, 2006).

Literature Review

Mindsets

According to Dweck and colleagues, a fixed mindset is a belief that human beings have relatively fixed characteristics, such as intelligence, which they believe that people cannot change while a growth mindset is a belief that such characteristics can be changed and developed with efforts (Dweck et al., 1995). For example, people with a fixed mindset for intelligence would believe that they cannot change their intelligence, and even when they believe that they can learn new things, they still believe that their intelligence will remain the same (Dweck et al., 1995). On the other hand, people with a growth mindset for intelligence would believe that they can improve their intelligence through their efforts (Dweck et al., 1995).

Also, given different beliefs from each mindset, they show different responses when facing situations such as failures. For example, people with a fixed mindset for intelligence are

likely to avoid challenges and show helplessness when facing achievement setbacks while people with a growth mindset for intelligence are likely to seek challenging situations and strive to be more effective (Dweck & Leggett, 1988; Henderson & Dweck, 1990). In other words, people with a fixed mindset are likely to stay at the same level where they have been, if not deteriorated, while those with a growth mindset are likely to move forward by making more efforts and challenging themselves. Also, research in mindsets suggests that each mindset has different strategies against disagreement or conflict with others. Kammarath and Dweck (2006) found that people with a fixed mindset, who believed that people could not change and improve their personality, tended to withdraw and/or avoid when facing disagreement or conflicts while people with a growth mindset, who believed that people could change and improve with efforts, tended to try to talk about their dissatisfactions openly with others to solve their problems. In other words, a fixed mindset led people to not make efforts to solve the problems. They would rather stay in the relationship with the unsolved problems. Individuals with fixed mindsets would think, “why bother, it is just the way he/she is.” On the other hand, a growth mindset led people to make efforts to solve the problems in order to improve their relationship afterward (Kammarath & Dweck, 2006).

With such different beliefs, each mindset brings different outcomes as well. Blackwell, Trzesniewski, and Dweck (2007), in their study, found that adolescents with a growth mindset outperformed those with a fixed mindset in their academic outcomes. Adolescents with more of a growth mindset had stronger learning goals, beliefs in efforts, and positive responses to challenges than those with more of a fixed mindset, and these motivational characteristics of having a growth mindset predicted their better academic outcomes over time (Blackwell et al., 2007). This theory not only applies to individuals, but to organizations as well. Companies with

a growth mindset are likely to outperform those with a fixed mindset (Johnston, 2017). That is, given the fact that successful organizations require constant improvements from the previous levels, it is essential for organizations to have a growth mindset, which utilizes failures as stepping-stones of learning for better outcomes, rather than having a fixed mindset (Johnston, 2017).

Given the importance of having a growth mindset, there have been many studies looking at how to promote a growth mindset in children. For example, Mueller and Dweck (1998) found that when responding to success of children, such as praising children for their intelligence/ability (e.g., “You must be smart at these problems.”) actually helps children to develop a fixed mindset because children may understand that intelligence or abilities are fixed traits, which can be easily recognized by their performance. On the other hand, the finding shows that praising children for their process (efforts) (e.g., “You must have worked hard at these problems.”) helps children to develop a growth mindset since it implies that intelligence or abilities can be developed (Mueller & Dweck, 1998). Also, when responding to failures of children, parents’ views on children’s failure as something that children can learn from and grow from will help children develop a growth mindset. On the other hand, parents’ views on children’s failure as something children fail to prove their ability will direct children to develop a fixed mindset (Haimovitz & Dweck, 2017). Children with parents holding growth mindset views tend to think that they have not mastered the topic yet, rather than they do not have the abilities to the topic they face challenges at (Haimovitz, Kratzer, Kenthirarajah, Walton, & Dweck, 2016). In other words, they believe that they can improve their abilities by making more efforts and they will be able to solve the problem later once improved.

Although there is much work on the benefits of a growth mindset or ways to promote a growth mindset in children from books, academic journals, online articles, and other media, there is little work on what leads to having a growth mindset or a fixed mindset in the first place. Are mindsets genetically inherited? Or, is it something people learn from others? But, if that is true, where did others (such as parent and teachers) obtain their mindsets in the first place? In this study, we look at the relationship between life history strategy and mindsets that may shed a light on possibly answering these questions..

