

# Improving Implicit Beliefs and Expectations in Academic Achievement for Postsecondary Students with Disabilities

Kelly B.T. Chang, Ph.D. Candidate  
University of Hawaii at Manoa

**Abstract:** In this article, the author introduces the sociocognitive theory of implicit theories of intelligence (developed by Carol S. Dweck and her colleagues) to the field of rehabilitation, and analyzes disability issues in postsecondary academic achievement within this framework. This sociocognitive theory highlights the utility of the social model of disability. People hold two types of implicit beliefs about intelligence. An entity belief can lead to helplessness and negative self-concepts in the face of failure, because it focuses on labels and stable traits. An incremental belief leads to greater resilience in the face of failure by focusing on strategy and effort rather than on stable traits. The value of promoting incremental beliefs about intelligence in youth with disabilities is discussed in light of self-determination training, perception of opportunity, and transition to postsecondary education. Recommendations are presented for facilitating incremental beliefs in students with disabilities and improving the probability of academic success.

**Key Words:** motivation, academic achievement, students with disabilities, implicit beliefs

## Introduction

Attitudinal barriers may disable people by limiting their opportunities to improve. Students with disabilities face low expectations for academic achievement (Berliner & Biddle, 1996; HEATH Resource Center, 1991; Kerka, 2002; National Council on Disability, 2000; R. A. Stodden, Conway, & Chang, 2003), and therefore are less likely to persevere through challenges, and less likely to succeed (Berliner & Biddle, 1996; R. A. Stodden et al., 2003). Attitudes of others affect how students see themselves and what they expect to achieve. Students with disabilities learn to comprehend their situations and abilities through feedback. Their interpretations of this feedback may affect how hard they try and how well they do. In this process, attitudes students with disabilities face can either inhibit or encourage academic achievement.

There is no doubt students with disabilities are at greater risk of lower academic achievement than their peers without disabilities. One study found 22% of students with disabilities drop out of high school, compared to 12% of students without disabilities (Benz & Halpern, 1987). Youth with disabilities also attend postsecondary schools at lower rates than do those without disabilities. In a national longitudinal study, 19% of students with disabilities who graduated from high school went on to postsecondary education, compared to 53% of youth in the general population (Wagner & Blackorby, 1996). Of these, only 16% of students with disabilities who start postsecondary education finish with a bachelor's degree, compared to 27% of students without disabilities (U.S. Department of Education & National Center for Education Statistics, 1999). Achieving a postsecondary degree is important because the relationship between higher education attainment and positive employment outcomes is even stronger for people with disabilities than for people without disabilities. The more education they have, the more likely they are to be employed, especially in their chosen profession, and to earn higher wages (Hoyt, 2001, October; *Ladders of Opportunity*, 2001).

Changes in laws and the accommodation process from secondary to postsecondary school (Stodden, Jones, & Chang, 2002), attitudes of faculty and other students (Conway & Chang, 2003), and lack of resources and resource coordination (Whelley, Hart, & Zafft, 2002), as well as effects of disability on everyday postsecondary educational frustrations, all present barriers and challenges to students with disabilities. To succeed in postsecondary education, and in subsequent employment, students must overcome and persevere through these barriers. Therefore, it is important that educators, service providers, and families of students with disabilities become aware of the motivational factors that influence perseverance and success in postsecondary education. Motivational factors play a key role in the completion of a degree, subsequent employment, career longevity and advancement.

In mainstream American society, where individual resolve and resilience are often necessary for success and pursuit of the “American Dream,” how do environmental and attitudinal barriers influence people’s self-concepts and motivation? Do students with disabilities internalize outside barriers and give up? How can they be helped to persevere in the face of such obstacles? Psychological research on motivation may provide some answers. In particular, research on resilience and perseverance in the face of failures, such as the work of Carol S. Dweck (1999) and her colleagues, point to several aspects of motivation to consider in efforts to improve students’ chances of academic achievement and subsequent employment. The purposes of this article are to (a) describe Dweck’s theory of implicit beliefs about intelligence and how these beliefs influence academic persistence and achievement and (b) apply this theory to issues affecting students with disabilities, such as self-determination, perception of opportunity, and transition into postsecondary education.

### The Role of Student Expectations of Intelligence and Effort on Achievement: Implicit Beliefs About Intelligence

Psychological research may be useful when considering how to improve postsecondary outcomes. However, this wealth of knowledge about student motivation and perseverance appears untapped in much of the literature on disability issues. The author’s goal is to apply important motivational concepts to the real world situations of postsecondary students with disabilities. Dweck’s theory on the processes underlying persistence in performing difficult tasks is highlighted below, followed by an application to challenges faced by students with disabilities when they transition into postsecondary education.

