

University of Richmond

UR Scholarship Repository

Honors Theses

Student Research

5-1-2008

Social perceptions of underdog job applicants

Maggie Place

University of Richmond

Follow this and additional works at: <https://scholarship.richmond.edu/honors-theses>



Part of the [Social Psychology Commons](#)

Recommended Citation

Place, Maggie, "Social perceptions of underdog job applicants" (2008). *Honors Theses*. 576.
<https://scholarship.richmond.edu/honors-theses/576>

This Thesis is brought to you for free and open access by the Student Research at UR Scholarship Repository. It has been accepted for inclusion in Honors Theses by an authorized administrator of UR Scholarship Repository. For more information, please contact scholarshipprepository@richmond.edu.

UNIVERSITY OF RICHMOND LIBRARIES



3 3082 01020 0086

Social Perceptions of Underdog 1

Psych
Pla

Running head: SOCIAL PERCEPTIONS OF UNDERDOG

Social Perceptions of Underdog Job Applicants

Maggie Place

University of Richmond

May 1, 2008

Abstract

Research demonstrates that there are several characteristics that could render someone an underdog as a job applicant, including gender, race, able-bodied or disabled, immigrant status, and age. Study 1 used a between-subjects design to examine support for the underdog and the top dog in a low-consequence and high-consequence scenario. The underdog was given more support in low-consequence than high-consequence scenarios, but most participants indicated a neutral response instead of offering more support for either when asked to choose between the two applicants. Study 2 employed a forced-choice task on SuperLab in which participants chose which applicant they would hire in low- and high-consequence scenarios. Although results of Study 2 were not significant, there was a slight trend in which underdogs were chosen more often in low-consequence than high-consequence scenarios. A general discussion follows the description of both studies, including implications of these two studies and potential for future research on the underdog.

Acknowledgements

I would like to thank Dr. Scott Allison for his guidance and instruction throughout this project. His support of my ideas was helpful in bringing these two studies to fruition.

I would also like to thank the students in the University of Richmond's Introduction to Psychological Science course for their participation in both of the studies.

Social Perception of Underdog Job Applicants

An interesting phenomenon occurs when a perceived underdog is pitted against a superior competitor. There is something heartwarming about the underdog going against the odds to achieve something they deserved just as much as the top dog. Accounts of underdog victories extend as far back as the Old Testament, as the young, brave David defeats the giant, Goliath, with his wit and quick thinking. Since that time, stories about the weaker opponent defeating the top dog continued. Today, film companies have recently made millions on other films about courageous underdogs in a wide variety of situations including riveting athletic competitions, nail-biting contests of war, and tales of everyday underdogs finding their courage to stand up for their rights.

One such film that won the hearts of young and old alike is *The Pursuit of Happyness*, which featured a struggling, single man, Chris Gardner, trying to make a living as a salesman while taking custody of his young son. In his attempt to give his son a good life, a company generously gives Gardner an unpaid internship where he would need to compete with several other educated men for one position as a stockbroker. Gardner had to overcome many challenges during his internship period and often ended up living on the streets of San Francisco with his son. Gardner remained persistent, saying, "You got a dream... You gotta protect it. People can't do somethin' themselves, they wanna tell you you can't do it. If you want somethin', go get it. Period." Gardner did not let his obstacles prevent him from reaching his dream, and many Americans find comfort in the thought that a man like Chris Gardner can transform from a poverty-stricken salesman to a stockbroker making millions despite the odds against him.

Children also grow up with tales of the underdog, and one very prominent example can be found in the story of *Cinderella* and its many variations across cultures. Even though children may view *Cinderella* as a make-believe fairytale, there are certainly elements that stick with young girls and boys around the world. In the story, Cinderella was able to overcome her plight with the help of her fairy godmother to win the heart of the dashing prince, but after all, *Cinderella* is an uplifting story of the victorious underdog. If underdogs are all around us, even in children's literature and films, how can an underdog be defined? Before we discuss rooting for the underdog, the qualifications of an underdog will be further outlined.

What Qualifies an Underdog?

There are a few conditions that are necessary for someone or something to be considered an underdog. First, the underdog must have a clear disadvantage compared to the top dog. For example, Chris Gardner in *The Pursuit of Happyness* competed against men who had been educated at excellent establishments and who had probably had similar job experience in the past. At the same time, these men probably had more stable lifestyles than Chris Gardner and were not making as much of a sacrifice taking an unpaid internship. In several films that portray athletic competitions, including *Million Dollar Baby*, *Cinderella Man*, *Invincible*, and many more, the top dog has had more experience and more success in the field.

Second, the underdog must have a shot at being victorious. Even though supporters are taking a risk in offering their encouragement for the underdog, they want to know that there is at least some chance that their expectations of the underdog will be met. In most of the athletic competitions that we see, both in films or novels and in real

life, there is still a possibility that the underdog will win, even if they are very unevenly matched. There are several other situations in which underdogs appear, and this study will focus on the underdog versus the top dog when applying for a job. The underdog effect is therefore defined as the observer's tendency to root for the job candidate who appears to be disadvantaged in some way, and who the observer does not expect to succeed against a more advantaged job candidate.

Before discussing which groups will be labeled as underdogs, it is important to understand stereotypes and stigma. In her discussion of stigma, Rush (1998) makes the distinction between stereotype and stigma, stating,

“Before someone can be stigmatized, that person must bear some kind of mark – either physical or embedded in behavior, biography, ancestry, or group membership – that makes him or her different from the norm”.

The article goes further by saying that the mark can only become a stigma when “someone else notices the mark, views it as important to any interaction with the marked person, and links the mark to dispositions that discredit the bearer of the mark” (Rush, 1998). The following four groups have been found to be highly subject to stereotyping and stigmatization because of such a mark: immigrants, the disabled, older generations, and ethnic minorities.

With the rising consumer rates and more competition in the job field, employers are looking for the most capable, most educated, and most knowledgeable employees. When applying for the job, the differences seen by employers between these four groups and the norm set them apart in a negative way and put members of those groups at a disadvantage. The four typically stigmatized groups will now be discussed in reference

to the social stigma attached to each group and the obstacles they each must overcome to enter the job market.

The Immigrant as Underdog

Immigration has become an increasingly hotter topic in today's world as the United States continues growing and accepting more people from around the world into our melting pot. Immigrants from non-English speaking countries find it exceptionally hard to adapt to the culture due to the language barriers, but even English-speaking immigrants have trouble with the acculturation process. Immigrants are often challenged when trying to find acceptable housing and employment. Specifically with employment, immigrants may run into roadblocks with employers who are searching for well-educated individuals since the immigrant may not have had the same educational opportunities.

Research by Nee, Sanders & Sernau (1994) on Asian immigrants in Los Angeles named two choices that an immigrant in this particular situation has to make. First, the Asian immigrant may choose to remain within the ethnic economy because of the "opportunity for self-employment" (Nee et al., 1994). The choice that is typically more desirable for Asian immigrants is to go beyond their ethnic economy and into the metropolis of Los Angeles to seek jobs that tend to have "higher wages and fairer work rules" (Nee et al., 1994). Unfortunately, when Asian immigrants seek out such jobs, they have not had the education that non-immigrant job applicants have had. Along with the language barrier, this places Asian immigrants as well as immigrants from all over the world at a severe disadvantage when trying to find employment.

The Disabled as Underdog

People who have disabilities cover a wide range of deficits including both physical disabilities and intellectual disabilities. Physical disabilities could range from a temporary leg injury to something more serious, such as lower-body paralysis.

Intellectual disability can encompass anything from dyslexia to mental retardation.

According to the Americans with Disability Act, an individual with disability is defined as anyone who:

“(1) Has a physical or mental impairment that substantially limits one or more major life activities; or (2) has a record of such an impairment; or (3) is regarded as having such an impairment” (American with Disabilities Act, 1990).

Along with defining mental illness, the Americans with Disability Act requires that employers do not discriminate against people with disabilities and that, wherever possible, accommodations be made for such persons. Still, discrimination and stereotyping in the workforce towards persons with disabilities continues. In general, Stone and Colella (1996) found that persons with disability to be at a disadvantage in getting and maintaining employment. They state that “employers often cling to unfounded concerns about persons with disabilities, including false assumptions about their job-related abilities, performance levels, absenteeism, turnover rates, and high costs of accommodation” (Stone & Colella, 1996).

Older Generations as Underdogs

There are two theories about older generations and their contributions at work. Keyfitz (1983) presents the first theory as he argues that more experience leads to greater productivity, and more productivity leads to more job promotions and higher wages. Although this may have been true twenty years ago, employers are now encouraging

higher levels of education, and college students are pursuing higher degrees with more concentrations to get ahead. Although experience is also important to employers, older generations tend to be at a disadvantage with the newly educated, younger generation moving in.

The second theory follows this line of thought as it expresses that, in both men and women, older generations lose their sense of personal control and “may face more educational, employment, economic, and health disadvantages” (Ross & Mirowsky, 2002). The loss of personal control and the disadvantages in places other than employment have an effect on job performance and productivity. Because employers may have these pre-conceived notions that older generations are less productive, they would be less likely to hire an older man when competing against a younger man who has had more advantages.

Minority Ethnic Groups as Underdogs

Even with attempts to make things fairer between races in fields like education and business, research still indicates that

“People from ethnic minority groups have lower incomes and are concentrated in environmentally and economically poorer geographic areas, in poorer quality and more overcrowded accommodations, in less desirable occupations, and in longer periods of unemployment than their ethnic majority counterparts” (Karlsen & Nazroo, 2002).

Although their research focused primarily on the health effects of being a member of an ethnic minority, Karlsen & Nazroo (2002) still find that institutional discrimination, or “discriminatory policies or practices embedded in organizational structures”, affect the hiring of ethnic minorities. Also, because of the conditions named previously that ethnic minorities tend to experience, such

ethnic minorities tend to be at a disadvantage when it comes to education level and level of job experience.

The Female as an Underdog

Of all of the previously named categories of underdogs, the majority of research on stereotyping in recent years has focused on gender. Research on male and female characteristics found that “more male than female traits were perceived as socially desirable” (Schneider, 2004, p. 438). Socially desirable characteristics that are more associated with males include “achievement-oriented, ambitions, active, independent, self-confident, stable, tough, and unemotional” (Schneider, 2004, p. 438). These traits are all things that an employer might look for in a job applicant, and because these are more usually associated with males, females are at a disadvantage when applying for an entry-level job against a male applicant.

