

◁Note▷

## Implicit Theories of Intelligence among First-Year Law Students in Japan

Jonathan Austin Daniels

Goals are important in how they direct us. Two individuals, each with differing goals, will likely approach a task differently. These differing approaches can lead to vastly different outcomes.

As educators we have to ask ourselves what our goals are for our students. As varied as these goals may be across cultures, it is intuitive that an increase in skill and applicable knowledge are goals most all educators share. Added to this are our hopes that students have, or will come to have, the drive and persistence that it takes to meet challenges head-on, overcome them, and succeed. These are overarching objectives of self-reliance that extend past a particular subject of study, and outside the walls of a classroom. It's an autonomy that we hope students will internalize and apply to all the challenges that they face, well into the future, and long after their tenure in our class has ended.

In an ideal scenario, our goals will align with those of our students. This is clearly not always the case. However, before we can address effective ways to encourage our students toward goals that are more beneficial to them in the long-term, it is useful to understand the origins of these goals.

The purpose of this paper is to document the application of contemporary educational psychology in better understanding my

first-year students' mindsets. In doing so, I hope to gain a more nuanced understanding of their drives, as they relate to how students approach classroom tasks, and the challenges these tasks offer.

Towards the end of this paper, I'll report the results of two in-class instruments that I had my first-year law majors complete. The first instrument relates to the extent to which they believe effort plays a role in their definition of intelligence. The second instrument explores their beliefs about the fixedness of intelligence. Prior to reporting this data, I'll offer a brief literature review of the psychological theories at play in what these instruments hope to explore.

## The Importance of Beliefs

The Meaning System approach "is built around the idea that people develop beliefs that organize their world and give meaning to their experiences. [P]eople's beliefs about themselves...can create different psychological worlds, leading them to think, feel, and act differently in identical situations" (Dweck, 2000, p. xi). The takeaway from this is that our beliefs shape who we are, and how we act. Two students in the very same educational environment, and faced with the very same stimuli, may react very differently. An explanation for these varied responses lie in our systems of belief.

## Two Contrasting Theories of Intelligence

An individual holds beliefs that tend toward one of two views concerning intelligence. This view forms their *implicit theory of intelligence* (Dweck & Leggett, 1988 ; Dweck, 2000). An individual's

theory of intelligence impacts their values, goals, the way they approach tasks, and the way they interpret outcomes.

*Entity theory* is the belief that intelligence is fixed and unchangeable. In contrast, *incremental theory* is the belief that one's intelligence is malleable and, through learning, can be increased.

**Entity theory of intelligence:** the belief that intelligence is fixed, innate, and that one is born with a determined cognitive capacity that is largely unchangeable.

**Incremental theory of intelligence:** the belief that intelligence is changeable, malleable, and can be cultivated through effort and guidance.

### Characteristics of those holding an Entity Theory of Intelligence

Individuals holding an entity theory of intelligence tend to have a desire to feel smart, in that they possess the trait of intelligence. Put colloquially, they have a need to display, to themselves and others, that they “have smarts”. This desire for affirmation of their intelligence relates to what activities they tend to choose to engage in, and the activities they tend to avoid. Entity theorists typically go for easy activities with a high probability of success, and which require a minimal amount of effort. Outperforming their peers is important. They tend to avoid challenging activities that require effort, as the risk of failure or better-performing peers can call into question their intelligence (Dweck and Bempechat, 1983).

## Characteristics of those holding an Incremental Theory of Intelligence

Individuals holding an incremental theory of intelligence tend to be more motivated to learn, and are not as adverse to challenges as their entity theory counterparts; they are more likely to choose activities that promote learning and personal development, instead of low-effort activities that only serve to affirm or display intelligence. Incremental theorists are also more likely to persist in the face of difficulty. For them, encountering difficulty and being challenged is not a threat to their intellectual self-concept (Elliot & Dweck, 1988).

As educators who value effort and learning, incremental theorists possess an ideal mindset, as “[t]hese are the kinds of things — effort and learning — that make incremental students feel good about their intelligence” (Dweck, 2000, p. 4).

In essence, both entity theory and incremental theory can be conceptualized as opposite ends of a continuum, with individuals falling along it according to their beliefs about the fixedness — or lack thereof — of intelligence. While this describes an individual’s overarching worldview, their location on the spectrum is subject to change given different situations or training (Aronson, Fried & Good, 2002).