People tend to view intelligence implicitly in two different ways, as established and validated by Carol Dweck and her colleagues (Bandura & Dweck, 1985; Dweck & Leggett, 1988; Elliot & Dweck, 1988; Henderson & Dweck, 1990; Mueller & Dweck, 1998). People with *entity beliefs* think intelligence is fixed. Therefore, they believe that one’s level of intelligence is sustained over time, and that effort will not improve intelligence. People with entity beliefs tend to avoid challenges, because the risk of failure poses a threat to their perceived level of intelligence. In contrast, people with *incremental beliefs* think intelligence is malleable and that, with effort, intelligence can improve through practice. People with incremental beliefs tend to welcome challenges and perceive failure as part of the growing process. Both entity and incremental beliefs about intelligence have been demonstrated in elementary school students (Zietgert, Kistner, Castro, & Robertson, 2001), college students (Robins & Pals, 2002), and adults (Lim, Plucker, & Im, 2002), and in different ethnicities (Billings, 1999) and different countries (Lim et al., 2002; Silvera, Moe, & Iversen, 2000). Implicit beliefs about intelligence

have been measured in different ways, depending on the population under study. A common method for measuring beliefs in adults is a questionnaire asking people to rate their agreement with statements like “you have a certain amount of intelligence, and you can’t really do much to change it” (entity belief), or “you can change even your basic intelligence level considerably” (incremental belief).

Work on implicit beliefs about intelligence stemmed from observations of how people react to failure. “Failure” is usually represented in these studies by receiving a low score on a test, receiving feedback that performance on a task was poor, or hypothetical vignettes. Dweck and her colleagues (Diener & Dweck, 1978, 1980; Dweck, 1975; Dweck & Reppucci, 1973) described two distinct reactions to failure: the helpless response and the mastery-oriented response. *Helpless responses* include a sense of lack of control, self-degradation of intelligence, lower expectations, lower performance, and giving up. Helpless responders tend to attribute failure to their level of intelligence. People with the entity perspective often exhibit helpless responses to failure. In contrast, people with the incremental perspective often exhibit mastery-oriented responses to failure. A *mastery-oriented response* includes problem-solving for improvement, and focusing on trying harder, rather than on attributing blame for failure. In Zhao, Dweck, & Mueller’s study (1998) comparing responses to failure between people with incremental beliefs, people with entity beliefs, and students who expressed depressive symptoms, college students were presented with hypothetical vignettes of failure, including failure on the Graduate Record Exam or in a class presentation. These students were then asked what they would think, how they would feel, and what they would do. Students with the entity perspective responded in exactly the same way as depressed students, and both groups were significantly different from students with the incremental perspective. People with entity beliefs and depressed students were more likely to make judgments of their entire intelligence on the basis of failure, saying things like, “I would think I was dumb.” These two groups were also more likely to say they would be devastated and feel worthless and hopeless. Finally, they were more likely to report they would quit. In contrast, students with the incremental perspective talked about their strategies to turn failure into success or to increase effort.

Dweck and her colleagues also proposed the two different responses to failure are a result of different goals students emphasize when approaching a task. Again, two distinct types were identified; performance goals and learning goals (Dweck & Elliot, 1983; Elliot & Dweck, 1988). While both types are natural and can coexist, they sometimes conflict when students face decisions regarding tests of their intelligence. *Performance goals* involve a desire to achieve positive appraisal of competence, that is, to look smart. *Learning goals* involve a desire to learn new things and develop skills. Both types of goals may motivate students to achieve, but learning goals tend to lead to more mastery-oriented responses to failure, while performance goals tend to lead to more helpless responses to failure. Students who view a task as a means of learning new things welcome challenges and see mistakes as part of the learning process. However, when students view a task as a means of appearing smart, they don’t want to risk making mistakes. They see failure as an indication of low intelligence. People can have both kinds of goals, but people with entity beliefs tend to have more performance goals and people with incremental beliefs tend to have more learning goals.

Implicit beliefs about intelligence and achievement goals influence the meaning of effort. Students with incremental beliefs tend to see effort as a natural part of learning, while students with entity beliefs and performance goals see effort as an indication of low intelligence. “If you have to work hard to understand something, you’re probably not very smart.” The

beliefs, goals, responses to failure, and meaning of effort described above are illustrated in **Table 1**.

If beliefs about intelligence influence goals, effort, and coping, then what, one might ask, influences beliefs? To answer this question, several studies were done on the effects of praise and criticism (Kamins & Dweck, in press; Mueller & Dweck, 1998). The results of these studies indicate that as children are raised, praise or criticism that focused on stable traits (i.e., something about the person that cannot be changed and is stable over time) within the person led to entity beliefs, performance goals, and helpless responses to failure. Praise such as “you are smart” or criticism such as “you are stupid” facilitates belief in a fixed level of intelligence. In contrast, praise or criticism that focused on strategy or effort led to incremental beliefs, learning goals, and mastery-oriented responses to failure. Praise such as “you used a good strategy” or criticism such as “you need to try harder” indicate that the result of a task--whether successful or not—can be improved and is not bound to a stable level of intelligence. The implications of this research are that people learn either an incremental or entity perspective of intelligence as they grow through feedback from family, teachers and peers and that feedback can also play a vital role in changing beliefs about the stability of intelligence.