Rooting for the Underdog

When observing these four populations in their attempt to find a job, why might observers root for the underdog as opposed to the top dog? One explanation comes from the research by Kim, Allison, Eylon, Goethals, Markus, & Hindle (2006), as they discuss the underdog effect. Kim et al. (2006) propose that the successes of underdogs “may serve as an inspiration as well as a guide for socially sanctioned behaviors”. When we see an underdog going against the odds and being successful, it makes us more likely to judge challenging situations in our own lives as more achievable. Kim goes further by saying that underdogs “provide hope to the masses... and may suggest that the world can be a fair place in which all individuals have the potential to succeed” (Kim et al., 2006).

This same experience is what can be found in *The Pursuit of Happiness*, as millions of Americans may have left the movie theatres believing that the seemingly impossible is actually possible.

Another explanation as to why we choose to root for the underdog comes from the research by Rush (1998). Rush notes that people who are aware of the stigmatized individual's challenges may feel guilty for having held negative thoughts about that person. This could explain why someone would then want to root for such a person, hoping that a win or successful endeavor made by the stigmatized individual will lessen their personal guilt. Then, even if the underdog is unsuccessful, the person will feel at least partly satisfied that they were in support of the underdog.

Additional research suggests that we may root for the underdog because we feel sympathetic. Becker (1931) attempted to define genuine sympathy, and he states that "suffering is not simply the cause of the other's suffering; all sympathy contains the *intention* of the feeling of sorrow and joy in the experience" of the underdog. Therefore, if the underdog were, in fact, victorious, we would rejoice in that experience, but at the same time, if the underdog were unsuccessful, we would at least attempt to feel that same sadness. Becker finds that "instead of emotional solidarity there appears to be emotional participation" (Becker, 1931). The observers experience shared feelings with the underdog in either situation.

Research by Cacciapaglia, Beauchamp, & Howells (2004) looked at the interaction between the visibility of one's disability and other people's willingness to interact with the disabled person. A woman with an amputated leg and prosthesis was placed on a corner, and she asked passers-by to participate in a survey. For half of the time, the

woman concealed the prosthesis, and for the other half, the woman wore shorts so that her prosthesis was highly visible. Cacciapaglia, Beauchamp, & Howells (2004) found that passers-by were more likely to agree to participate in the study when the disability was more visible to them than when the disability was concealed. Among the possible explanations for this behavior was sympathy, meaning that the passers-by would stop not because they wanted to fill out a survey but because they shared, or attempted to share, the sorrow of the woman with the amputated leg.

Abandoning the Underdog

As much as we support the underdog when the outcome affects us very little, as soon as there is a high risk of personal consequences, we will abandon the underdog to support ourselves. This theory is confirmed by the findings of Kim et al. (2006), which indicate that, in situations where there is a higher risk of loss for the individual, the person will no longer express their support or root for the underdog. Kim et al. relate this to what they call the “Wal-Mart effect”. That is, “while we might root for the neighborhood Mom and Pop electronics shop, we will most likely buy our new HD television set at Wal-Mart” (Kim et al., 2006). Thus, as much as we would like to offer our support for the underdog, our instincts still tell us to go with the top dog in situations where we might be risking our own benefit.

Research on the self-serving bias has shown that individuals will attribute more positive things to ourselves while we attribute negative things to others (Bippus & Young, 2005; Dunn, 1989; Arkin, Appelman, & Burger, 1980). Arkin, Appelman, & Burger (1980) demonstrated the self-serving bias in an experimental procedure using both high-social-anxiety participants and low-social-anxiety participants. In both

situations, the participants with low self-esteem presented themselves in a more positive light than those with moderate self-esteem when interacting with a “committee of high prestige others” (Arkin, Appelman & Burger, 1980). Dunn (1989) uses a classroom exercise to demonstrate the self-serving bias to her students, asking them to report on their positive and negative attributes. Most students have reported a majority of positive attributes rather than negative attributes, and some students persist in their descriptions even after discussion on the self-serving bias. Therefore, even when we are aware that we are operating with a self-serving bias, we will still choose the most appropriate, most beneficial option for us, and this could explain why participants could abandon the underdog in the current study.

The current studies build on the methods used by Kim et al. (2006), but the two studies included here examine whether participants will support or abandon the underdog when they take the form of a stigmatized individual. The first study examines the level of support for both the underdog and the top dog in low-consequence and high consequence scenarios, and it is hypothesized that participants will show more support for both the underdog and also the top dog in the low-consequence than the high consequence scenarios, measured using Likert scales. The first study will also ask the participant to indicate which candidate they would choose for the job, and it is hypothesized that participants will choose the underdog over the top dog more often with a low-consequence scenario than a high-consequence scenario, as measured using Likert scale.

The second study will begin by assessing which job applicants the participant believes is the underdog, and it is hypothesized that the participant will choose the pre-

determined underdog in each trial more than the pre-determined top dog, as measured by SuperLab 4.0 programming. For the next two sections of the second study, it is hypothesized that participants will support the underdog in low-consequence scenarios and will abandon the underdog in high-consequence scenarios as compared to the top dog, as measured by SuperLab 4.0 programming.

Study 1

Study 1 uses a 2 (Job Candidate Status) x 2 (Scenario Type) between-subjects design. Study 1 sets four different stigmatized groups as the underdog and pits them against the top dog, a 31-year-old Caucasian male. The underdog and the top dog are in competition for the same job with a new company, and there is a low personal consequence for rooting for the underdog.

Method

Participants. The participants were 60 students from the University of Richmond's Introduction to Psychological Science course, ranging in age from 17-21 years ($M = 18.77$ years). There were 4 Black, 3 Asian, 1 Indian, and 52 White students included in this study.

Procedure. Each participant was asked to read one scenario that described one average, qualified job applicant and one "underdog" job applicant. Four different "underdog" applicants were used, and these four were one immigrant male from Moldova, one African-American male, one wheelchair-bound male, and one 60-year-old male (See Appendix A). In half of the scenarios, the participant was asked to place him- or herself in the position of the average, qualified male job applicant. Scenarios were counterbalanced so that an equal number of participants randomly read one of the

scenarios. After the participant read the scenario, they were asked to fill out a questionnaire about each of the job applicants. The participants had to indicate how much they supported each candidate for the job and which candidate they preferred for the job.

Results

Participants showed more support for Candidate 1 in low-consequence scenarios ($M = 6.17$ units, $SD = .70$) than in high-consequence scenarios ($M = 5.70$ units, $SD = 1.02$). Participants also showed more support for Candidate 2 in low-consequence scenarios ($M = 5.63$ units, $SD = 1.03$) than in high-consequence scenarios ($M = 4.63$ units, $SD = 1.50$). When participants had the choice between Candidate 1 and Candidate 2, their choice slightly leaned toward Candidate 1 in both the low-consequence ($M = 3.97$ units, $SD = 1.16$) and also in the high-consequence scenarios ($M = 3.57$ units, $SD = 1.19$).

A between-subjects ANOVA was run, indicating a significant difference between low and high-consequence scenarios for the support of candidate 1, $F(1, 58) = 4.26, p < .05$, and for the support of candidate 2, $F(1, 58) = 9.07, p < .01$. There was not a significant difference found between low and high-consequence scenarios when participants chose between the two candidates, $F(1, 58) = 1.73, p > .05$.

Discussion

Results confirm the hypothesis that the underdog would be supported more in low-consequence than high-consequence scenarios, and the top dog was also supported more in low-consequence than high-consequence scenarios. This is mostly likely due to the participant feeling more comfortable professing their support when they know there will not be any consequence for them.

When participants chose between the underdog and the top dog, the majority of participants chose the neutral choice rather than indicating more support for one of the candidates. Because of this, in the low-consequence scenarios, participants chose the top dog slightly more in low-consequence scenarios while their choice was closer to the neutral position in the high-consequence scenarios. The use of the Likert scale (1-7) allowed participants to feel neutral rather than forcing a choice, and this is clear in the results as most of the scores were close to four units, the neutral choice. Study 2 addresses these issues by using a within-subjects design with a forced-choice response.

Other limitations of this first study include the potential inability of the scenario to convey distinct differences between the underdog and the top dog and the inability to compare support for the applicants across the consequence condition. Study 2 will attempt to correct the latter limitation by creating a within-subjects design.

Study 2

Study 2 incorporated both low-consequence and high-consequence scenarios using SuperLab 4.0 programming software. The experiment was a forced-choice response task. A 2 (Job Applicant Status) X 2 (Scenario Type) design was used, with Job Applicant Status (underdog, top dog) and Scenario Type (low-consequence, high-consequence) being within-subjects factors.

Method

Participants. The participants were 23 students from the University of Richmond's Introduction to Psychological Science course, ranging in age from 18-22 years ($M = 19.0$ years). There were 1 Black, 1 Asian, and 21 White students in this study.

Procedure. The program featured a practice blocks and three experimental blocks. Each block began with a set of instructions, followed by the presentation of pairs of photographed faces (see Figure 2). Photographed faces were taken from The Face Place (Tarr, 2007). One of the photographs was located on the left side in the middle of the screen while the other photograph appeared on the right side in the middle of the screen. The object pairings were counterbalanced so that each underdog was paired with each of the top dog candidates. The location varied randomly so each photograph did not appear in the same location each time it was presented. Each block presented the stimuli pairs in random order.

Block One instructions asked the participant to choose which job applicant would be the underdog out of the two photographed faces shown on the screen. Pressing the “z” key indicated the underdog candidate was on the left side; pressing the “m” key indicated the underdog candidate was on the right side. Response times and accuracy were measured using SuperLab 4.0. Block Two instructions presented a low-consequence scenario in which the participants would have to choose which of the job applicants an employer should hire. Block Three instructions presented a high-consequence scenario in which the participants were required to place themselves in the position of the employer and choose which job applicant they would be more likely to hire. For both Block Two and Three, pressing the “z” key indicated the candidate they would choose was on the left side; pressing the “m” key indicated the candidate they would choose was on the right side. The participant’s choice (underdog, top dog) was recorded with SuperLab 4.0.