Life History Theory

According to life history theory, all living organisms are confronted with problems caused by limited resources, and therefore, they have to allocate their energy and time to different tasks in order to successfully survive and reproduce (Kaplan & Gangestad, 2005; Sng, Neuberg, Varnum, & Kenrick, 2017). The traits that lead to survival and reproductive success differ depending on the environment. Therefore, organisms should have evolved to differentially allocate their energy and time depending on the environment (Sng et al., 2017). Life history theory posits that harshness and unpredictability of environment are the most fundamental factors in the development of life history strategies, a slow-to-fast continuum (Ellis, Figueredo, Brumbach, & Schlomer, 2009). The harshness and the unpredictability depend on many different things in their environment such as population densities, resource scarcity, level of competition, mortality rate, and so on (Ellis et al., 2009). For example, an environment with high mortality rate is more likely to be a harsh and unpredictable environment (Ellis et al., 2009). The harsh and unpredictable environment results in a fast life history strategy while a stable and predictable environment results in a slow life history strategy (Ellis et al., 2009).

This slow-to-fast continuum is also correlated with life history traits such as the timing of puberty, first sexual intercourse and birth, and parental investment strategies (Ellis et al., 2009). For example, as an example of fast life history strategy, when living beings exist in an environment where survival is uncertain (e.g., due to the presence of predators), they tend to reach puberty early, have first sexual intercourse and birth early, and have more offspring (focus on the quantity of offspring than the quality of offspring) (Sng et al., 2017). On the other hand, regarding a slow life history strategy, when living beings exist in an environment where it is relatively stable, and their survival is certain, they tend to reach puberty later, have first sexual intercourse later in life, and have less offspring which helps focus on the quality of that offspring (Sng et al., 2017).

Humans, as one of the living organisms, also fall into this slow-to-fast continuum in terms of their strategies of allocating their energy and time (Sng et al., 2017). Although human beings are often considered to have a slow life history strategy compared to other living beings, we can still find such slow-to-fast continuum within the human beings in accordance with their different environment (Sng et al., 2017). For example, people who live in an environment exposed to constant wars and violent crimes (harsh and unpredictable environment) would reach puberty earlier and have a birth earlier while others, who live in an environment where they have a stable life and predicted future, would invest in their education or skills (Sng et al., 2017). People in an environment with slow life history traits tend to engage in behaviors (e.g., investing their skills/ knowledge) that are likely to benefit them in the future while people in an environment with fast life history traits tend to engage in behaviors that are likely to provide them immediate benefits in the present because of their uncertain future (Sng et al., 2017).

Such investment for future life is referred to as embodied capital (Kaplan & Gangestad, 2005). Living organisms can allocate their energy and time to many different tasks in accordance with their environment; and, embodied capital is referred to as investment in growth (e.g., physical growth, mental capacity, skills, and knowledge), which can be potentially used in the future (Sng et al., 2017). Individuals can also allocate their energy and time on maintenance and reproduction; but when we take trade-offs into account, individuals have to allocate their energy and time on only certain categories (e.g., building one's own skills and knowledge for the future vs. having many offspring) (Sng et al., 2017). The notion of trade-off is the core idea of life history theory; that is, with limited resources they have in their environment, individuals cannot spend their time and energy on everything; individuals must decide on which tasks to spend more time and energy on while they must also decide on which tasks to spend less, or no, time and energy on in order to survive and reproduce successfully (Kaplan & Gangestad, 2005; Sng et al., 2017). For example, it is better for parents to have a few children if they want to invest more (e.g., quality such as education) on each of their children because of limited energy and time they have (Kaplan & Gangestad, 2005; Sng et al., 2017); the quality of parenting would be lessened if there were more children because parents need to split their energy and time across more offspring.

Mindsets and Life History Theory

In short, life history theory provides ideas of limited time and energy, which have to be allocated into tasks that will provide the best possibility of survival and reproduction in accordance with their environment. Then, how would this notion of life history theory relate to mindsets?