Conclusions drawn from this research contrast today’s popular trend of praising innate intelligence to increase self-esteem. It is widely believed that if you praise students for their intelligence and attribute their successes to their good traits (smart, good, etc.), then they will be more likely to perform well. This may be true, but problems arise when those students face failure. Since they have learned to attribute outcomes of their behavior to inner traits, they also attribute academic failure to lack of intelligence, and therefore respond to failure poorly by giving up or degrading themselves, even though they had high self-confidence and success before the failure.

Implicit theories also influence whether students acquire and use learning strategies (Chang, 2003). College students who were taught various strategies for better learning and test performance reported using strategies more in their studies if they had incremental beliefs, focusing on learning, effort, and practice. Students who reported using strategies less, believed that their need to use strategies indicated they were not smart, and they preferred to do what “felt natural,” even if they knew the strategies worked. Their adherence to the entity perspective of intelligence prevented them from taking advantage of interventions meant to help them improve academic achievement.

## Specific Issues in Postsecondary Education for Students with Disabilities

### Self-Determination

A current priority in disability research and practice is preparing students with disabilities with the skills they need to manage their lives after high school. Self-determination has been viewed as vital to success for people with disabilities when they transition into postsecondary education (Izzo & Lamb, 2002). When introducing their concept of intrinsic motivation to the developing field of disability studies, Deci and his colleagues emphasized the importance of choice and control for people with disabilities, and the potential limiting effects of a system that does not allow them to make decisions for themselves (Deci & Chandler, 1986; Deci, Hodges, Peirson, & Tomassone, 1992). The area of self-determination has since evolved into a collection of skills and knowledge in which researchers suggest all youths with disabilities be trained. This

collection includes self-awareness, self-advocacy, self-efficacy, decision-making, independent performance, self-evaluation and adjustment (Martin & Huber-Marshall, 1995). There are several programs, funded by the American government, that are meant to develop and implement programs to prepare students with disabilities for postsecondary education through self-determination training (Izzo & Lamb, 2002). Programs in America and other countries have been developing ways to enhance consumer self-determination (Callahan & Mank, 1998; Kilsby & Beyer, 2002; Rumrill, 1999; Wehmeyer & Bolding, 2001) and their involvement in developing their rehabilitation plan (Flannery, Slovic, Treasure, Ackley, & Lucas, 2002; Kilsby, Bennert, & Beyer, 2002).

These efforts to teach and implement self-determination skills must take into account implicit beliefs. Students with incremental beliefs about intelligence are more likely to acquire and use new strategies and skills than are students who have internalized entity beliefs (Chang, 2003). There may be a cyclical relationship between implicit beliefs about intelligence and acquisition of self-determination skills. Students with incremental beliefs may be more likely than students with entity beliefs to make self-determined choices based on higher expectations for improvement and academic achievement. Similarly, students with less knowledge of the influence of their disability on academic achievement and the effectiveness of accommodations may be more likely to believe they are “just stupid” and exhibit helpless responses to challenges. Students with entity beliefs about intelligence may be more likely to make choices based on their ‘label,’ fear of failure, and past successes.

With rapidly improving technology and a growing knowledge base about services and accommodations that improve the quality of life for individuals with disabilities, the potential for academic success for otherwise disabled people is stronger now than ever before. Unfortunately, many students with disabilities are not aware of this potential, either because they have not received appropriate services to help them succeed, or because of the low expectations of others. Ineffective accommodations—or no accommodations—can lead to academic failures, which students may attribute to their disability. Low expectations of others can lead students to expect less of themselves. One student with a severe physical disability said:

“In my senior year, I thought I didn’t want to go to college, because some people in my high school told me that I might not be able to do it. So I stayed home for a year, and by the middle of February I was bored to death. So I called my rehab counselor and talked with him while my mom was at work. In March, I went to rehab evaluation, and they said I probably couldn’t do it...” (National Center for the Study of Postsecondary Educational Supports, 2001, p. 1).

This student nearly gave in to the low expectations of others, but did not. He attended college, and at the time of his interview, had two years until graduation. He acted on an incremental belief and determined for himself that he would take on the challenge of going to college. Other students facing similarly low expectations may not have the resilience to persist if they believe intelligence is an unchangeable entity.

### Perception of Opportunity, Choice and Control

A concept closely related to implicit theories of intelligence (i.e., belief in the ability to improve one’s self is the concept of perception of opportunity (i.e., belief about the ability to

improve the situation). Perception of opportunity is the degree to which an individual believes there are opportunities in the environment to achieve certain goals. Individuals who perceive opportunities to improve their situation (i.e., career advancement, educational attainment, etc.) may be more likely to exhibit mastery-oriented responses to situations than those who do not perceive such opportunities. Individuals who perceive an opportunity for innovation or advancement in their careers are more satisfied with their work (Derecho, 1996) and have a higher sense of subjective well-being and satisfaction in life (Catsis, 2002; Harlow & Newcomb, 1990). Perception of opportunity correlates positively with educational expectations in secondary school students, which in turn correlates with educational aspirations and career expectations (Wall, Covell, & MacIntyre, 1999). And socially, perception of limited opportunity predicts adolescent alienation, even more so than socioeconomic status (Han, 1971).