Results

In the first block, participants chose the pre-determined underdog in a majority of trials as the underdog as job applicant ($M = 62.91\%$, $SD = 10.89\%$). The percentage of choosing the underdog in the low-consequence scenario ($M = 43.46\%$, $SD = 13.89\%$) was higher than the percentage of choosing the underdog in the high-consequence scenario ($M = 41.34\%$, $SD = 12.30\%$).

A repeated-measures ANOVA was run, indicating there was not a significant difference between the percentage of underdog chosen in the low-consequence scenarios as compared to the high-consequence scenarios, $F(1, 23) = 0.91$, $p > .05$.

Discussion

The average percentage for the participant choosing which face represents the underdog indicates that the pre-determined underdog was actually thought to be an underdog the majority of the time. Even though it was a majority, the participants still chose the top dog as the underdog in almost 40% of the trials. Just as in Study 1, this may reflect the inability of the participant to decipher between the two faces because of a lack of information about each of the job applicants.

The lack of information may have also been a problem in the blocks with low- and high-consequence scenarios. Although the forced-choice design revealed that the underdog was chosen more often in low-consequence than high-consequence scenario, the top dog was chosen over the underdog in the majority of the trials. If the participants would have had more information about the job candidate besides a photographed face, the participants may have been more likely to choose the underdog in the low-consequence scenario. Despite this, a slight trend was still found (see Figure 3), indicating that participants chose the underdog more often when they had little chance of

personal consequence than when their response would directly affect “their company”. If participant instructions for the high-consequence scenarios would have been more explicit, strongly expressing the potential personal consequences, this trend may have been more significant.

Another limitation of Study 2 was the time limit on the forced-choice design. Had participants been allowed more time to examine the faces, their choice may have been more supportive of the study’s hypotheses. Finally, several participants asked the experimenter questions about the program, specifically for clarification on the process of choosing the correct face or about the instructions on which keys to press. These clarification issues, along with the possibility of fatigue, may have increased participant errors.

General Discussion

The findings of these two studies lead to several common insights. First, whether the design was forced-choice or not, the underdog was not chosen more than the top dog in either the low-consequence or high-consequence scenarios. However, the underdog received more support or was chosen more in the low-consequence scenarios than in the high-consequence scenarios. Study 2 illuminates a possible solution for why participants were choosing the top dog more often than the underdog. The first block results of Study 2 found that participants’ belief about which face represented the underdog were consistent with the pre-determined underdog only slightly more than 60%. This could be for several reasons. The participants may have had trouble deciding which of the job applicants was actually the underdog in Study 2, and a similar problem could have occurred in Study 1 because the participants may not have had enough information to

judge the applicants. The moderate percentage may also be due to the participants' guilt, as several participants reported feeling like they were stereotyping individuals based on the only information they were given.

In reference to stereotyping individuals based on race, gender, and age, Schneider (2004) finds that these "categorizations are automatic and difficult if not impossible to control" (p. 419). Because race, gender, and age are primary characteristics that are generally very visible and difficult to overlook, the participants in this study may have figured out who the pre-determined underdog was in each of the trials but felt that their response might indicate a level of prejudice or discrimination against another race, gender, or age group. This is why it is essential to have a wide variety of participants in the study to get a more accurate spread of results.

Past research by Boven & Loewenstein (2005) indicates that individuals often find it difficult to judge others who are in a different psychological situation. They find that, "one consequence of cross-situational projection is that it can lead people to behave toward others in ways they would not if they had an accurate understanding of others' psychological state" (p. 57). For the purposes of this study, participants who were forced to judge job applicants based on a scenario or just a photographed face may have felt uncomfortable or unable to accurately judge that person's psychological situation. In addition, Boven & Loewenstein (2005) believe that this inability to understand another's situation may lead to embarrassment, and this might have been something participants feared as they were forced to judge the job applicants.

Both Study 1 and Study 2 share several limitations, the most significant of which is the inability of the scenario and the facial-choice task to provide enough information

about the job applicants. Without additional information about the applicants, it may have been difficult for the participants to accurately judge which of the applicants was the underdog. Information that would be helpful would include facts about the underdog job applicant's family life and other struggles that he or she faces each day. The difficulty with this information is that it could lead to a potential confound, and it would be impossible to tell whether the underdog was chosen because of the primary reason (disability, gender, etc.) or the secondary reasons from the additional information.

Other limitations that could be easily corrected in future studies are the small participant pool and the lack of diversity among participants. The participants used in this study were students in the University of Richmond's Introduction to Psychological Science course, and this course had a very limited amount of students, especially in the spring semester. This participant pool is required to complete a certain number of experiments for course credit, so their willingness to participate may also be questionable. The University of Richmond is a predominantly white population, and this is reflected in the demographics of the current participants. In a study that includes race and international/immigrant status as underdog characteristics, it is essential to have an even distribution of races and nationalities represented in the participants to have the most accurate results.

Future studies may correct these last limitations by developing a more comprehensive recruitment plan. Recruiting from several different sites for this type of study would be extremely helpful in creating a more inclusive participant pool. The inclusion of different sites would also increase the participant number and would add to the possible significance of the results. Concerning the lack of information, future

studies may combine the SuperLab forced-choice design with the scenarios, allowing the participants to connect the face with specific information about that job applicant.

Another future study on job applicants could use employees of human resource departments at different locations to assess which job applicants they would choose as the underdog and which applicants they would hire based on the information given. These results might provide more insight into what characteristics truly make someone an underdog as a job applicant. These results could also then be compared to results from the general population.

Leaving the realm of job applicants and human resources, these studies on the underdog can be applied to many different situations where choosing the underdog is more likely in low-consequence situations as compared to high-consequence scenarios. For example, many people might consider choosing the underdog in a March Madness basketball bracket if they were not betting money on the bracket, but if they were betting money or had some other stake in winning or losing the bracket, they would be more likely to choose the top dogs, or the teams that are most expected to win based on past performance.

While there are infinite possibilities for future studies, the findings of the current study have several implications for underdog job applicants. If these results were to be replicated with a larger and more diverse participant pool, the findings could suggest that there is a shift in what qualifies an underdog as a job applicant. With programs like Affirmative Action and training programs for human resources departments on stereotyping in the hiring process, the playing field for job applicants may be leveling in the United States. Employers may be more concerned with level of education, level of

experience, and performance on the job rather than the stereotypes of race, gender, or age, and these would be more accurate ways to assess a job applicant's potential contributions.

References

- Arkin, R.M., Appelman, A.J., Burger, J.M. (1980). Social anxiety, self-presentation, and the self-serving bias in causal attribution. *Journal of Personality and Social Psychology*, 38 (1), 22-33.
- Becker, H. (1931). Some forms of sympathy: A phenomenological analysis. *Journal of Abnormal Social Psychology*, 26, 58-68.
- Bippus, A.M. & Young, S.L. (2005). Owning your emotions: Reactions to expressions of self- versus other-attributed positive and negative emotions. *Journal of Applied Communication Research*, 33 (1), 26-45.
- Boven, L.V. & Loewenstein, G. (2005). Cross-Situational Projection. In M.D. Alicke, D.A. Dunning, & J.I. Krueger (Eds.), *The Self in Social Judgement*. New York: Taylor & Francis.
- Cacciapaglia, H.M., Beauchamp, K.L., Howells, G.N. (2004). Visibility of disability: Effect on willingness to interact. *Rehabilitation Psychology*, 49 (2), 180-182.
- Defining Disability (1990). [Americans with Disabilities Act of 1990](http://ada.gov). Online: ada.gov
- Dunn, D. (1989). Demonstrating a self-serving bias. *Teaching of Psychology*, 16 (1), 21-22.
- Karlsen, S. & Nazroo, J. (2002). Relation between racial discrimination, social class, and health among ethnic minority groups. *American Journal of Public Health*, 92 (4), 624-631.
- Keyfitz, N. (1983). Age and productivity. *Journal of Policy Analysis and Management*, 2 (4), 632-637.

- Nee, V., Sanders, J.M., Sernau, S. (1994). Job transitions in an immigrant metropolis: Ethnic boundaries and the mixed economy. *American Sociological Review*, 59 (December), 849-872.
- Ross, C.E. & Mirowsky, J. (2002). Age and the gender gap in the sense of personal control. *Social Psychology Quarterly*, 65 (2), 125-145.
- Rush, L. (1998). Affective reactions to multiple social stigmas. *The Journal of Social Psychology*, 138 (4), 421-430.
- Schneider, D.J. (2004). *The Psychology of Stereotyping*. New York: Guilford Press.
- Stone, D.L. & Colella, A. (1996). A model of factors affecting the treatment of disabled individuals in organizations. *Academy of Management Review*, 21 (2), 352-401.

Figure Captions

Figure 1. Mean Likert scale ratings and 95% within-subjects confidence intervals for the underdog vs. top dog scenario task across low- and high-consequence conditions.

Figure 2. Example of SuperLab program trials beginning with the instructions, followed by possible pairings of underdogs and top dogs.

Figure 3. Mean percentages for choosing the underdog in the forced-choice SuperLab task.