In this study, I predicted that life history strategy and mindsets have a relationship; I hypothesized that fast life strategists will have a fixed mindset whereas slow life strategists will have a growth mindset. Given the idea of life history theory and trade-off, having a growth mindset should have some costs and benefits while having a fixed mindset should also have some other costs and benefits in accordance with the environment. For example, a fixed mindset, because of its beliefs in stable traits (not changeable), people with a fixed mindset would not spend time on growing (i.e., embodied capital) but instead, they would choose to stay at what they already have in the present. Not allocating their energy and time on the future, they can focus more on the present. The beliefs of a fixed mindset (e.g., avoiding challenges such as academic setbacks or relationships and not trying to make improvements by believing that their traits/ others' traits are fixed; Dweck & Leggett, 1988; Henderson & Dweck, 1990; Kammrath & Dweck, 2006), would be beneficial if they are in the environment which promotes fast life strategies because it would help them save their energy and time by not spending them for the future, which is not certain, but spending them for the present. In other words, it would be worthless to grow skills and/or knowledge for the future when they cannot even know whether their future is coming or not; but instead, it would be better for them to focus on the present for their survival and reproduction.

On the other hand, people with a growth mindset, because of their beliefs in changeable traits, would spend time on growing traits they need in the future, and this energy and time allocation for the future may take away efforts of maintenance and reproduction for the present. In a stable and predictable environment (which promotes slow life history strategies), it would help people spend energy and time on growing their skills and knowledge to be more

competitive in the future. In other words, it would be better for them to prepare for the future by improving themselves because their future is predictable (their future is likely to be coming).

As such, fast life history strategists will hold a fixed mindset because it is more beneficial for them to focus on the present in a harsh and unpredictable environment, whereas slow life history strategists will hold a growth mindset because it is more beneficial for them to focus on the future in a stable and predictable environment.

Current Research

The current study explores the relationship between mindsets and life history strategy. Study 1 examines which traits people think are important for succeeding in their life, along with, their life history strategy. Study 2, the main study, explores the relationship between mindsets and life history strategy.

Study 1 (Pilot Study): Traits and Life History Strategy

Study 1 examines which traits people perceive as important factors for succeeding in their life. According to life history theory, living organisms have limited energy “budgets” and they need to make decisions on how to allocate such limited time and energy to survive and reproduce in their environment (Kaplan & Gangestad, 2005). With these reasons, people may have a different level of importance in perceiving different traits in accordance with their environment. For example, I predict that slow life history strategists may perceive intelligence as more important than physical attractiveness, which was thought as a trait that fast life history strategists would perceive as an important trait for succeeding in their life. That is, slow life history strategists may perceive intelligence as more important than physical attractiveness because intelligence would be more beneficial for them to survive and reproduce *later* (due to stable and predictable environment)

with their competitive cumulative knowledge. On the other hand, fast life history strategists may perceive physical attractiveness as more important than intelligence because physical attractiveness would be more beneficial for them to survive and reproduce *now* (due to harsh and unpredictable environment) by appealing their physical attractiveness to others.

The reason for examining this is that even though I predict that slow life history strategists will tend to have growth mindsets, growing traits that are not important for social success would not be adaptive. It would be more adaptive for people to have a growth mindset for something that will benefit them from growing than having a growth mindset for something that will not help one to compete successfully with their limited energy and time. Hence, it is important to first examine what traits people might think are important for success. For example, if people do not perceive creativity as an important trait but perceive physical strength as an important trait for succeeding in their life, I would predict that people will have a growth mindset for physical strength, but not for creativity.

In sum, Study 1 examines which traits people think are important for succeeding in their life so that I can rule out traits that are not considered as important when measuring their growth mindsets.

Method

Participants. There were 129 participants (73 males, 56 females, M age = 39.6 years, $SD = 13.2$) who were recruited through Amazon Mechanical Turk with a small amount of compensation. The survey was set up for people in the United States. The majority of the participants were White (75.2%) with other ethnic groups represented (7.8 percent Black, 6.2 Asian American, 4.7 percent Hispanic, 6.2 percent other). The majority of the participants had

post-secondary education (34.9 percent some college, 52.7 college graduate/ graduate school degree) while 11.6% had high school graduate and 0.8% had some high school or less for their highest level of education.

Materials and procedure. Participants were given an informed consent before proceeding further to participate in the questionnaire.