Negative influences on perception of opportunity include stereotypes, lack of successful role models, and experienced or observed limits on opportunities (Durodoye & Bodley, 1997). External variables that have a positive effect on perception of opportunity include access to education, informal support (York, Henley, & Gamble, 1985) and formal efforts to improve career choice patterns (Dunn & Veltman, 1989).

While most research on perception of opportunity has been conducted in the context of gender and minority differences, it may also be an important factor for individuals with disabilities. Due to attitudinal and physical barriers, low expectations from others, and societal stereotypes, students with disabilities may have a lower perception of opportunity than students without disabilities. This can contribute to lower attainment in education, dropping out, and low persistence in careers. When individuals with disabilities perceive barriers to success (i.e., they have a low perception of opportunity), they are more likely to quit. Rumrill, Roessler, Longden, & Schuyler (1998) found perceived barriers to worksite accessibility and performance of essential functions related negatively to feelings of job mastery and job satisfaction.

Students who have met with many failures and who attributed those failures to limits within themselves rather than to the environment may have a lower sense of opportunity. Entity-oriented students would more often blame themselves for failures, even to the point of experiencing feelings of worthlessness and helplessness (Diener & Dweck, 1980). Therefore, when such students fail in their first college exams, they are less likely to recognize opportunities to improve the situation. Such maladaptive cognition can result in lower success rates. If students with disabilities are encouraged to see situations through the incremental perspective, they may be more likely to set higher expectations and aspirations in education, experience a higher sense of well-being, and achieve more academically and vocationally than they would if they continued to interpret their situation through an entity perspective. Efforts to train consumers in strategies for expanding opportunities (i.e., job search skills, social skills necessary for requesting accommodations, etc.) and to expand perceptions of opportunity (i.e., through introduction to role models, job shadowing, and internships) have resulted in higher self-efficacy and increased motivation to study and pursue career options (Burgstahler, 2001; Rumrill, 1999).

### Transition to Postsecondary Education

The transition from high school to postsecondary education is often complicated, for anyone. Going to a college or university often involves more freedom, and with it, more responsibilities. For example, students in high school are used to being reminded if they have homework due, but in college, they are responsible for remembering important dates

themselves. Also, the entire grade for a course often depends on one-to-three tests and perhaps a paper. Whereas in high school, students have many opportunities to build up their grades through multiple homework assignments, and making mistakes on one of them does not make much of a difference. In college, most measures of student competence are highly concentrated. The amount and depth of material and the context in which tests are taken, and in which papers are written, tend to be very different from what students are used to in high school. In situations where students transition to a more demanding environment with higher stakes in performance, they are more likely to exhibit the differences in thinking between entity beliefs and incremental beliefs. In a study done by Henderson and Dweck (1990), students transitioning into junior high school showed significant differences in academic achievement between those with incremental and those with entity perspectives. Because of the higher standards, more difficult curriculum, and less personalized instruction, it was predicted that increased challenges and failures would result in helpless responses and lower achievement for students with entity beliefs. Researchers found students with entity beliefs who did well in elementary school actually declined in class standing when faced with the challenges of junior high school. In contrast, students with incremental beliefs about intelligence did well in junior high school. This finding is important to remember for people who serve postsecondary students with disabilities, because for these students, the transition between high school and postsecondary education is even more difficult (Stodden et al., 2002).

Laws which protect the rights and services of students with disabilities change drastically from secondary school to postsecondary school. In high school, students are protected by the Individuals with Disabilities in Education Act (IDEA) of 1997, an educational act establishing federal programs that provide assistance, initiated and paid for by the government, and purposing to benefit the student and improve post-school outcomes. In postsecondary school, students are no longer served under the IDEA. Instead, they rely on civil rights laws, Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990, which primarily aim to ensure equity and nondiscrimination. In section 504 and the ADA, the government does not provide funding for support, but requires “reasonable accommodations” from government, private, and public organizations, including postsecondary institutions.

Under the IDEA, in high school, teachers are very aware of the special needs of their students and are part of a team which helps decide how best to meet those needs. However, in college or university, students are required to identify themselves as having a disability and to request accommodations from student services personnel and from faculty who are usually ignorant of disability issues (Stodden et al., 2002). While individuals with disabilities may get services from vocational rehabilitation, postsecondary support personnel and vocational rehabilitation services rarely work together the way teachers, related services providers, and parents in high school do. Therefore, students with disabilities not only have to cope with the traditional changes between secondary and postsecondary education, but also with major changes in the process of accommodations.