Figure 1

Support for Job Applicants

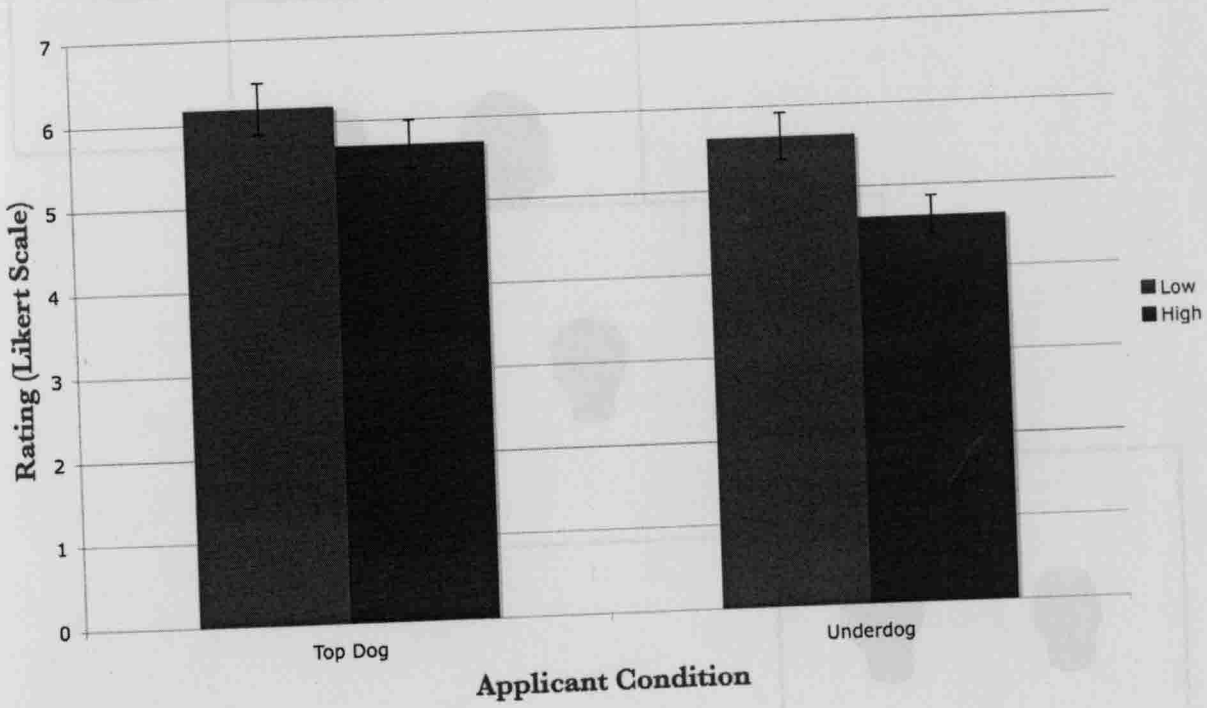


Figure 2

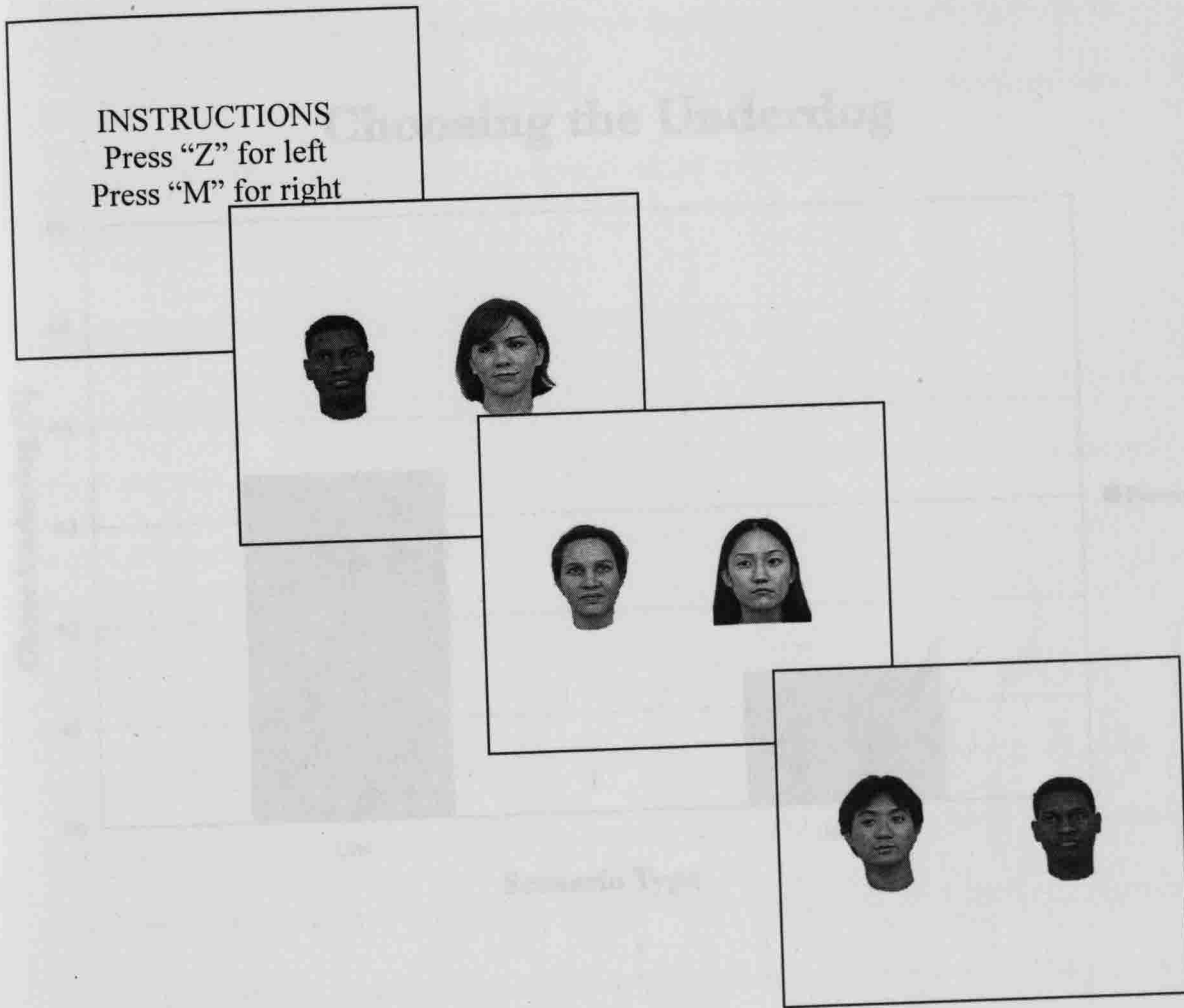
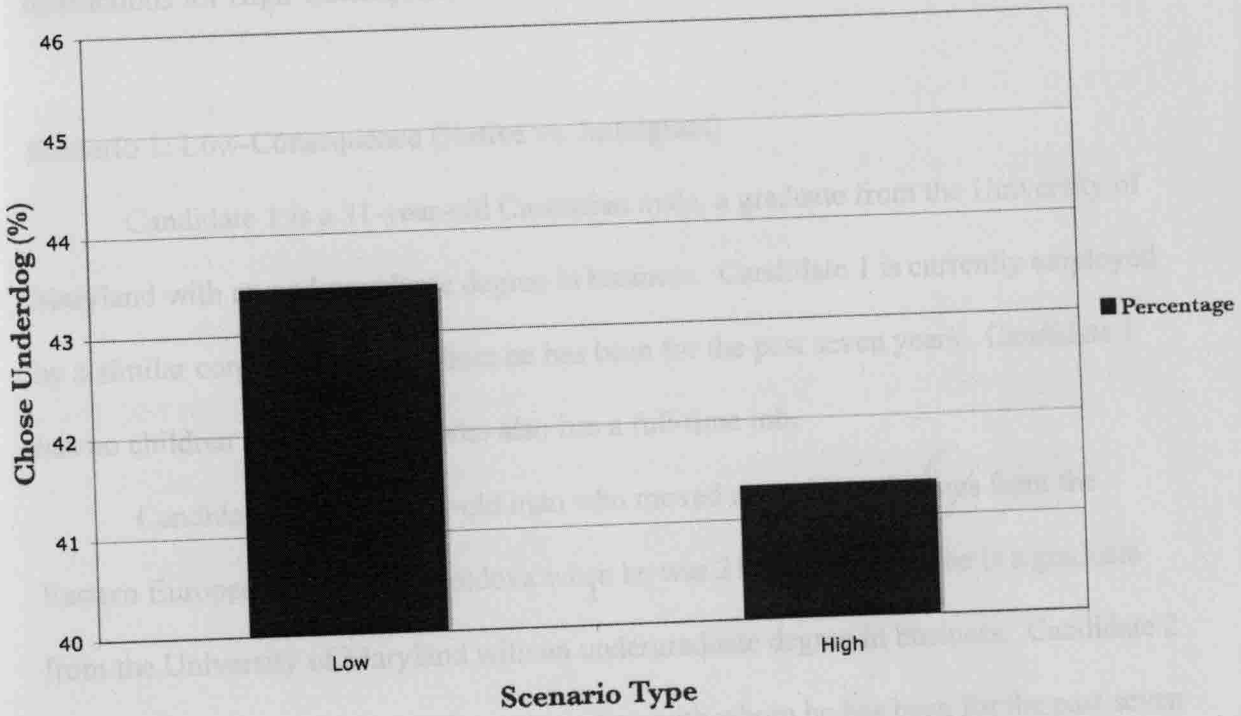


Figure 3

Choosing the Underdog



Scenario 1: Low-Consequence Scenario (Able-bodied vs. Disabled)

Candidate 1 is a 31-year-old Caucasian male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 1 is currently employed by a smaller corporation with whom he has been for the past seven years. Candidate 1 has no children and has a wife who also has a full-time job.

Candidate 2 is a 31-year-old Caucasian male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 2 is currently unemployed.

Appendix A

Instructions for Low-Consequence Scenarios: A large corporation is looking to fill an entry-level position, and they have narrowed the applications down to two candidates.

Instructions for High-Consequence Scenarios: Imagine that you are Candidate 1.

Scenario 1: Low-Consequence (Native vs. Immigrant)

Candidate 1 is a 31-year-old Caucasian male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 1 is currently employed by a similar corporation with whom he has been for the past seven years. Candidate 1 has no children and has a wife who also has a full-time job.

Candidate 2 is a 31-year-old man who moved to the United States from the Eastern European country of Moldova when he was 21 years old, and he is a graduate from the University of Maryland with an undergraduate degree in business. Candidate 2 is currently employed by a similar corporation with whom he has been for the past seven years. Candidate 2 has no children and has a wife who also has a full-time job.

Scenario 2: Low-Consequence (Able-bodied vs. Disabled)

Candidate 1 is a 31-year-old Caucasian male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 1 is currently employed by a similar corporation with whom he has been for the past seven years. Candidate 1 has no children and has a wife who also has a full-time job.

Candidate 2 is a 31-year-old Caucasian male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 2 is currently employed

by a similar corporation with whom he has been for the past seven years. Candidate 2 has no children and has a wife who also has a full-time job.