Participants first completed a measure of how important they believed various traits to be for succeeding in life. Specifically, participants responded to the question, ‘How important is each of these traits for succeeding in your life?’ on a 7-point scale from 1 (*not at all important*) to 7 (*extremely important*). They responded to this question for 19 different traits: intelligence, physical attractiveness, social connection, physical strength, resilience, relationships, personality, openness, conscientiousness, extraversion, agreeableness, neuroticism, self-esteem, independence, morality, creativity, leadership, motivation, and interpersonal skills (see Appendix A). The traits were selected to cover a range of traits that have been examined in the mindset literature (e.g., relationships), popular personality traits (e.g., openness, extraversion), and also traits that might be valued differently by slow (e.g., intelligence) versus fast (e.g., physical attractiveness) life history strategists

After the measure, participants then responded to the Mini-K, a widely used individual difference measure of life history strategy (fast vs. slow strategy) (Figueredo et al., 2006; Figueredo et al., 2014). The Mini-K consists of 20 items (e.g., “I can often tell how things will turn out”, “I would rather have one than several sexual relationships at a time”). Each item was on a 7-point Likert-scale from -3 (*Disagree Strongly*) to +3 (*Agree Strongly*) (see Appendix B). Higher scores mean holding a slower life strategy while lower scores mean holding a faster life strategy.

Results and Discussion

Motivation was the trait that had the highest average importance ($M = 6.05$, $SD = 1.08$) followed by intelligence ($M = 5.88$, $SD = 1.09$). The trait with the lowest mean importance was neuroticism ($M = 2.90$, $SD = 1.71$) followed by traits of physical strength ($M = 4.12$, $SD = 1.56$) and physical attractiveness ($M = 4.26$, $SD = 1.54$).

Interestingly, life history strategy was correlated with the perceived importance of all traits, with the exception of physical attractiveness ($r = .09$, $p = .34$) and neuroticism ($r = .08$, $p = .31$). For all other traits, slow life history strategists were more likely to perceive them as important for succeeding in life (all $ps < .05$). The importance of motivation is positively correlated with life history strategy ($r = .29$, $p = .001$). In other words, slow life history strategists are more likely to see motivation as an important trait for success. Also, slow life history strategists are also more likely to see intelligence (the second most important trait) as an important trait for success ($r = .26$, $p = .002$). However, in contrast to our prediction (that fast life history strategists will likely to think physical strength and attractiveness as important traits for success due to its possible benefits to survival and reproduction in the present, rather than the future), slow life history strategists are likely to see physical strength as an important trait ($r = .31$, $p < .001$) while there is no relationship between slow life history strategies and physical attractiveness ($r = .08$, $p = .34$).

Study 2 (Main Study): Mindsets and Life History Strategy

To test the main hypothesis, a few traits were selected from Study 1 to apply to our mindset measurement. As mentioned earlier, Study 1 was conducted to determine which traits people think are important for succeeding in their life so that those important traits can be used

for our mindsets measurement; if mindsets measurement measures mindsets for unimportant traits people think for their success, the results may be different from results measured with important traits because the prediction is that slow life history strategists may not want to grow in traits that are not important due to their limited time and energy.

Four traits were selected to measure mindsets for Study 2: intelligence, physical attractiveness, physical strength, and relationships. There is an outline for the reasons for choosing these four traits, and the corresponding predictions below.

First, intelligence is probably the most studied trait in the mindset literature, was highly rated in importance for success (the second highest ranked trait in Study 1), and slow life history strategists also tended to rate it as more important for success in Study 1. Hence, I predict that slow life history strategists are likely to hold a growth mindset for intelligence in Study 2. That is because the high rating of intelligence in the importance for success means that intelligence is what people would grow. Besides, since there was a correlation between intelligence and life history strategy, it is likely for us to find a correlation between mindsets for intelligence and life history strategy, which means, slow life history strategists will likely have a growth mindset for intelligence.

Second, physical attractiveness was rated as relatively less important for success (17th rank out of 19 traits in Study 1) and was also uncorrelated with the individual life history strategy. Hence, I predict that slow life history strategists will likely have no correlation with a growth mindset for physical attractiveness in Study 2. That is because the low rating of physical attractiveness in the importance for success means that it is not what people would develop due to the notion of trade-offs. Also, since there was no correlation between physical attractiveness

and life history strategy, there is no strong prediction for a correlation between mindsets for physical attractiveness and life history strategies.

Third, physical strength was also rated as relatively less important for success (18 rank out of 19 traits in Study 1), but it still shows a positive correlation with life history strategy. Hence, I predict that life history strategy will likely have no correlation with mindsets for physical strength or a weak association (slower life history strategy associated with growth mindsets) in Study 2. The reason for this prediction is that although there is a correlation between physical strength and life history strategy, the low rating of physical strength in the importance for success implies that people will not likely develop physical strength (if not a little); they would rather develop something that is more important for success.