## Conceptions of Intelligence

As these differing mindsets hinge on one’s conception of the nature of intelligence, it begs the question: What is intelligence?



Using this same formula, translated into Japanese, I conducted a survey of my first-year law majors' beliefs about the role effort plays in how they conceptualize the idea of intelligence. The results can be found in the latter part of this paper, and the instrument I used can be found in the appendix.

### Theories of Intelligence as they relate to Effort

These two differing mindsets make for differing conceptions in regard to the idea of effort (Dweck, 2000). For entity theorists, effort – and its employment – is undesirable. Given that these individuals see intelligence as static and unchangeable, it's easy to intuit their view of putting forth effort as something futile, or as an indicator of someone pushing the limits of their intellect. Because they believe that intelligence is fixed, they view effort, and the idea that it may need to be employed to overcome, as an indicator of low intelligence. In this way effort is viewed in a negative light. Naturally, some tasks require more effort than others. Yet, when an entity theorist is faced with a task requiring effort, their intelligence is threatened. Confronted with a difficult task, entity theorists tend to self-handicap by withholding effort (Rhodewalt, 1994). For entity theorists (who have a predilection for activities that validate), an ideal task is one that they can do easily and effortlessly, but are difficult for those around them.

Incremental theorists, though, see effort as a tool to be employed in times of difficulty as they strive toward achievement. They see effort in a positive light, and as a component in realizing one's full intellectual potential (Covington & Omelich, 1979; Surber, 1984).

Among incremental theorists, effort expenditure is a natural and necessary condition in pushing one's ability to its full potential. For them, who believe that their intellectual capacity is malleable, it is the key to cognitive growth.

### Entity and Incremental Mindsets and Responses to Difficulty and Failure

*Learned helplessness* is the psychological term for an individual shutting down when encountering obstacles. It is a possible consequence of failure, or even just the expectation of difficulty, and can manifest itself as a cycle of failure, negative emotions, low self-esteem, and a reluctance to act (Seligman, 1975).

In the face of failure, those holding an entity view of intelligence are prone to a *helpless response*.

Dweck and Diener's research on 5<sup>th</sup> and 6<sup>th</sup> graders show a close to equal split in students who tend toward a mastery-oriented response to those who tend toward a helpless response, with about 15% who didn't fit neatly into either category (Diener & Dweck, 1978, 1980; Dweck 2000, p. 7). In the study, it was those holding an entity theory of intelligence that most displayed a helpless response to failure, which resulted in "denigration of their intelligence, plunging expectations, negative emotions, lower persistence, and deteriorating performance" (Dweck, 2000, p. 6). These adverse reactions stem from the belief that one's intelligence is being called into question (Diener and Dweck, 1978). The helpless response "is a reaction to failure that carries negative implications for the self and that impairs students' ability to use their minds effectively" (Dweck, 2000, p. 9).

That is, in the face of difficulty or failure performance wanes, persistence drops, expectations lower, and there is an increase in negative emotions.

The negative implications of a helpless response is not limited to material that is genuinely unmanageable for students in terms of difficulty, but carries over to tasks that were, just prior to the helpless response taking hold, well within their abilities; Dweck found that the helpless response had crippling effects on students' perceptions of their ability to solve problems that prior were within their capability (Dweck, 1975; Dweck & Reppucci, 1973).

This is a much less adaptive response to failure than its counterpart: a *mastery-oriented response* (Dweck, 2000). Those with an incremental view of intelligence tend to meet failure with a mastery-oriented response. They tend not to seek to attribute blame for their difficulty (as those displaying a helpless response blamed their lack of intelligence), but instead focus on ways to overcome their obstacles. They are more geared toward problem solving, and the implementation of strategies, such as slowing down, increasing focus, concentration and effort, and recalling lessons learned from previous problem solving successes (Dweck, 2000). They develop new and novel strategies, while maintaining positive emotions despite difficulty. Above all, they don't give up, or shut down.

Because mastery-oriented students typically hold an incremental view of intelligence, they don't see failure as an indictment of themselves or their intelligence. Conversely, helpless response students, who tended towards an entity view of intelligence, believe their "self-worth [is] on the line, with each unsuccessful effort undermining it further" (Dweck, 2000, p. 10).