Scenario 3: Low-Consequence (Young vs. Older)

Candidate 1 is a 31-year-old Caucasian male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 1 is currently employed by a similar corporation with whom he has been for the past seven years. Candidate 1 has no children and has a wife who also has a full-time job.

Candidate 2 is a 63-year-old Caucasian male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 2 is currently employed by a similar corporation with whom he has been for the past seven years. Candidate 2 has no children and has a wife who also has a full-time job.

Scenario 4: Low-Consequence (Caucasian vs. African American)

Candidate 1 is a 31-year-old Caucasian male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 1 is currently employed by a similar corporation with whom he has been for the past seven years. Candidate 1 has no children and has a wife who also has a full-time job.

Candidate 2 is a 31-year-old African American male, a graduate from the University of Maryland with an undergraduate degree in business. Candidate 2 is currently employed by a similar corporation with whom he has been for the past seven years. Candidate 1 has no children and has a wife who also has a full-time job.

A Social-Cognitive Approach to Motivation and Personality

Carol S. Dweck
University of Illinois

Ellen L. Leggett
Harvard University

Past work has documented and described major patterns of adaptive and maladaptive behavior: the mastery-oriented and the helpless patterns. In this article, we present a research-based model that accounts for these patterns in terms of underlying psychological processes. The model specifies how individuals' implicit theories orient them toward particular goals and how these goals set up the different patterns. Indeed, we show how each feature (cognitive, affective, and behavioral) of the adaptive and maladaptive patterns can be seen to follow directly from different goals. We then examine the generality of the model and use it to illuminate phenomena in a wide variety of domains. Finally, we place the model in its broadest context and examine its implications for our understanding of motivational and personality processes.

The task for investigators of motivation and personality is to identify major patterns of behavior and link them to underlying psychological processes. In this article we (a) describe a research-based model that accounts for major patterns of behavior, (b) examine the generality of this model—its utility for understanding domains beyond the ones in which it was originally developed, and (c) explore the broader implications of the model for motivational and personality processes.

Toward this end, we begin by describing two major patterns of cognition-affect-behavior that we identified in our early work: the maladaptive "helpless" response and the more adaptive "mastery-oriented" response (Diener & Dweck, 1978, 1980; Dweck, 1975; Dweck & Reppucci, 1973).¹ The helpless pattern, as will be seen, is characterized by an avoidance of challenge and a deterioration of performance in the face of obstacles. The mastery-oriented pattern, in contrast, involves the seeking of challenging tasks and the maintenance of effective striving under failure.

Most interesting, our research with children has demonstrated that those who avoid challenge and show impairment in the face of difficulty are initially equal in ability to those who seek challenge and show persistence. Indeed some of the brightest, most skilled individuals exhibit the maladaptive pattern. Thus it cannot be said that it is simply those with weak skills or histories of failure who (appropriately) avoid difficult tasks or whose skills prove fragile in the face of difficulty. The puzzle, then, was why individuals of equal ability would show such marked performance differences in response to challenge. Even more puzzling was the fact that those most concerned with their

ability, as the helpless children seemed to be, behaved in ways that impaired its functioning and limited its growth.

Our efforts to explain this phenomenon led us to the more general conceptualization of goals (Dweck & Elliott, 1983). We proposed that the goals individuals are pursuing create the framework within which they interpret and react to events. Specifically, in the domain of intellectual achievement, we identified two classes of goals: *performance* goals (in which individuals are concerned with gaining favorable judgments of their competence) and *learning* goals (in which individuals are concerned with increasing their competence). We then tested and supported the hypothesis that these different goals foster the different response patterns—that a focus on performance goals (competence judgments) creates a vulnerability to the helpless pattern, whereas the pursuit of learning goals (competence enhancement) in the same situation promotes the mastery-oriented pattern (Elliott & Dweck, in press; Farrell & Dweck, 1985; Leggett & Dweck, 1986).

The question that remained, however, was why individuals in the same situation would pursue such different goals. This led us to the more general conceptualization of individuals' *implicit theories*. Here, we tested the hypothesis that different theories about oneself, by generating different concerns, would orient individuals toward the different goals. Specifically, we showed that conceiving of one's intelligence as a fixed entity was associated with adopting the performance goal of documenting that entity, whereas conceiving of intelligence as a malleable quality was associated with the learning goal of developing that quality (Bandura & Dweck, 1985²; Dweck, Tenney, & Dinces, 1982; Leggett, 1985). Thus we will present a model in which individu-

We would like to thank the following individuals for valuable discussions and comments: Kathleen Cain, Gerald Clore, Cynthia Erdley, Ellen Markman, John Nicholls, Judith Rodin, Patricia Smiley, and Robert Wyer.

Correspondence concerning this article should be addressed to Carol S. Dweck, Department of Psychology, University of Illinois, 603 E. Daniel Street, Champaign, Illinois 61820.

¹ The term *helpless* was adapted from the animal work of Seligman, Maier, and Solomon (1971). At the time of our initial work (Dweck & Reppucci, 1973), only animal work on helplessness had been conducted. See the section on control formulations (The Attributional Approach) for a discussion of how our current approach differs from other approaches to human helplessness.

² This study has been cited in previous works as M. Bandura & Dweck (1981, unpublished manuscript). It was the first of our studies on implicit theories of intelligence.

als' goals set up their pattern of responding, and these goals, in turn, are fostered by individuals' self-conceptions.

The model represents an approach to motivation in that it is built around goals and goal-oriented behavior. At the same time, it represents an approach to personality in that it identifies individual differences in beliefs and values that appear to generate individual differences in behavior. The model may also be said to represent a social-cognitive approach to motivation and personality in that it (a) seeks to illuminate specific, moment-to-moment psychological mediators of behavior and (b) assigns a central role to interpretive processes in the generation of affect and the mediation of behavior.

Having arrived at this more general conceptualization, we asked a number of questions about the range of phenomena that the model could potentially explain. In this article we examine the degree to which the model can be used to organize and illuminate a variety of phenomena beyond those it was developed to explain, to generate new hypotheses about personality-motivational phenomena, and to shed light on more general issues in the study of personality and motivation.

In these next sections, for clarity, we start with the response patterns and work up to the goals and implicit theories that appear to foster them. We also begin with the domain of intellectual achievement, where the patterns were established and the model has been most extensively researched, and then move to the domain of social interactions, where evidence for the model is growing.

Maladaptive Versus Adaptive Patterns: Cognitive, Affective, and Behavioral Components

Why are the helpless and the mastery-oriented patterns considered to be maladaptive and adaptive, respectively, and why are they important? The helpless response as a characteristic style can be considered maladaptive because challenge and obstacles are inherent in most important pursuits. Indeed, one might ask, what valued long-term goal (e.g., pertaining to one's work, one's relationships, or one's moral strivings) does not at some point pose risks, throw up barriers, present dilemmas? A response pattern that deters individuals from confronting obstacles or that prevents them from functioning effectively in the face of difficulty must ultimately limit their attainments.

The mastery-oriented pattern involves the seeking of challenging tasks and the generation of effective strategies in the face of obstacles. As a characteristic style, this enjoyment of challenge and willingness to sustain engagement with difficult tasks appears to be an adaptive stance toward valued goals. Of course, individuals need to be able to gauge when tasks *should* be avoided or abandoned (see Janoff-Bulman & Brickman, 1981); nonetheless, the ability to maintain a commitment to valued goals through periods of difficulty must maximize attainments in the long run.

As we have noted, the helpless and the mastery-oriented patterns are two distinct, coherent patterns, with striking differences in the cognitions, affect, and behavior that characterize each. Because these patterns lie at the heart of our model, we shall describe them in some detail. In doing so we draw primarily on a series of studies conducted by Diener and Dweck (1978, 1980), in which the patterns were first extensively analyzed and

in which the cognitive, affective, and behavioral components of the pattern were first conceptualized as interrelated aspects of a continuous process. A brief outline of their basic method will provide a context for the findings. In these studies, participants (late grade-school age children) who were likely to display the helpless or mastery-oriented patterns were identified by their responses to an attributional measure.³ They worked on a concept formation task, successfully solving the first eight problems, but failing to solve the next four problems (which were somewhat too difficult for children their age to solve in the allotted number of trials). Of interest here were the changes in cognition, affect, and behavior as the subjects went from success to failure.

To capture the timing and the nature of these changes, several procedures were used. First, after the sixth success problem, subjects were requested to verbalize aloud what they were thinking and feeling as they worked on the problems (Diener & Dweck, 1978, Study 2). They were given license to hold forth on any topic they wished—relevant or irrelevant to the task—and they did so at length. Second, the problems were constructed so that children's hypothesis-testing strategies could be continuously monitored, and thus changes in the sophistication of the strategies could be detected (Diener & Dweck, 1978, Studies 1 & 2; 1980). Third, specific measures, such as predictions of future performance, were taken before and after failure (Diener & Dweck, 1980).

All children attained effective problem-solving strategies on the success problems, with training aids being given when necessary. Moreover, there was no difference in the strategy level attained by the helpless and mastery-oriented children on the success problems or in the ease with which they attained that level. (Indeed, whenever any difference emerged, it was the helpless children who appeared slightly more proficient.) In addition, the verbalizations of both groups on the success problems showed them to be equally interested in and engaged with the task. However, with the onset of failure, two distinct patterns rapidly emerged.

First, helpless children quickly began to report negative self-cognitions. Specifically, they began to attribute their failures to personal inadequacy, spontaneously citing deficient intelligence, memory, or problem-solving ability as the reasons for their failure. This was accompanied by a striking absence of any positive prognosis and occurred despite the fact that only moments before, their ability had yielded consistent success.

Second, helpless children began to express pronounced negative affect. Specifically, they reported such things as an aversion to the task, boredom with the problems, or anxiety over their performance—again, despite the fact that shortly before they had been quite pleased with the task and situation.