Fourth, relationships were rated as relatively moderate important for success (8 rank out of 19 in Study 1), and they also show a positive correlation with life history strategy. Also, relationship is one of the most studied traits in the mindset literature. However, there was no strong prediction made for a correlation between mindsets for relationships and life history strategy due to its moderate rating in traits of importance for success.

Method

Participants. There were 100 participants (57 males, 43 females, M age = 36.62 years, $SD = 11.20$) from the same survey platform used for Study 1. The participants were also compensated a certain amount of money through the platform, and the survey was set up for people in the United States. The participants were primarily White (75%) with other ethnic groups represented (10 percent Black, 7 percent Hispanic, 2 percent Native American, 2 percent Asian American, 1 percent South Asian, 1 percent Southeast Asian, 2 percent other). The

highest level of education for the participants is primarily post-secondary education (35 percent some college, 52 percent college graduate/ graduate school degree) while others have high school graduate (12 percent) and some high school or less (1 percent) for the highest level of education.

Materials. There were two measurements used for Study 2—one for mindsets measurement and the other for life strategy measurement.

Mindsets. The participants completed a 12-item mindsets measurement (3-items for each of the four traits). The measurement was adapted from existing measures of mindsets for intelligence (e.g., ‘To be honest, you can’t really change how intelligent you are.’) (Dweck, 1999). The participants were asked to rate the extent to which they agree or disagree with each item on a scale of 1 (*Strongly Agree*) to 6 (*Strongly Disagree*) (see Appendix C for a complete list of the questionnaire items). The presentation order of the four trait measures was randomized, and the order of three specific items within each trait measure was also randomized.

To score this questionnaire, reverse-coded items (e.g., ‘No matter how much intelligence you have, you can always change it quite a bit’) were re-coded. Then, the average of the three items for each of the four traits was computed. The higher scores indicate holding more growth mindsets and the lower scores indicate more fixed mindsets.

Mini-K. Like Study 1, the 20-item of Mini-K was used to determine the degree to which people hold slower/ faster life history strategy (Figueredo et al., 2006; Figueredo et al., 2014). Each item was on a 7-point scale from -3 (*Disagree Strongly*) to +3 (*Agree Strongly*). Higher scores mean holding a slower life strategy while the lower scores mean holding a faster life strategy.

Procedure. Participants who were interested in participating in this study volunteered to participate through a survey platform. They were given an informed consent with the name of the questionnaire, “Mindset Survey,” which gave participants a brief idea about what this study would be about. If they agreed to participate, they were led to the randomized mindset measure of the four traits. Once participants were done with the mindset questionnaire, they were asked to complete the Mini-K measurement. Then, they were asked to fill out their demographic information. Finally, they were given a written debriefing before they were compensated through the survey platform.

Results

To assess the relationship between mindsets and life history strategy, a Pearson r (bivariate) correlation was conducted.

For our main mindsets measure with two main traits, intelligence and physical attractiveness, as predicted, the Pearson r correlation analysis revealed a positive correlation between mindsets for intelligence (growth mindsets) and the Mini-K (slow life history strategy), $r = .306, p = .002$ (see figure 1). In other words, slow life history strategists are more likely to hold growth mindsets. Also, there was no significant correlation found between the average scores of mindsets for physical attractiveness and the average scores of life history strategy, $r = .001, p = .995$ (see figure 2).

Interestingly, there was no significant correlation between the average score of mindsets for physical strength/ relationships and the average score of life history strategy (strength: $r = .053, p = .604$; relationships: $r = .121, p = .230$)

Discussion

The hypothesis for this study was that slow (relative to fast) life history strategists are more likely to hold more growth mindsets, particularly for traits that they perceive as important for succeeding in their life. To test the hypothesis, Study 1 first examined which traits people perceive as important traits for succeeding in their life, and then Study 2 examined if slow life history strategists hold growth mindsets specifically for traits that are perceived as important for their life success.

The results support the hypothesis: 1. The slow life history strategists were more likely to hold a growth mindset for intelligence, which participants selected as an important trait for succeeding in their life. 2. There was no relationship between mindsets for physical attractiveness and life history strategy. So, slow life history strategists are more likely to hold a growth mindset for traits that are perceived as important for succeeding in their life which also indicates that fast life history strategists are more likely to hold a fixed mindset.