Another transition issue is late diagnosis: 31% of students with disabilities have reported that their disability had not been diagnosed until college (Sharpe, 2003). These students are likely to have little understanding of accommodations that could assist them in postsecondary studies. If these students are not given enough counseling and information about coping with their disability, they may see their new label as just another word for “slow,” and attribute their difficulties in class to a fixed amount of intelligence they cannot overcome. However, if they are

introduced to strategies and technology to help them process information, they may learn to cope through a mastery-oriented response to challenges.

Effective coping is necessary for any transition to a new environment. When transition involves a change in academic standards, effective coping is affected by students' implicit perspectives of intelligence. Even students who are "gifted" high-achievers in high school may not cope well. If they have developed entity beliefs—trying to preserve their "gifted" label for self-worth—they may be threatened by an environment where they are no longer the smartest in the class, and exhibit helpless responses to the change (Dweck, 1999). All of the changes mentioned above could lead to either helpless or mastery responses, depending on whether the student believes intelligence to be malleable with effort or assumes it to be a fixed trait.

Vocational rehabilitation personnel, disability student services personnel, and transition specialists often find themselves counseling students who are learning to cope with all the new challenges in their environment. Although they have no control over the way in which students were raised and taught with entity or incremental beliefs about intelligence, they may notice how these beliefs affect student persistence or defeat. This may be a time of life when counseling toward an incremental perspective can impact the outcome of postsecondary education for students with disabilities.

Can anything be done for students who have entity beliefs and helpless responses to challenges? Motivational studies say yes. Although a study done by Robins and Pals (2002) indicated that implicit theories are relatively stable over the college years, another study by Aronson and Fried (1998, as cited in Dweck, 1999) revealed that interventions can be effective. A group of high-achieving students and a group of at-risk students, who exhibited a gap in achievement, were shown a film that taught an incremental perspective of intelligence. The film gave evidence that showed that biological changes in the brain result when people meet challenges and exert mental effort and that they become smarter because of it. Student GPA data, which was collected at the end of the term and again at the end of the school year, indicated that students who had seen the film showed a significantly reduced achievement gap between the achieving and the at-risk groups, compared to similar students who had not seen the film. In other research, Burgstahler (Burgstahler, 2000; Burgstahler & Cronheim, 2001, Fall) uses the internet to connect students with disabilities with mentors who are examples of how challenges can be overcome. With effective interventions, students with disabilities can be taught incremental beliefs about intelligence and effective coping strategies for the challenges they face as they transition to postsecondary education.

The application of implicit theories of intelligence to these key issues is summarized in **Table 2**.

## Conclusion and Recommendations

Psychological research and theory in the area of education and motivation have greatly advanced. Theories about what motivates an individual to desire achievement, choose challenges, get up again after failing, and enjoy the educational process can make a difference for people if these theories are applied by service providers. Many instructional methods have their origins in psychological theory, and have been shown to work (Stipek, 1996). Other attempts to shape rehabilitation efforts according to psychological theory have resulted in improved outcomes (Bell, Lysaker, & Bryson, 2003; Rumrill, 1999).

To promote incremental beliefs in students with disabilities and the people who work and live with them, recommendations for policy, practice and research are presented follow.

#### Recommendations for System Enhancement: Improving the Possibility of Success in Postsecondary Education

- Make universal design of instruction and universal design of technology a national priority. Students with disabilities will be able to achieve more if their environment facilitates their efforts to do the same things as people without disabilities.
- Improve technical assistance and training for students with disabilities to increase opportunities for academic achievement through the use of different strategies.
- Improve accountability and funding for effective accommodations in postsecondary schools to make the above recommendations possible and efficient.
- Improve collaboration between Vocational Rehabilitation, secondary and postsecondary schools to make the transition from secondary to postsecondary education smoother and to improve choice, control, and self-determination of consumers.

#### Recommendations for Rehabilitation Counselors and Postsecondary Education Disability Services: Taking an Incremental Approach to Service

- Emphasize the belief that students can improve. Know yourself — do you believe students can improve their performance or do you prejudge them based on their label?
- Assess incremental beliefs as part of the counseling process.
- Participate in incremental belief training. Promote personnel development on facilitating incremental beliefs, so students are taught to emphasize strategy and effort rather than fixed traits.
- Focus assessment feedback on incremental improvement rather than on labels or judgments of a fixed ability. Always present assessments of challenging areas with possible solutions. Do not just tell a person he is dyslexic, but also recommend technical assistance such as screen-reading software, books on tape, note-takers, etc. If students still have difficulties, even with accommodations, try a different approach.
- Teach learning disabled (LD) students strategies for learning, with an emphasis on improving possibilities, rather than on deficiencies.
- Encourage students to analyze the processes involved in challenging situations, so potential changes in strategy or accommodations can be made.
- Connect students with mentors or role models who encourage incremental beliefs. Provide role models in the form of older students, graduates, adults in the same field, or even video stories. Hearing the success stories of people like themselves can help students to improve their self-efficacy and their belief that they can improve academically.

#### Recommendations for Further Study

- Research societal and educational factors that contribute to the development of implicit beliefs in students with disabilities.
- Research effective ways to facilitate and sustain incremental beliefs.