Third, more than two thirds of the helpless children (but virtually none of the mastery-oriented ones) engaged in task-irrel-

³ This classification was made on the basis of our earlier research (Dweck, 1975; Dweck & Reppucci, 1973), linking children's performance following failure to their attributions for failure on the Intellectual Achievement Responsibility Scale (Crandall, Katkovsky, & Crandall, 1965). However, our concern here was with revealing the entire pattern of cognition, affect, and behavior over time, and it was an empirical question what role attributions would play in these patterns.

evant verbalizations, usually of diversionary or self-aggrandizing nature. For example, some attempted to alter the rules of the task, some spoke of talents in other domains, and some boasted of unusual wealth and possessions, presumably in an attempt to direct attention away from their present performance and toward more successful endeavors or praiseworthy attributes. Thus, instead of concentrating their resources on attaining success they attempted to bolster their image in other ways.

And finally, also in line with the negative cognitions and negative affect, the helpless children showed marked decrements in performance across the failure trials. Specifically, more than two thirds of them showed a clear decline in the level of their problem-solving strategy under failure and over 60% lapsed into ineffective strategies—strategies that were characteristic of preschoolers and that would never yield a solution (even if sufficient trials for solution had been permitted on those problems). Thus although all of the helpless children had demonstrated their ability to employ mature and useful strategies on the task, a sizable number were no longer doing so.

In short, helpless children viewed their difficulties as failures, as indicative of low ability, and as insurmountable. They appeared to view further effort as futile and, perhaps, as their defensive maneuvers suggest, as further documentation of their inadequate ability.

In striking contrast, the mastery-oriented children, when confronted with the difficult problems, did not begin to offer attributions for their failure. Indeed, they did not appear to think they were failing. Rather than viewing unsolved problems as failures that reflected on their ability, they appeared to view the unsolved problems as challenges to be mastered through effort. Toward that end, they engaged in extensive solution-oriented self-instruction and self-monitoring. Interestingly, their self-instructions and self-monitoring referred to both the cognitive and motivational aspects of the task at hand. That is, in addition to planning specific hypothesis-testing strategies and monitoring their outcomes, they also instructed themselves to exert effort or to concentrate and then monitored their level of effort or attention.

Also in contrast to the helpless children, the mastery-oriented children appeared to maintain an unflagging optimism that their efforts would be fruitful. For example, the mastery-oriented children said such things as "I did it before, I can do it again" or even "I'm sure I have it now." Nearly two thirds of them spontaneously offered statements of positive prognosis.

In keeping with their optimistic stance, the mastery-oriented children maintained their positive affect toward the task, and some even showed heightened positive affect with the advent of the difficult problems. As noted by Diener and Dweck (1978), one boy, soon after the failure problems began, pulled up his chair, rubbed his hands together, smacked his lips, and exclaimed, "I love a challenge!" Another boy, also upon confronting the failure problems, regarded the experimenter and stated in a pleased tone of voice, "You know, I was *hoping* this would be informative." Thus, the mastery-oriented children not only believed they could surmount obstacles and reach a solution, but some even relished the opportunity to do so.

Finally, the positive cognitions and affect were reflected in the problem-solving performance of the mastery-oriented chil-

dren. In contrast to the helpless children, who showed marked decrements in their level of problem-solving strategy, 80% of the mastery-oriented children succeeded in maintaining their problem-solving strategies at or above prefailure levels, with over 25% increasing the level of their strategy. That is, these children actually taught themselves new, more sophisticated hypothesis-testing strategies over the four failure trials.

In short, in the face of failure, helpless children exhibited negative self-cognitions, negative affect, and impaired performance, whereas mastery-oriented children exhibited constructive self-instructions and self-monitoring, a positive prognosis, positive affect, and effective problem-solving strategies. Despite the fact that they had received identical tasks and earned identical task outcomes, helpless and mastery-oriented children processed and responded to the situation in entirely different ways.

Although these patterns were first identified in research with children, they have been well documented in adults as well (see, e.g., Brunson & Matthews, 1981). Moreover, although the patterns were first investigated in laboratory settings, they have been shown to operate in natural settings. A study by Licht and Dweck (1984) provides a clear demonstration. In this study, children were taught new material (the principles of operant conditioning) in their classrooms by means of programmed instruction booklets. For all children, an irrelevant passage (on imitation) was inserted near the beginning of their instructional booklet. For half of the children, this passage, although irrelevant to the principles to be learned, was clear and straightforward. For the other half, the passage was rather tortuous and confusing. The question was whether helpless and mastery-oriented children (as defined in this study by their attributional tendencies) would show differential mastery of the material in the no-confusion and confusion conditions; that is, whether difficulty in the irrelevant passage would impair helpless children's subsequent learning.

Mastery of the material was assessed by means of a seven-question mastery test that asked subjects to employ the principles they had just learned. Any child who failed to answer the seven questions correctly was given a review booklet followed by another mastery test. In all, children were given as many as four opportunities to demonstrate mastery.

The results showed that in the no-confusion condition, the mastery-oriented and helpless children were equally likely to master the material: 68.4% of the mastery-oriented children and 76.6% of the helpless ones reached the mastery criterion, again demonstrating no difference in ability between the groups. However, in the confusion condition a clear difference emerged. As before, most of the mastery-oriented children, 71.9%, reached the learning criterion. In contrast, only 34.6% of the helpless children in the confusion condition ever mastered the material. Thus with "real" material in a real-world setting, the mastery-oriented and helpless patterns were shown to be associated with effective versus ineffective functioning in the face of difficulty.

To conclude, the Diener and Dweck research suggests that whereas helpless individuals appear to focus on their ability and its adequacy (or inadequacy), mastery-oriented ones appear to focus on mastery through strategy and effort; whereas helpless individuals appear to view challenging problems as a threat to

their self-esteem, mastery-oriented ones appear to view them as opportunities for learning something new.

Goals

In view of these entirely different ways of perceiving identical situations, Elliott and Dweck (1988) hypothesized that helpless and mastery-oriented individuals might be pursuing very different goals. That is, their different perceptions and reactions might be a result of their different aims or purposes in the situation. Helpless children, they suggested, might be pursuing *performance* goals, in which they seek to establish the adequacy of their ability and to avoid giving evidence of its inadequacy. In other words, they may view achievement situations as tests or measures of competence and may seek, in these situations, to be judged competent and not incompetent. Mastery-oriented individuals, in contrast, might be pursuing *learning* goals. They may tend to view achievement situations as opportunities to increase their competence and may pursue, in these situations, the goal of acquiring new skills or extending their mastery. Thus, in challenging achievement situations, helpless children might be pursuing the performance goal of *proving* their ability, whereas the mastery-oriented children might be pursuing the learning goal of *improving* their ability. It might be these different goals, Elliott and Dweck reasoned, that set up the patterns of cognition, affect, and behavior.

To test the hypothesis that goals generate the helpless and mastery-oriented responses, Elliott and Dweck experimentally induced performance or learning goals and examined the pattern of cognition, affect, and behavior that followed from each goal. The question of interest was whether the performance goal, with its emphasis on measuring ability, would create a greater vulnerability to the helpless pattern, whereas the learning goal, with its emphasis on acquiring ability, would create a greater tendency to display the mastery-oriented pattern. More specifically, as shown in Table 1, they hypothesized that when individuals held a performance goal and had a low assessment of their present ability level, they would display the helpless pattern in the face of failure. That is, concern with one's ability combined with doubts about its adequacy should create the negative ability attributions, negative affect, and performance deterioration characteristic of helplessness.

In contrast, it was hypothesized that when individuals held a learning goal, they would display the mastery-oriented pattern, even when they assessed their present ability level to be low. That is, when individuals are seeking to increase their ability, the adequacy of their present level of ability should not be a deterrent to their pursuit of their goal and could even be seen as providing an additional reason to pursue the goal.

Briefly then, Elliott and Dweck simultaneously manipulated subjects' (a) goals (by orienting them more toward evaluations of ability or more toward the value of the skill to be learned) and (b) assessments of their present ability level (via feedback on a pretest). To test the effect of the goal-orienting manipulation on subjects' actual goal choices, children were then asked to choose one task from an array of tasks that embodied either a learning or a performance goal. The learning goal task was described as enabling skill acquisition, but as entailing a high risk of a negative ability judgment. In contrast, the performance

Table 1
*Theories, Goals and Behavior Patterns
in Achievement Situations*

Theory of intelligence	Goal orientation	Perceived present ability	Behavior pattern
Entity (Intelligence is fixed)	Performance (Goal is to gain positive judgments/avoid negative judgments of competence)	High	Mastery oriented (Seek challenge; high persistence)
		Low	Helpless (Avoid challenge; low persistence)
Incremental (Intelligence is malleable)	Learning (Goal is to increase competence)	High or low	Mastery oriented (Seek challenge that fosters learning; high persistence)

goal options allowed children to obtain a favorable ability judgment (by succeeding on a difficult task) or to avoid an unfavorable judgment (by succeeding on an easier task), but did not afford any opportunity for learning. Following this choice, all children were given the Diener and Dweck concept-formation task. (Children had in fact been asked to make several task selections so that the Diener and Dweck task—described as moderately difficult—could be presented to them as consonant with their choice. Thus it would not appear that the wishes of some children were granted and others denied.) As in the Diener and Dweck research, children were requested to verbalize as they worked on the problems, and verbalizations and strategies were monitored and categorized.

The results showed the predicted relations. When children were oriented toward skill acquisition, their assessment of their present ability was largely irrelevant: They chose the challenging learning task and displayed a mastery-oriented pattern. In contrast, when children were oriented toward evaluation, the task they adopted and the achievement pattern they displayed (mastery-oriented or helpless) were highly dependent on their perceived ability. Children who perceived their ability to be high selected the challenging performance tasks that would allow them to obtain judgments of competence, whereas children who perceived their ability to be low selected easier tasks that would permit them to avoid judgments of incompetence. Note that the great majority of children in the evaluation-oriented condition sacrificed altogether the opportunity for new learning that involved a display of errors or confusion.

What was most striking was the degree to which the manipulations created the entire constellation of performance, cognition, and affect characteristic of the naturally occurring achievement patterns. For example, children who were given a performance orientation and low ability pretest feedback showed the same attributions, negative affect, and strategy deterioration that characterized the helpless children in our earlier studies (Diener & Dweck, 1978, 1980).