There doesn't seem to be so stark a contrast in response to manageable activities. Licht and Dweck's (1984) classroom study revealed that both helpless-response students and mastery-oriented students did similarly well when the material was smooth going and manageable. However, it was when the researchers introduced a stumbling block at the start of the activity, which consisted of an extra paragraph purposely made to be confusing, that the ramifications of the students' mindsets were revealed; the number of students in the mastery-oriented group who succeeded was unchanged, while the number of helpless-response students who succeeded dropped by about 50%.

In essence, despite having comparable cognitive skills, just a brief experience of difficulty set a psychological tone that crippled half of those with a tendency toward a helpless-response, leading them to fail instead of succeed. As Dweck herself puts it, while both "the helpless and mastery-oriented groups are equivalent in the cognitive skills they bring to a task...one group essentially retires its skills in the face of failure, while the other continues to use them vigorously" (2000, p. 12).

### Mindsets and the Meaning behind Challenges

Stemming from an individual's beliefs regarding the nature of intelligence, the two differing orientations (mastery-oriented vs. helpless) come down to a matter of perspective in regard to obstacles. Are obstacles – and the difficulty that comes with overcoming them – a negative assessment of one's intelligence? Or is an obstacle an opportunity for self-improvement?

Incremental theorists carry a more positive view of challenges. They tend to view challenges as opportunities for personal growth, instead of as an assessment of (and potential threat to) their cognitive ability (Heyman, Dweck, & Cain, 1992).

Helpless children and mastery-oriented children also have different expectations as to the consequences of difficulty and failure. Helpless children primarily focus on outcomes, with the belief that mistakes signify they are bad, or deserving of punishment. For this reason they often believe that failure will result in punishment.

Mastery-oriented children focus on effort instead of outcome. They are more likely to expect that failure will be met with support from teachers and parents. Furthermore, they tend to believe that even failure will result in praise for trying (despite failing) and encouragement (Heyman, Dweck, & Cain, 1992). Without the threat of negative consequences to failing, they can more comfortably push the limits of their abilities. This can greatly influence how they approach activities in the classroom.

As we have seen, the way students approach and engage in learning tasks directly relates to their beliefs about the nature of intelligence (Dweck & Leggett, 1988; Hong, Chiu, Dweck, Lin, & Wan, 1999). Students holding a view that one is born with a fixed amount of intelligence; an entity theory of intelligence, approach tasks as a means to assert and validate their intellect.

Conversely, students holding the view that intelligence is malleable, and that through effort and hard work it can be increased, tend to approach tasks out of a desire to learn. In terms of motivation within the classroom (but certainly not limited to it), the implicit theory to which an individual leans will have a significant causal

impact on their beliefs about the meaning behind challenges, and this, by extension, will influence their behaviors when facing them.

## Learning Goals versus Performance Goals

Just as there is a direct relationship between an individual's implicit theory of intelligence and their response to challenges, so is there a relationship between one's achievement orientation as they relate to task goals.

Dweck, and her coauthor Elaine Elliot (Elliot & Dweck, 1988), showed that within achievement situations learner goals are firmly related to one's achievement orientation. Mastery-oriented learners view tasks and their challenges as chances to develop and grow. These are termed *learning goals* (and are also referred to as *mastery goals* and *task goals* by other researchers).

Conversely, helpless-oriented students view tasks as a chance to display to themselves or others their own competence. These are termed *performance goals* (also referred to as *ability goals*, *ego-involved goals*, and *normative goals*).

In short, there is a direct relationship between an entity theory mindset, a tendency toward a helpless response, and a preference for performance goals. There is also a direct relationship between an incremental theory mindset, a tendency toward a mastery-oriented response, and a preference for learning in goals.

At times, the pursuit of both learning and performance goals is possible, and perhaps that's ideal. But often times these two goals are at odds with one another, and influence the tasks learners choose to engage in.

Given the choice of two tasks: an easy one and a difficult one, performance goal-oriented learners tend to choose the easy one, and in doing so sacrifice the personal growth that comes with overcoming challenges.

Conversely, a learning goal-oriented student would likely opt for the difficult task, giving themselves an opportunity to master new material. However, in doing so they will more likely face difficulty, and so forfeit the chance to display their intelligence that the easy task would have afforded them.