- Research implicit beliefs of various cultures and minority groups, and their effects on students at risk.
- Research potential for changing implicit beliefs in adults with disabilities.
- Pilot programs in vocational rehabilitation offices and in disability services offices to assist in creating a climate of incremental beliefs.
- Infuse incremental belief training in self-determination curricula.

The theory outlined in this article has implications for the academic success of students with disabilities. Promoting an incremental perspective of intelligence could help students with disabilities overcome attitudinal barriers and setbacks in classes, and take on the challenges they face while navigating through systems and between educational settings. Among educators, families, and service providers, an increased understanding about the difference between entity beliefs and incremental beliefs could equip them to help students move from helpless responses to mastery-oriented behavior.

Table 1

*The Effects of Implicit Beliefs About Intelligence on Achievement Goals and Response to Failure*

<b>Belief about Intelligence</b>	<b>Achievement Goal</b>	<b>Response to Failure</b>	<b>Meaning of Effort</b>
Incremental: Intelligence can be improved with effort	Learning: Tasks are a means to gaining knowledge and developing skills	Mastery-oriented: Mistakes are part of the learning process, and the focus is on trying harder and problem-solving	Effort is a natural part of the learning process. Even geniuses have to work hard.
Entity: Intelligence stays the same	Performance: Tasks are a means of judging or displaying intelligence	Helpless: Mistakes are an indication of low intelligence, and the focus is on failure and negative emotions	Effort is an indication of a lack of intelligence. Smart people can pass tests without working hard at it.

Table 2. Application of implicit beliefs about intelligence to transition issues

<b>Implicit Beliefs</b>	<b>Self-determination</b>	<b>Perception of opportunity</b>	<b>Transition to postsecondary education</b>
	A set of skills, including an understanding of oneself and one's disability, and the ability to control outcomes according to individual decisions, efforts, and preferences.	The degree to which an individual believes there are opportunities in the environment to achieve certain goals.	The change in environment, academic norms, legal entitlement, and supports that students with disabilities must cope with when moving from secondary to postsecondary education
Incremental	Individual with more choice and control in the academic setting is more likely to believe in the ability to change and learn mastery-oriented responses to challenges. Individual is more likely to make choices based on high expectations for improvement and academic achievement if he or she has an incremental perspective of intelligence.	Individual who has been taught to approach challenges and barriers with creative problem solving may experience a greater sense of opportunity and exhibit mastery responses to failures.	Individual who has an incremental perspective adjusts well to higher academic standards and challenges. Effective counseling and training in the use of accommodations can encourage a mastery approach to challenges.
Entity	Individual with less knowledge of the influence of their disability on academic achievement and the effectiveness of accommodations is more likely to believe they are "just stupid" and exhibit helpless responses to challenges. Individual is more likely to make choices based on his or her 'label,' fear of failure, and past successes.	Individual who has met with many failures and attributed those failures to limits within the self rather than the environment would have a lower sense of opportunity	Individual who is used to easy grades in high school may interpret lower grades in college as a judgment of real intelligence and respond helplessly to the loss of his or her "gifted" label. Inadequate accommodations and training can contribute to an entity belief about intelligence.

**Kelly Bow Tsin Chang** has an M.A. in Psychology in the area of Teaching, Learning, and Cognition, with an emphasis on student motivation and self-regulated learning, and is a Ph.D. candidate in the same field at the University of Hawaii at Manoa. She works as a research assistant for the National Center on Secondary Education and Transition, Post Outcomes Network, where she focuses primarily on issues of transition from secondary

to postsecondary education. She can be contacted by email at Kelly.Chang@cds.hawaii.edu.

## References

- Americans with Disabilities Act of 1990, 42 U.S.C.A. 12101 *et seq.* (1993).
- Aronson, J., & Fried, C. (1998). *Reducing stereotype threat and boosting academic achievement of African Americans: The role of conceptions of intelligence*. Unpublished manuscript.
- Bandura, M., & Dweck, C. S. (1985). *The relationship of conceptions of intelligence and achievement goals to achievement-related cognition, affect, and behavior*. Unpublished manuscript.
- Bell, M., Lysaker, P., & Bryson, G. (2003). A behavioral intervention to improve work performance in schizophrenia: Work behavior inventory feedback. *Journal of Vocational Rehabilitation, 18*, 43-50.
- Benz, M. R., & Halpern, A. S. (1987). Transition services for secondary students with mild disabilities: A statewide perspective. *Exceptional Children, 53*, 507-514.
- Berliner, D. C., & Biddle, B. J. (1996). Standards amidst uncertainty and inequality. *The School Administrator, 53*(5), 42-47.
- Billings, B. L. (1999, April 15-18). *Ethnicity and individual differences in achievement goals in kindergarten children (ED 436288)*. Paper presented at the Biennial Meeting of the Society for Research in Child Development, Albuquerque, NM.
- Burgstahler, S. (2000). *Opening doors: Mentoring on the internet*. Seattle, Washington: University of Washington.
- Burgstahler, S. (2001). A collaborative model to promote career success for students with disabilities. *Journal of Vocational Rehabilitation, 16*, 209-215.
- Burgstahler, S., & Cronheim, D. (2001, Fall). Supporting Peer-Peer and Mentor-Protege Relationships on the Internet. *Journal of Research on Technology in Education, 34*(1), 59-74.
- Callahan, M., & Mank, D. (1998). *Choice and control of employment for people with disabilities*, Paper prepared for The Robert Wood Johnson Foundation Self-Determination Initiative.
- Catsis, C. T. (2002, March). Perception of opportunity for innovation and productivity in relation to subjective well-being of interior design educators at major universities