Due to the limited energy and time, even if one holds a growth mindset, they cannot have a growth mindset for every domain; rather, they need to choose which traits to grow in accordance with their environment. The results from Study 1 shows that people in the United States tend to perceive intelligence as more important than physical attractiveness for succeeding in their life. It implies that intelligence is more important to grow than physical attractiveness for succeeding in their life, particularly, in their environment, the United States. So, it would be more beneficial for people, and especially slow life history strategists who are investing in building themselves, to have a belief that they can improve their intelligence than to have a belief that they can improve their physical attractiveness, which is a trait that people feel is less important than intelligence for succeeding in their life; that is, people are more likely to have a growth mindset for intelligence, which will help them succeed in their life, than to have a growth

mindset for physical attractiveness, which may lead them to allocate their limited energy and time to growing traits that may not facilitate social success.

One limitation of this study is that it is hard to know whether slow life history strategies lead to having a growth mindset or a growth mindset leads to having slow life history strategies. Since this study was conducted with a correlational design, although we now know that there is a relationship between life history strategies and mindsets, we cannot know which causes which. So, one of the future studies can look at the relationship with an experimental design, which will help us find a causal relationship between mindsets and life history strategies.

Also, another possible future study can be that we ask participants about their time spending on developing intelligence (such as pursuing higher education and reading educational books) and physical attractiveness (such as undergoing cosmetic surgery and shopping) with measurement of their mindsets and life history strategy. By measuring such behaviors in accordance with their mindsets and life history strategies, we will be able to test if people with different mindsets with different life history strategies spend their time and energy on different things.

In conclusion, the results of this study provide fascinating insight into the relationship between mindsets and life history theory, which, as far as I am aware, is unexamined in the literature, that slow life history strategists are more likely to hold a growth mindset (for intelligence but not physical attractiveness) while fast life history strategists are more likely to hold a fixed mindset. The findings of this study provide a possible explanation of why people have different mindsets in the first place and why people have different mindsets for different domains. Future studies can expand the idea to see how far the relationship between mindsets and life history theory is related and affect each other.

References

- Blackwell, S. L., Trzesniewski, H. K., & Dweck, S. C. (2007). Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal study and an intervention. *Child Development, 78*(1), 246-263. doi: 10.1111/j.1467-8624.2007.00995.x
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review, 95*, 256-273. <http://dx.doi.org/10.1037/0033-295X.95.2.256>
- Dweck, C. S., Chiu C. Y., & Hong Y. Y. (1995). Implicit theories and their role in judgments and reactions: A world from two perspectives. *Psychological Inquiry, 6*(4), 267-285. http://dx.doi.org/10.1207/s15327965pli0604_1
- Dweck, C. S. (1999). *Essays in social psychology. Self-theories: Their role in motivation, personality, and development*. New York, NY, US: Psychology Press.
- Dweck, C. S. (2006). *Mindset: The new psychology of success*. New York, NY, US: Random House.
- Ellis, B. J., Figueredo, A. J., Brumbach, B. H., & Schlomer, G. L. (2009). Fundamental dimensions of environmental risk: The impact of harsh versus unpredictable environments on the evolution and development of life history strategies. *Human Natural, 20*, 204-268. doi: 10.1007/s12110-009-9063-7

- Figueredo, J. A., Vasquez, G., Brumbach, H. B., Schneider, M. R. S., Sefcek, A. J., Tal, R. I., Hill, D., Wenner, J. C., & Jacobs, J. W. (2006). Consilience and life history theory: From genes to brain to reproductive strategy. *Developmental Review, 26*, 243-275.
<http://dx.doi.org/10.1016/j.dr.2006.02.002>
- Figueredo, A. J., Wolf, P. S. A., Olderbak, S. G., Gladden, P. R., Fernandes, H. B. F., Wenner, C., . . . Rushton, J. P. (2014). The psychometric assessment of human life history strategy: A meta-analytic construct validation. *Evolutionary Behavioral Sciences, 8*(3), 148-185. <http://dx.doi.org/10.1037/h0099837>
- Haimovitz, K., Kratzer, M. L., Kenthirarajah, D., Walton, G., & Dweck, C. S. (2016). *The power of “yet”: Communicating the potential to improve through subtle cues in feedback*. Unpublished Manuscript, Stanford University, Stanford, CA, US.
- Haimovitz, K., & Dweck, C. S. (2017). The origins of children’s growth and fixed mindsets: New research and a new proposal. *Child Development, 88*(6), 1849-1859.
<http://dx.doi.org/10.1111/cdev.12955>
- Henderson, V., & Dweck, C. S. (1990). Motivation and achievement. In S. S. Feldman & G. R. Elliott (Eds.), *At the threshold: The developing adolescent* (pp.308-329). Cambridge, MA, US: Harvard University Press.
- Johnston, I. (2017). Creating a growth mindset. *Strategic HR Review, 16*(4), 155-160.
<http://dx.doi.org/10.1108/SHR-04-2017-0022>
- Kammrath, L. K., & Dweck, C. S. (2006). Voicing conflict: Preferred conflict strategies among incremental and entity theorists. *Personality and Social Psychology Bulletin, 32*(11), 1497-1508. doi: 10.1177/0146167206291476