Students can naturally, and according to their beliefs, be drawn to either learning goals or performance goals. However, as educators, we can emphasize one goal over the other within the classroom to positive effect. Elliot and Dweck's (1988) research showed that educators' emphasis on learning goals (as opposed to performance goals) led to positive student outcomes when they encountered difficulty. By emphasizing learning goals, students more proactively dealt with challenges by applying a range of strategies and increasing their level of persistence in their effort to succeed. In contrast, when performance goals were emphasized, difficulty was met with students displaying a helpless response.

Performance goal > fail > helpless response > shut down

Learning goal > fail > apply different strategies > succeed

Dykman (1998) looked at goal orientations: validation seeking versus growth seeking. The motivations that underlie validation seeking is a desire to prove competence, likability, and self-worth.

Difficult tasks are seen as having far reaching, and potentially negative, consequences on these self-concepts, whereas growth seekers' need for self-improvement makes them more apt to meet challenges head-on in their pursuit of self-actualization despite these risks.

Growth seeking individuals showed a negative correlation in their tendency to become depressed or nervous in unfamiliar situations. Validation seeking individuals, on the other hand, were positively correlated to suffer from depression, anxiety, and a fear of failure.

In real-world classroom settings Dweck's (2000) findings from 1985, with fellow researcher Edwin Farrell, show that, in contrast to those with performance goals, students with learning goals were: (1) able to solve more problems, (2) able to accomplish around 50% more work, and (3) better able to apply what they learned to novel problems.

Dweck (2000, p. 27) introduces a doctoral dissertation by Stone (1998) that outlines a fascinating study revealing the varied views students have of performance goals. For incremental theorists, how one performs on an activity is seen to measure their skill at present. However, for entity theorists, task outcomes have far more consequential meaning; they believe that one's performance measures not only their present skill level, but also their general aptitude, and their future skill level. If every single activity one engages in is seen to produce such a profound and lasting evaluation on our person, it's not difficult to see why entity theorists eschew activities that have the potential to indict their intelligence to such an overall and long-lasting extent.

There are three important takeaways from both Dweck's published, and unpublished, research (Dweck, 2000, p. 23): (1) Intelligence theory beliefs effect students' goals within the classroom, and in turn the type of activities they opt for. (2) Students who believe that intelligence is fixed will tend to choose performance goal tasks aimed to validate, forfeiting genuine learning opportunities that could benefit them. (3) We can influence students' beliefs about intelligence, and in so doing lead them toward engaging in activities that promote learning goals over performance ones.

To summarize the two competing views regarding the nature of intelligence, and their consequences:

Belief that intelligence is fixed (entity theory)

- view tasks as a means for validation
- opt for easy tasks that suit performance goals
- prone to helpless response
- resist employing effort
- avoid challenging tasks

Belief that intelligence is malleable (incremental theory)

- view tasks as a chance for personal growth
- opt for tasks that suit learning goals
- prone to mastery-oriented response
- readily employ effort
- seek challenging tasks

## Theories of Intelligence as they relate to Significant Transitions

Transitional periods in students' lives, such as the transition from elementary school to middle school, middle school to high school, and high school to university, introduce new and novel challenges to students. Dweck, and fellow researcher Henderson (1990), studied one such transition. They found that students who held an incremental theory of intelligence had a more successful transition, and were better able to maintain academic success, than their classmates who held entity theory beliefs about intelligence.

That is, students who held the belief that intelligence is a fixed trait were at a disadvantage in that when the new environment didn't allow them to display an immediate demonstration of mastery, it was taken as an indictment of their intelligence. As we know, entity theorists are prone to apply this indictment to not only their skill at present, but also their general intelligence and their future performance. This mindset combined with the many new challenges and difficulties that accompany such a jarring transition in their lives can have serious and long-term negative consequences.

Students who held beliefs that intelligence is malleable viewed the challenges and difficulties that their new environment imposed as a natural part of the learning process. They were more apt to use a variety of strategies to overcome their challenges. They entered their new environment with a "desire for challenge and the expectation that mastery is a process that takes place over time and with prolonged effort" (Dweck, 2000, p. 32).

A similar study (Dweck & Sorich, 1999) of same-aged children in a different demographic showed the same results. However, this study also gleaned insights into when and what gave students the feeling of satisfaction that comes with success. It turns out that these positive feelings stem from different events depending on whether one is an entity theorist or an incremental theorist.