- in the United States. *Dissertation Abstracts International Section A: Humanities & Social Sciences*, 62(8-A), 2693.
- Chang, K. B. T. (2003). *A Grounded Theory of the Acquisition of Learning Strategies in College Classrooms*. University of Hawaii, Manoa, Honolulu, Hawaii.
- Conway, M. A., & Chang, K. B. T. (2003). *Personnel and Student Perceptions about the Role of the Postsecondary Disability Support Provider*. Unpublished manuscript, Honolulu, Hawaii.
- Deci, E. L., & Chandler, C. L. (1986). The importance of motivation for the future of the LD field. *Journal of Learning Disabilities*, 19, 587-594.
- Deci, E. L., Hodges, R., Peirson, L., & Tomassone, J. (1992). Autonomy and competence as motivational factors in students with learning disabilities and emotional handicaps. *Journal of Learning Disabilities*, 25, 457-471.
- Derecho, C. N. (1996, March). Situational and dispositional factors in affective responses to work. *Dissertation Abstracts International: Section B: The Sciences & Engineering*, 56(9-B), 5206.
- 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, 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, 940-952.
- Dunn, C. W., & Veltman, G. C. (1989, October). Addressing the restrictive career maturity patterns of minority youth: A program evaluation. *Journal of Multicultural Counseling & Development*, 17, 156-164.
- Durodoye, B., & Bodley, G. (1997, March). Career development issues for ethnic minority college students. *College Student Journal*, 31(1), 27-32.
- Dweck, C. S. (1975). The role of expectations and attributions in the alleviation of learned helplessness. *Journal of Personality and Social Psychology*, 31, 674-685.
- Dweck, C. S. (1999). *Self-theories: Their role in motivation, personality, and development*. Philadelphia: Psychology Press.
- Dweck, C. S., & Elliot, E. S. (1983). Achievement motivation. In P. Mussen & E. M. Hetherington (Eds.), *Handbook of Child Psychology* (pp. 643-692). New York: Wiley.
- Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95, 256-273.

- Dweck, C. S., & Reppucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology*, 25, 109-116.
- Elliot, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54, 5-12.
- Flannery, K. B., Slovic, R., Treasure, T., Ackley, D., & Lucas, F. (2002). Collaboration and partnership to improve employment outcomes. *Journal of Vocational Rehabilitation*, 17, 207-215.
- Han, W. S. (1971, March). Alienation, deviation-proneness, and perception of two types of barriers among rural adolescents. *Social Forces*, 49, 398-413.
- Harlow, L. L., & Newcomb, M. D. (1990, July). Towards a general hierarchical model of meaning and satisfaction in life. *Multivariate Behavioral Research*, 25, 387-405.
- HEATH Resource Center. (1991). *Career planning and employment strategies for postsecondary students with disabilities*. Retrieved January 2, 2003, from <http://www.heath-resource-center.org/PDFs/CareerPlanningandEmploymentStrategiesforPostsecondaryStudentswithDisabilities.pdf>
- Henderson, V., & Dweck, C. S. (1990). Motivation and achievement. In S. Feldman & G. Elliott (Eds.), *At the threshold: The developing adolescent* (308-329). Cambridge, Massachusetts: Harvard University Press.
- Hoyt, K. (2001, October). Helping high school students broaden their knowledge of postsecondary education options. *Professional School Counseling*, 5(1), 6-13.
- Individuals with Disabilities Education Act, 20 U.S.C. 1400 *et seq.* (1997).
- Izzo, M., & Lamb, M. (2002). *Self-determination and career development: Skills for successful transitions to postsecondary education and employment*. Unpublished manuscript, A white paper developed for the National Center on Postsecondary Education Supports at the University of Hawaii at Manoa. Available online, at: [http://www.ncset.hawaii.edu/Publications/Pdfs/self\\_determination.pdf](http://www.ncset.hawaii.edu/Publications/Pdfs/self_determination.pdf)
- Kamins, M. L., & Dweck, C. S. (in press). Person vs. process praise and criticism: Implications for contingent self-worth and coping. *Developmental Psychology*.
- Kerka, S. (2002). *Learning disabilities and career development*. ERIC.