Research from other laboratories is yielding similar findings. For example, in a study by Ames (1984), different goal structures (competitive vs individualistic) were instituted by orient-

ing subjects either toward evaluation of their ability relative to a peer or toward improvement of their ability over time. The results showed that subjects in the competitive (performance goal) condition were significantly more likely than those in the individualistic (learning goal) condition to focus on ability attributions, whereas those in the individualistic condition were significantly more likely to focus on self-instructions (with ability attributions being their least frequent category of achievement cognition). Ames interpreted these findings as suggesting that the different goal structures elicit the helpless and mastery-oriented achievement cognitions described by Diener and Dweck.

Studies by Bandura and Dweck (1985) and by Leggett and Dweck (1986), in which individuals' existing goal preferences were measured (rather than manipulated) have provided further confirmation for the hypothesis that performance goals are associated with a vulnerability to challenge avoidance, as well as to negative ability attributions, negative affect, and low persistence in the face of difficulty. In contrast, learning goals again were found to be associated with challenge seeking (despite low confidence in ability), as well as with an effort/strategy focus, positive affect, and high persistence under difficulty.

Moreover, a recent study by Farrell and Dweck (1985) provides evidence that individuals' goal preferences predict patterns of learning in real-world settings. One of the hallmarks of effective learning is the tendency to apply or transfer what one has learned to novel tasks that embody similar underlying principles. Farrell and Dweck (1985) examined the relation between children's goal orientations and transfer of learning. As a week-long unit in their regular science classes, eighth-grade children were taught one of three scientific principles by means of self-instructional booklets. They were then tested for their generalization of this learning to tasks involving the two (conceptually related) principles that had not been taught. The results showed that children who had learning goals for the unit, compared to those who had performance goals, (a) attained significantly higher scores on the transfer test (this was true for children who had high and low pretest scores); (b) produced about 50% more work on their transfer tests, suggesting that they were more active in the transfer process; and (c) produced more rule-generated answers on the test even when they failed to reach the transfer criterion, again suggesting a more active stance toward learning and mastery opportunities.

Although we have been emphasizing the vulnerability created by an orientation toward performance goals over learning goals, it is essential to note that there are also adaptive performance concerns. It is often important for individuals to evaluate their abilities or to gain positive judgments of their competence. Indeed, sometimes this may be a prerequisite to the successful pursuit of learning goals: Obtaining an objective diagnosis of strengths and weaknesses may be a necessary step in the learning process, and earning the positive judgment of those who control important resources may be a necessary step in one's pursuit of skills and knowledge. Thus adaptive individuals effectively coordinate performance and learning goals. It is when an overconcern with proving their adequacy (to themselves or others) leads individuals to ignore, avoid, or abandon potentially valuable learning opportunities that problems arise.

It is also important to reiterate that when confidence in ability is high, performance goals can produce mastery-oriented

behavior, and they have undoubtedly fueled many great achievements. However, it is equally important to reiterate that high confidence is necessary within a performance goal to support a mastery orientation but, as we will show, high confidence may be difficult to sustain within a performance goal. Learning goals, as the research indicates, tend to make individuals less vulnerable to the effects of fluctuations in confidence.

How Goals Create Patterns

What are the mechanisms through which the different goals produce their associated patterns of cognition, affect, and behavior? Why and how do they lead to such different patterns? Evidence increasingly suggests that the goal an individual is pursuing creates a framework for interpreting and responding to events that occur. Thus the same event may have an entirely different meaning and impact if it occurs within the context of a learning versus a performance goal. In this section, we propose what the different frameworks established by the two goals might be and build a case for how the observed cognitive, affective, and behavioral patterns follow from these frameworks.

Cognitions. How might the different goal frameworks set up the different cognitions in the face of failure? Individuals adopting different goals can be seen as approaching a situation with different concerns, asking different questions, and seeking different information (see, e.g., Dweck & Elliott, 1983). For each individual, the data in the situation are interpreted in light of their focal concern and provide information relevant to their question.

Within a performance goal, individuals are concerned with measuring their ability and with answering the question, Is my ability adequate or inadequate? Within such a framework, outcomes will be a chief source of information relevant to this concern and thus failure outcomes may readily elicit the helpless attribution that ability is inadequate.

In contrast, learning goals create a concern with increasing one's ability and extending one's mastery and would lead individuals to pose the question, What is the best way to increase my ability or achieve mastery? Here, then, outcomes would provide information about whether one is pursuing an optimal course and, if not, what else might be necessary. Failure would simply mean that the current strategy may be insufficient to the task and may require upgrading or revision. The self-instructions and self-monitoring of the mastery-oriented children can therefore be seen as a direct implementation of this information in pursuit of future goal success. Thus the attributions of the helpless children and the self-instructions of the mastery-oriented children in response to failure may be viewed as natural outgrowths of their goals.

Recent research (Leggett & Dweck, 1986) has shown that another potentially informative event—one's input or effort expenditure—will also be interpreted in line with the differing goal concerns: as an indicant of ability versus a means of achieving learning or mastery. Leggett and Dweck measured eighth graders' goal preferences and devised a questionnaire to assess their interpretation of effort information. The results clearly indicated that those with performance goals used effort as an index of high or low ability. Specifically, they viewed effort and ability as inversely related: High effort (resulting in either suc-

cess or failure) implies low ability, and low effort (resulting in success) implies high ability. These children endorsed items such as "If you have to work hard at some problems, you're probably not very good at them" or "You only know you're good at something when it comes easily to you." In essence then, children with performance goals use an inference rule that says effort per se—even when it accompanies success—signifies a lack of ability.

In contrast, those with learning goals were more likely to view effort as a means or strategy for activating or manifesting their ability for mastery. Here effort and ability are seen as *positively related*: Greater effort activates and makes manifest more ability. These children endorsed items such as "[Even] when you're very good at something, working hard allows you to really understand it" or "When something comes easily to you, you don't know how good you are at it." Thus, within a learning goal, high effort would represent a mastery strategy and would signify that one was harnessing one's resources for mastery.

In short, children with different goals appear to use very different inference rules to process effort information (cf. Jagacinski & Nicholls, 1983; Surber, 1984). This research suggests how use of the *inverse* rule by individuals with performance goals can contribute to their helpless pattern of attributing high-effort failures to low ability (and of doubting their ability after high effort success; see Diener & Dweck, 1980). It also shows, in contrast, how use of the *positive* rule by those with learning goals can contribute to their mastery-oriented tendency to focus on effort when challenged.⁴

In summary, performance goals create a context in which outcomes (such as failures) and input (such as high effort) are interpreted in terms of their implications for ability and its adequacy. In contrast, learning goals create a context in which the same outcomes and input provide information about the effectiveness of one's learning and mastery strategies.

Affect. How would the different goal frameworks result in different affective reactions to challenge or setbacks? Within a performance goal, experiencing failure or effort exertion warns of a low-ability judgment and thus poses a threat to self-esteem. Such a threat might first engender anxiety (Sarason, 1975; Wine, 1971), and then, if the negative judgment appears increasingly likely, depressed affect (Seligman, Abramson, Semmel, & von Baeyer, 1979) and a sense of shame (Sohn, 1977; Weiner & Graham, 1984) may set in. Alternatively, individuals could adopt a more defensive, self-protective posture, devaluing the task and expressing boredom or disdain toward it (Tesser & Campbell, 1983; cf. Berglas & Jones, 1978). All of these emotions—*anxiety, depressed affect, boredom, defiance*—were apparent among the helpless subjects in the Diener and Dweck (1978, 1980) studies as failures accrued.

Within a learning goal, however, the occurrence of failure simply signals that the task will require more effort and ingenuity for mastery. This creates, for some, the opportunity for a more satisfying mastery experience, producing the heightened positive affect noted earlier. In addition, the continued belief that success can occur through effort will engender determination—and indeed in many of our studies, mastery-oriented children (whether instructed to verbalize or not) have issued battle cries or vows of victory.

Finally for individuals with learning goals, exerting effort in

the service of learning or mastery may bring intrinsic rewards, pleasure, or pride (Deci & Ryan, 1980; Lepper, 1981). Whereas within performance goals high effort may engender anxiety, and high-effort progress or mastery is a mixed blessing, within a learning goal high-effort mastery may often be precisely what is sought. Indeed, in the study by Bandura and Dweck (1985), children with learning goals reported that they would feel bored or disappointed with a low-effort success. (Children with performance goals reported that they would feel proud or relieved about a low-effort success.) Similarly, Ames, Ames, and Felker (1977) found that within an individualistic (learning goal) structure, children's pride in their performance was related to the degree of effort they perceived themselves to have exerted. This was true in both the success and the failure conditions, indicating that within a learning goal, effort per se can be a source of pride.

In summary, because of their different meanings in the context of the two goals, events that produce negative or depressed affect within one goal may produce positive affect and heightened engagement within the other.

Behavior. How would the goal-related differences in cognition and affect create different behavior? First, they would influence task choices. The ideal task within each goal would be a task that maximized goal success and positive affect or minimized goal failure and negative affect, or both (see Dweck & Elliott, 1983).

Within a performance goal the ideal task would be one that maximized positive judgments and pride in ability, while minimizing negative judgments, anxiety, and shame. For performance-oriented individuals with low confidence in their ability, challenging tasks (those requiring high effort and having uncertain outcome) would promise aversive experiences: high anxiety, expected negative judgments, and loss of esteem. These individuals would thus orient themselves toward easy tasks, ones that minimized negative outcomes and affect, even though such tasks would preclude the possibility of positive judgments.

Performance-oriented individuals with high confidence, although more challenge seeking, would nonetheless avoid challenge when the threat of performance failure existed. And indeed, these individuals are found to sacrifice learning opportunities that pose the risk of errors and difficulty (Bandura & Dweck, 1985; Elliott & Dweck, 1988).

The ideal task within a learning goal, however, would be one that maximized the growth of ability and the pride and pleasure of mastery, quite apart from how one's abilities are showing up at any given moment. Indeed, Bandura and Dweck (1985) found that their learning-oriented children with low confidence

⁴ In this study, junior high school students (14 years old) were chosen as subjects because developmental evidence suggests that children are not able to reason reliably about effort and ability in inverse relation to each other until after 10 or 11 years of age (e.g., Nicholls, 1978). We thus asked, once children are able to use either rule, which rule do they use? However, the developmental evidence raises the additional possibility that some aspects of our model may not be fully in place until the later grade school years. For this reason we are conducting research (Cain & Dweck, 1987) that traces the development of the theories of intelligence and the theory-goal-behavior linkages across the grade school years.