### Theories of Intelligence as they relate to Outcome Satisfaction

The satisfaction one derives from an accomplishment is not always the same. Entity theorist derive satisfaction from bettering their peers. There is a comparative element, as well as a competitive element, in that they derive satisfaction by outperforming their peers (Dweck & Sorich, 1999).

Incremental theorists, on the other hand, derive satisfaction from making progress. Unlike their entity theorist counterparts, their sense of success isn't contingent on how they did in relation to others, but how they themselves fared and whether growth and personal progress took place. That is, whether they succeeded in learning.

### Results of the Instruments

I gave my first-year students, who are all majoring in law, two research instruments. Each instrument was given on different days. I handed the instruments out at the end of class, and upon completion, they were free to leave. 106 students, divided between 4 classes, completed both instruments. 29 females and 77 males completed both

surveys. At a glance:

Total	106 students :	29 females	77 males
Class 1	29 students :	4 females	25 males
Class 2	28 students :	9 females	19 males
Class 3	25 students :	8 females	17 males
Class 4	24 students :	8 females	16 males

### Instrument 1: Effort as it Relates to Conceptions of Intelligence

The first instrument given to the students was aimed at identifying the extent to which they believe effort is a factor in how they define intelligence. The actual instrument, which was in Japanese, can be found in the appendix of this paper. They were asked to complete the following equation:

$$\text{Intelligence} = \text{\_\_\_\_\_\% effort} + \text{\_\_\_\_\_\% ability}$$

The results were as follows:

All students (106) : Intelligence = 70% effort + 30% ability

Male students (77) : Intelligence = 68% effort + 32% ability

Female students (29) : Intelligence = 76% effort + 24% ability

The results show that despite not dividing students according to their implicit theories of intelligence (which I do below), these first year law students still give greater weight to effort than even the

incremental theorists among the university students Dweck (2000, p. 62) surveyed in 1997:

Entity theorists : Intelligence = 35% effort + 65% ability

Incremental theorists : Intelligence = 65% effort + 35% ability

Cultural differences could be one explanation for this disparity, with Asian cultures viewing effort as an essential element in how they conceptualize intelligence (Stevenson, Lee, Chen, Stigler, Hsu, Kitamura, & Hatano, 1990). Dweck's findings are over 20 years old, so another explanation could be recent trends in education that focus on effort as the main determinant of success.

Also worth noting are the number of students that weighted effort, as opposed to ability, as the primary element of intelligence. In the following chart, the data in the Effort row shows the number of students that rated effort as >50%. The Ability row shows the number of students that thought that ability made up >50% of intelligence. The 50/50 row shows the number of students that conceived of intelligence as an equal balance of effort and ability.

Total	106 students :	29 females	77 males
Effort	78 students :	23 females	55 males
Ability	19 students :	2 females	17 males
50/50	9 students :	4 females	5 males

Students, particularly female students, clearly find the idea of effort integral to their conception of intelligence. As effort is the mover among those holding an incremental theory of intelligence, the

data here seems to hint that most of these students hold an incremental theory of intelligence. The second instrument was aimed at exploring that.

## Instrument 2: Implicit Theories of Intelligence

The second instrument that the students completed was based on one of the questionnaires Dweck used to investigate individuals' implicit theories of intelligence (Dweck, 2000, p. 177). The instrument used was translated into Japanese, and can be found in the appendix of this paper. It consisted of three statements, to which the students indicated their level of agreement or opposition to each:

1. You have a certain amount of intelligence, and you really can't do much to change it.  
1. 知能は生まれによって決まっていて、それを変えることはほとんどできない。
2. Your intelligence is something about you that you can't change very much.  
2. 知能という資質は、あまり変えることはできない。
3. You can learn new things, but you can't really change your basic intelligence.  
3. 新しいことを学ぶことは出来るが、生まれ持った知能は変えられない。

1-strongly agree 非常に思う

- 2-agree 思う
- 3-mostly agree まあまあ思う
- 4-mostly disagree あまり思わない
- 5-disagree 思わない
- 6-strongly disagree 全く思わない

A numerical average was taken of each student's response, and where he or she fell on the scale below indicates the implicit theory of intelligence they hold:

- 1-3 Entity
- 3.1-3.9 Undefined
- 4-6 Incremental

Students in the undefined category expressed beliefs that defied categorization neatly as either entity or incremental theorists. As mentioned above, Dweck's results showed a roughly equal distribution between entity and incremental theorists, with about 15% being undefined (Diener & Dweck, 1978, 1980; Dweck 2000, p. 7).