- Kilsby, M. S., Bennert, K., & Beyer, S. (2002). Measuring and reducing acquiescence in vocational profiling procedures for first-time job-seekers with mental retardation. *Journal of Vocational Rehabilitation, 17*, 287-299.
- Kilsby, M. S., & Beyer, S. (2002). Enhancing self-determination in job matching in supported employment for people with learning disabilities: An intervention study. *Journal of Vocational Rehabilitation, 17*, 125-135.
- Ladders of opportunity*. (2001). California: California Community Colleges, Sacramento. Office of the Chancellor.
- Levy, S. R., & Dweck, C. S. (1996, June). *The relation between implicit person theories and beliefs in stereotypes*. Paper presented at the Paper presented at the Annual Convention of the American Psychological Society, San Francisco, CA.
- Lim, W., Plucker, J. A., & Im, K. (2002). We are more alike than we think we are: Implicit theories of intelligence with a Korean sample. *Intelligence, 30*, 185-208.
- Martin, J. E., & Huber-Marshall, L. (1995). Choicemaker: A comprehensive self-determination transition program. *Intervention in School and Clinic, 30*(3), 147-156.
- Mueller, C. M., & Dweck, C. S. (1998). Intelligence praise can undermine motivation and performance. *Journal of Personality and Social Psychology, 75*, 33-52.
- National Center for the Study of Postsecondary Educational Supports. (2001). *Focus group discussions on supports and barriers in lifelong learning*. Honolulu: University of Hawaii at Manoa, Rehabilitation Research and Training Center.
- National Council on Disability. (2000, November). *Transition and post-school outcomes for youth with disabilities: Closing the gaps to post-secondary education and employment*. Washington, D.C.: Social Security Administration.
- Robins, R. W., & Pals, J. L. (2002). Implicit self-theories in the academic domain: Implications for goal orientation, attributions, affect, and self-esteem change. *Self & Identity, 1*(4), 313-336.
- Rumrill, P. (1999). Effects of a social competence training program on accommodation request activity, situational self-efficacy, and Americans with Disabilities Act knowledge among employed people with visual impairments and blindness. *Journal of Vocational Rehabilitation, 12*, 25-31.
- Rumrill, P., Roessler, R., Longden, J., & Schuyler, B. (1998). Situational assessment of the accommodation needs of employees with visual impairments and blindness. *Journal of Visual Impairment and Blindness, 92*(1), 42-54.

- Sharpe, M. (2003). *Project Grad preliminary analysis, Institute on Community Integration*. Retrieved June 25, 2003, from [http://www.rrtc.hawaii.edu/documents/products/phase2/pdf/059b\(2\)-H02.pdf](http://www.rrtc.hawaii.edu/documents/products/phase2/pdf/059b(2)-H02.pdf)
- Silvera, D. H., Moe, S. K., & Iversen, P. (2000). The association between implicit theories of personality and the attributional process. *Scandinavian Journal of Psychology, 41*, 107-111.
- Stipek, D. J. (1996). Motivation and instruction. In D. C. Berliner & R. C. Calfee (Eds.), *Handbook of Educational Psychology* (pp. 85-113). New York: Simon & Schuster Macmillan.
- Stodden, R., Jones, M. A., & Chang, K. B. T. (2002). *Services, supports and accommodations for individuals with disabilities: An analysis across secondary education, postsecondary education and employment*. Unpublished manuscript, Honolulu, HI.
- Stodden, R. A., Conway, M. A., & Chang, K. B. T. (2003). *Professional employment for individuals with disabilities*. Unpublished manuscript, Honolulu, HI.
- U.S. Department of Education, & National Center for Education Statistics. (1999). *Students with disabilities in postsecondary education: A profile of preparation, participation, and outcomes (NCES 1999-187)*. Washington, DC.
- The Vocational Rehabilitation Act, 29 U.S.C. 701 *et seq.* (1973).
- Wagner, M., & Blackorby, J. (1996). Transition from high school to work or college: How special education students fare. *The future of children: Special education for students with disabilities, 6*(1), 103-120.
- Wall, J., Covell, K., & MacIntyre, P. D. (1999, April). Implications of social supports for adolescents' education and career aspirations. *Canadian Journal of Behavioural Science, 31*(2), 63-71.
- Wehmeyer, M. L., & Bolding, N. (2001). Enhanced self-determination of adults with intellectual disability as an outcome of moving to community-based work or living environments. *Journal of Intellectual Disability Research, 45*, 371-383.
- Whelley, T., Hart, D., & Zafft, C. (2002). *Coordination and management of services and supports for individuals with disabilities from secondary to postsecondary education and employment*. Unpublished manuscript, Honolulu, HI.
- York, R. O., Henley, H. C., & Gamble, D. N. (1985, Fall). Barriers to the advancement of women in social work administration. *Journal of Social Service Research, 9*(1), 1-15.

Zhao, W., Dweck, C. S., & Mueller, C. (1998). *Implicit theories and depression-like responses to failure*. Unpublished manuscript.

Zietfert, D. I., Kistner, J. A., Castro, R., & Robertson, B. (2001). Longitudinal study of young children's responses to challenging achievement situations. *Child Development, 72*, 609-624.