Kaplan, H. S., & Gangestad, S. W. (2005). Life History Theory and Evolutionary Psychology.

In D. M. Buss (Ed.), *The handbook of evolutionary psychology* (pp. 68-95). Hoboken, NJ, US: John Wiley & Sons Inc.

Mueller, C. M., & Dweck, C. S. (1998). Praise for intelligence can undermine children's

motivation and performance. *Journal of Personality and Social Psychology*, 75(1), 33-52. <http://dx.doi.org/10.1037/0022-3514.75.1.33>

Sng, O., Neuberg, L. S., Varnum, E. W. M., & Kenrick, T. D. (2017). The crowded life is a slow

life: Population density and life history strategy. *Journal of Personality and Social Psychology*, 112(5), 736-754. doi: 10.1037/pspi0000086

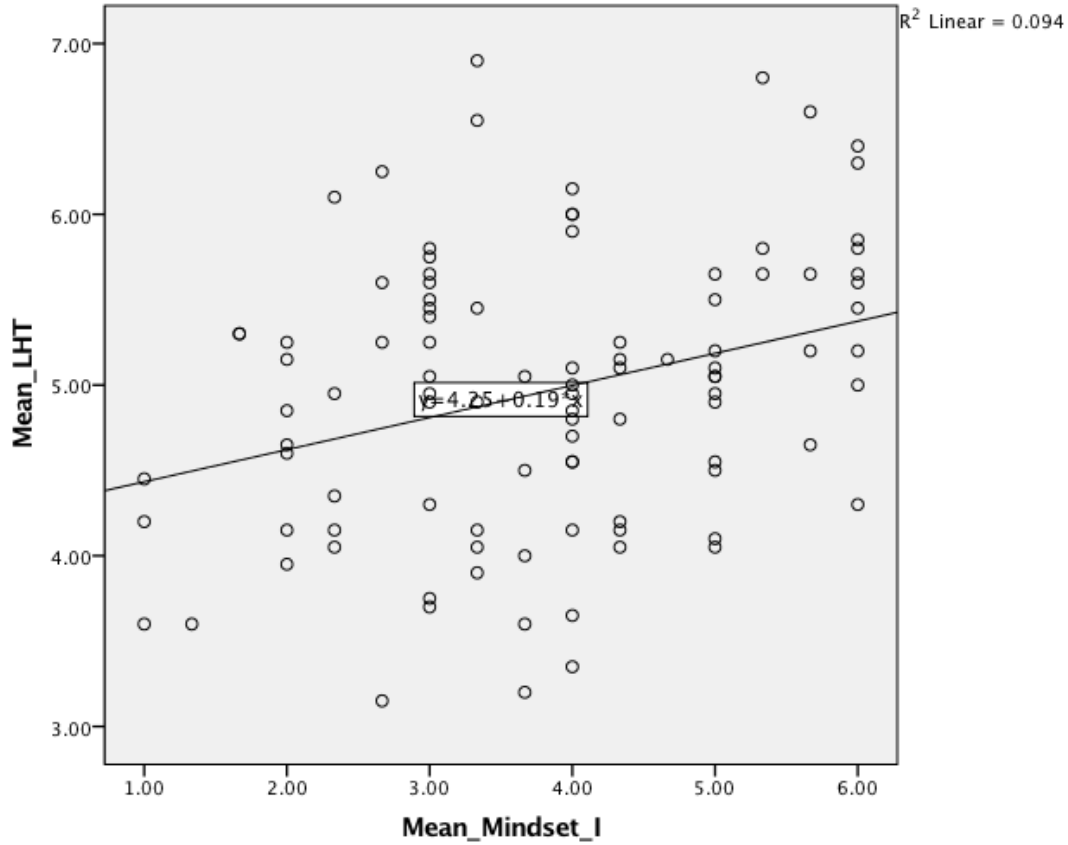


Figure 1. The average score of mindsets for intelligence and the average score of life history strategy. Higher scores on life history strategy mean more slow strategies. Higher scores on mindsets mean a more growth (as opposed to fixed) mindsets.