The results of my students were as follows:

<u>Total</u>	106 students :	29 females	77 males
Entity theorists	36 students :	8 females	28 males
Incremental theorists	57 students :	17 females	40 males
<u>Undefined</u>	13 students :	4 females	9 males

Bringing the data from the two instruments together we can see how the three groups (entity, incremental, and undefined) conceptual-

ized the role of effort in how they define intelligence:

Entity (36 students): Intelligence = 61% effort + 39% ability

Incremental (57 students): Intelligence = 77% effort + 23% ability

Undefined (13 students): Intelligence = 63% effort + 37% ability

It's unsurprising that the students who hold an incremental view of intelligence see effort as a substantial part of what accounts for intelligence (77% effort). What is surprising is that even those with an entity theory of intelligence, who think one's intellectual capacity is largely fixed, view intelligence as primarily comprised of effort (61%).

Again, Dweck's 1997 research on American college students shows a neat contrast in how students viewed the role of effort and ability, depending on their implicit theory of intelligence (2000, p. 62):

Entity theorists : Intelligence = 35% effort + 65% ability

Incremental theorists : Intelligence = 65% effort + 35% ability

These are quite different results than what I found. Whether my students hold an entity or incremental implicit theory of intelligence, or something in between, effort (over ability) defines the bulk of how they view intelligence.

## Conclusion

For reasons that I am not certain, my findings are different than Dweck's. Cultural differences, or changes in education in the last 20

years, may explain the disparity.

The findings reflect that a majority of my first year students hold an incremental theory of intelligence, and believe that effort is a vital element of intelligence. From the perspective of an educator these appear to be favorable findings.

The alternative to this mindset; a majority of students that downplay the role of effort and who hold the view that their basic degree of intelligence is fixed, can – as we’ve seen – result in problems. That the majority my students eschew this view is reassuring from an educational standpoint.

Still, among my students there is a sizable percentage that do hold an entity view of intelligence, and that do downplay the role of effort. The question becomes, can they be influenced toward a more beneficial mindset? The answer appears be an affirmative one; Dweck and her fellow researchers showed that one’s theory of intelligence itself is changeable (Dweck, 2000). This means that students can be influenced toward a view of intelligence that promotes learning goals over performance ones.

Aronson, Fried, & Good (2002) successfully elicited academic gains in college students with the implementation of two practices: (1) an intervention designed to change their conception of intelligence, and (2) a pen-pal program that served to reinforce this new way of thinking by having them write letters to middle school children advocating an incremental theory stance.

The intervention consisted of a film outlining the research into incremental theory that provided a research-based scientific case that neural connections are strengthened through effort, effectively making our intelligence something we can control.

The pen-pal program was implemented to help the university students internalize the concept of incremental theory, and make it more applicable and long lasting.

The results showed an increase in the students' academic achievements, a rise in their level of satisfaction about their collegiate experiences, and an improved academic self-concept.

If there are indeed things that we, as educators, can do to instill in our students a system of beliefs that will fundamentally equip them to better meet and overcome challenges — be they academic or otherwise — perhaps we owe it to them to spend a percentage of our classroom time doing so.

## Appendix

### Instrument 1

#### Intelligence Survey 1

1. Name: \_\_\_\_\_

3. Student Number: \_\_\_\_\_

2. Class: (D) (E) (F) (A)

4. (女) (男)

知能 = \_\_\_\_% 才能 + \_\_\_\_% 努力

### Instrument 2

#### Intelligence Survey 2

1. Name: \_\_\_\_\_

3. Student Number: \_\_\_\_\_

2. Class: (D) (E) (F) (A)

4. (女) (男)

1. 知能は生まれによって決まっていて、それを変えることはほとんどできない。

非常に思う     思う     まあまあ思う     あまり思わない     思わない     全く思わない

2. 知能という資質は、あまり変えることはできない。

非常に思う     思う     まあまあ思う     あまり思わない     思わない     全く思わない

3. 新しいことを学ぶことは出来るが、生まれ持った知能は変えられない。

非常に思う     思う     まあまあ思う     あまり思わない     思わない     全く思わない

## References

- Aronson, J., Fried, C. B., & Good C. (2002). Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence. *Journal of Experimental Psychology*, 38 (2), 113-125.
- Ceci, S. J. (1990). *On intelligence-- more or less : A bio-ecological treatise on intellectual development*. Englewood Cliffs, N.J : Prentice Hall.
- Covington, M. V., & Omelich, C. L. (1979). Effort : The double-edged sword in school achievement. *Journal of Educational Psychology*, 71(2), 169-182.
- Diener, C. I., & Dweck, C. S. (1978). An analysis of learned helplessness : Continuous changes in performance, strategy and achievement cognitions following failure. *Journal of Personality and Social Psychology*, 36 (5), 451-462.
- Diener, C. I., & Dweck, C. S. (1980). An analysis of learned helplessness : II. The processing of success. *Journal of Personality and Social Psychology*, 39 (5), 940-952.
- Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology*, 31(4), 674-685.
- Dweck, C. S. (2000). *Self-theories : Their role in motivation, personality, and development*. Philadelphia, PA : Psychology Press.
- Dweck, C. S., & Bempechat, J. (1983). Children's theories of intelligence. In S. Paris, G. Olsen, & H. Stevenson (Eds.) *Learning and motivation in the classroom* (pp. 239-256). Hillsdale, NJ : Erl-

baum.

- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychology Review*, 95 (2), 256-273.
- Dweck, C. S., & Reppucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology*, 25 (1), 109-116.
- Dweck, C. S., & Sorich, L. A. (1999). Mastery-oriented thinking. In C.R. Snyder (Ed.) *Coping*, (pp. 232-251). New York, NY : Oxford University Press.
- Dykman, B. M. (1998). Integrating cognitive and motivational factors in depression : Initial tests of a goal-orientation approach. *Journal of Personality and Social Psychology*, 74 (1), 139-158.
- Elliot, E. S., & Dweck, C. S. (1988). Goals : an approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54 (1), 5-12.
- Henderson, V. L., & 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.
- Heyman, G. D., & Dweck, C. S. (1998). Children's thinking about traits : Implications for judgments of the self and others. *Child Development*, 69 (2), 391-403.
- Heyman, G. D., Dweck, C. S., & Cain, K. M. (1992). Young children's vulnerability to self-blame and helplessness : Relationship to beliefs about goodness. *Child Development*, 63 (2), 401-415.
- Hong, Y.-y., Chiu, C.-y., Dweck, C. S., Lin, D. M.-s., & Wan, W. (1999). Implicit theories, attributions, and coping : A meaning system approach. *Journal of Personality and Social Psychology*,

77 (3), 588-599.

- Licht, B. G., & Dweck, C. S. (1984). Determinants of academic achievement : The interaction of children's achievement orientations with skill area. *Developmental Psychology*, 20 (4), 628-636.
- 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.
- Rhodewalt, F. (1994). Conceptions of ability, achievement goals, and individual differences in self-handicapping behavior : On the application of implicit theories. *Journal of Personality*, 62 (1), 67-85.
- Seligman, M. E. P. (1975). *Helplessness : on depression, development, and death*. San Francisco : New York : W.H. Freeman.
- Sternberg, R. J. (1985). *Beyond IQ : A triarchic theory of human intelligence*. Cambridge [Cambridgeshire : Cambridge University Press.
- Sternberg, R. J. (1990). *Metaphors of mind : Conceptions of the nature of intelligence*. New York, NY, US : Cambridge University Press.
- Stevenson, H. W., Lee, S.-y., Chen, C., Stigler, J. W., Hsu, C.-c., Kitamura, S., & Hatano, G. (1990). Contexts of achievement : A study of American, Chinese, and Japanese children. *Monographs of the Society for Research in Child Development*, 55 (1-2) [221], 123.
- Stone, J. (1998). *Theories of intelligence and the meaning of achievement goals*. Doctoral dissertation, New York University.
- Surber, C. F. (1984). Inferences of ability and effort : Evidence for two different processes. *Journal of Personality and Social Psychology*

63 (28)      Implicit Theories of Intelligence among First-Year Law Students  
                 in Japan (Jonathan Austin Daniels)  
*chology*, 46 (2), 249–268.

## Acknowledgements

I would like to thank Professors Tetsuya Deguchi, Makoto Hayakawa, and Yasuhiro Maruyama for their advice in translating the research instruments into Japanese.