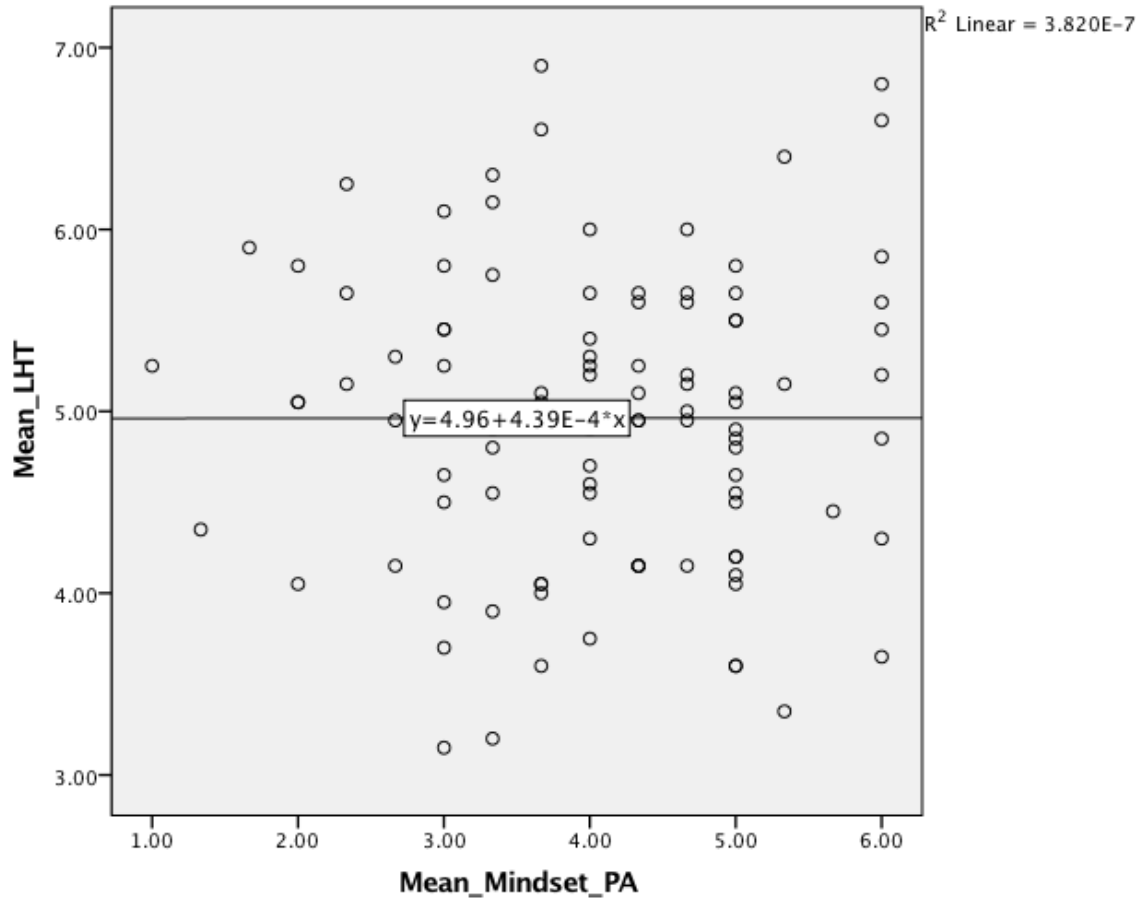


Figure 2. The average score of mindsets for physical attractiveness and the average score of life history strategy. Higher scores on life history strategy mean more slow strategies. Higher scores on mindsets mean a more growth (as opposed to fixed) mindsets. There is no significant correlation.

Relationships	1 Strongly Agree	2 Agree	3 Mostly Agree	4 Mostly Disagree	5 Disagree	6 Strongly Disagree
Your relationships are something about you that you can't change very much.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
To be honest, you can't really change your relationships.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
No matter how your relationships are like, you can always change them quite a bit.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>