Table 2
Cognitive and Affective Mechanisms of Debilitation and Facilitation in the Face of Difficulty

Performance goal: Debilitating factors	Learning goal: Facilitating factors
1. Loss of belief in efficacy of effort, given low ability attribution	Continued belief in efficacy of effort: Effort self-instruction instead of low ability attribution; positive rule emphasizes utility of effort
2. Defensive withdrawal of effort: Effort confirms low ability judgment; inverse rule creates conflict between task requirements and goal	No defense required: Effort is consonant with task requirements and goal
3. Attention divided between goal (worry about outcome) and task (strategy formulation and execution)	Undivided, intensified attention to task that directly serves goal
4. Negative affect can interfere with concentration or can prompt withdrawal	Affect channeled into task
5. Few intrinsic rewards from effort (or high-effort progress) to sustain process.	Continuous intrinsic rewards for meeting challenge with effort

were the most likely of any group to seek a challenging learning opportunity even though it carried the risk of negative ability judgments. Moreover, within a learning goal, there is no need to withdraw from a task that proves to be unexpectedly difficult, because a failure episode or the exertion of high effort does not engender cognitive or affective distress. Instead one would expect withdrawal from a task that became useless or boring, even if it continued to promise favorable ability judgments (see Bandura & Dweck, 1985).

In addition to influencing task choice, goal-related cognitive and affective factors will influence the quality of performance in the face of failure. We note that there are at least five separate cognitive and affective factors that would impair performance for performance-oriented individuals but that would sustain or facilitate performance for learning-oriented individuals. These factors are shown in Table 2.

First, within a performance goal an attribution of failure to a lack of ability suggests that given one's incompetence at the task, further effort may not be useful in bringing about success (see, e.g., Dweck & Reppucci, 1973; Weiner, 1972). A second factor that may prompt a slackening of effort arises from the use of the inverse rule: a belief that greater effort further confirms the low ability judgment.

It is critical to note that the inverse rule sets up a conflict between the effort that is necessary for mastery of a challenging task and the goal of obtaining a high ability judgment. Ironically, what is required to do well at the task and what it takes to attain the performance goal may come into conflict such that when effort is most needed, it may be most likely to be defen-

sively withheld (see Covington & Omelich, 1979; Frankl & Snyder, 1978).

Next, anxiety over goal failure (both the cognitive worry component and the aversive affective component) may divide attention, inspire escape wishes, and interfere with concentration and effective strategy deployment (see Carver, Peterson, Follansbee, & Scheier, 1983; I. Sarason, 1980; S. Sarason & Mandler, 1952; Spielberger, 1958; Wine, 1971). Finally, the absence of intrinsic rewards from goal-oriented effort or high-effort progress would remove an important means of sustaining the process in the face of difficulty (Deci & Ryan, 1980; Lepper, 1981).

Looking at the analogous factors within a learning goal, we can see first that failure, rather than signaling low ability, provides a cue to escalate effort. Moreover, the positive inference rule reinforces the utility of effort: Effort mobilizes one's ability for task mastery. Second, there is no conflict between the effort requirements of the task and the requirements of the goal, for effort is at once the means of mastering the task and the means of maximizing goal attainment. Next, the affect generated by failure (e.g., heightened interest or determination) is consonant with task requirements and may promote an intensification of concentration. Finally, the intrinsic rewards that accompany the meeting of challenge with effort and the attainment of progress through effort will provide additional impetus to performance.

In summary, the performance goal focuses the individual on judgments of ability and can set in motion cognitive and affective processes that render that individual vulnerable to maladaptive behavior patterns, whereas the learning goal creates a focus on increasing ability and sets in motion cognitive and affective processes that promote adaptive challenge seeking, persistence, and sustained performance in the face of difficulty. Indeed, the goal framework may tie together and organize various constructs in the literature that have been proposed to account for performance impairment or enhancement, including attributional patterns, defensive strategies, self versus task focus, ego versus task involvement, evaluation anxiety, and intrinsic motivation. That is, the present conceptualization may provide a way to illuminate the origins and dynamics of these processes within a single system.

Implicit Theories of Intelligence

What leads individuals to favor performance goals over learning goals or vice versa? Why do some individuals focus on the adequacy of their ability whereas others focus on the development of their ability? Our recent work shows that a consistent predictor of children's goal orientation is their "theory of intelligence," that is, their implicit conception about the nature of ability (cf. Goodnow, 1980; Nicholls, 1984; Sternberg, Conway, Ketron, & Bernstein, 1981; Wellman, 1985; Yussen & Kane, 1985). Some children favor what we have termed an *incremental* theory of intelligence: They believe that intelligence is a malleable, increasable, controllable quality. Others lean more toward an *entity* theory of intelligence: They believe that intelligence is a fixed or uncontrollable trait. Our research consistently indicates that children who believe intelligence is increasable pursue the learning goal of increasing their competence, whereas those who believe intelligence is a fixed entity are

Table 3
*Percentage of Subjects With Each Theory of Intelligence
 Selecting Each Achievement Goal*

Theory of intelligence	Goal choice		
	Performance goal (avoid challenge)	Performance goal (seek challenge)	Learning goal (seek challenge)
Entity theory ($n = 22$)	50.0	31.8	18.2
Incremental theory ($n = 41$)	9.8	29.3	60.9

more likely to pursue the performance goal of securing positive judgments of that entity or preventing negative judgments of it (see Table 1).

For example, in a study with late grade-school-age children, Bandura and Dweck (1985) found that children who endorsed the incremental theory (e.g., "Smartness is something you can increase as much as you want to") were significantly more likely to adopt learning goals on an experimental task than were children who endorsed the entity theory (e.g., "You can learn new things, but how smart you are stays pretty much the same"). Similar findings were obtained in a classroom setting (see Dweck & Bempechat, 1983): Incremental theorists were significantly more likely than entity theorists to report a preference for classroom tasks that embodied learning goals ("Hard, new, and different so I could try to learn from them") versus performance goals ("Fun and easy to do, so I wouldn't have to worry about mistakes"; "Like things I'm good at so I can feel smart").

In a recent study, Leggett (1985) revised the theories of intelligence assessment and examined the relation between theories of intelligence and goal choice in a junior high school sample. As shown in Table 3, children's theories of intelligence were again reliable predictors of their goal choice. The challenge-seeking performance goal ("I'd like problems that are hard enough to show that I'm smart") and the challenge-avoidant performance goal ("I'd like problems that aren't too hard, so I don't get many wrong" or "I'd like problems that are fairly easy, so I'll do well") are presented separately in Table 3 to emphasize the degree to which the incremental and entity theories are differentially associated with challenge seeking versus challenge avoidance.

To illuminate the causal relationship between implicit theories and goal choice, Dweck, Tenney, and Dinces (1982) experimentally manipulated children's theories of intelligence and then assessed their goal choice on an upcoming task. In their study, children were oriented toward either an entity or incremental theory by means of reading passages that portrayed the intelligence of notable individuals (Albert Einstein, Helen Keller, and the child Rubik's Cube champion) as either a fixed, in-born trait or an acquirable quality. The structure, content, tone, and interest value of the two passages were highly similar, except that they presented and illustrated different definitions of smartness. Great care was taken to avoid attaching any goals to these theories, that is, to avoid any mention or implication of learning versus performance goals.

The passage on intelligence was embedded in a series of three short, interesting reading passages, all concerning "things that psychologists study" (imprinting, intelligence, dreams). As a rationale for reading these passages, children were asked to indicate after each one whether they would like to know more about this topic. As a rationale for their subsequent goal choice, children were told that psychologists also study how people think, form concepts, and solve intellectual problems. They were then asked to select from a list of different types of problems (each embodying a different goal choice) the type of problem they would like to work on when the experimenters returned. The results showed that the experimental manipulation of theory affected children's goal choices in the predicted direction: Subjects who had read the incremental passage were significantly more likely to adopt learning goals for the upcoming task than were those who had read the entity passage. This study, then, by (temporarily) orienting children toward a particular theory of intelligence, provided support for a causal relationship between implicit theories and goal choice.

Taken together, the research indicates that an incremental theory of intelligence is more consistently associated with adaptive motivational patterns. In this context, it is interesting to note (along with Covington, 1983, and Gould, 1981) that Alfred Binet, the inventor of the IQ test, was clearly an incremental theorist. He believed that not only specific skills, but also basic capacity for learning, were enhanced through his training procedures:

It is in this practical sense, the only one accessible to us, that we say that the intelligence of these children has been increased. We have increased what constitutes the intelligence of a pupil: the capacity to learn and to assimilate instruction. (Binet 1909/1973, p. 104)

It is therefore a particular irony that the assessment tool he developed within an incremental theory and learning goal framework has been widely interpreted within an entity theory and performance goal framework as a measure of a stable quality. As Dweck and Elliott (1983) pointed out, perhaps the most appropriate view represents an integration of both entity and incremental theories, that is, a recognition of present differences in relative ability but an emphasis on individual growth in ability (see also Nicholls, 1984).⁵

In summary, implicit beliefs about ability predict whether individuals will be oriented toward developing their ability or toward documenting the adequacy of their ability. As such, these theories may be at the root of adaptive and maladaptive patterns. Indeed it may be the adherence to an underlying entity theory that makes performance goals potentially maladaptive, for within an entity theory individuals are not simply judging a momentary level of ability. Rather, they may be judging what

⁵ For research purposes we have treated theory of intelligence as a dichotomous variable, and in some studies (where the measure has permitted it) we have in fact obtained bimodal distributions of theory scores. However, it is of great interest to us to determine more precisely the exact nature of individuals' theories (e.g., whether there are quantitatively or qualitatively different versions of both theories, or whether some individuals hold blends of the two theories), and this research is currently underway (Henderson, Cain, & Dweck, 1987).

they perceive to be an important and permanent personal attribute. Thus, an entity theory may place one's intelligence on the line in evaluative situations, magnifying the meaning and impact of negative judgments.

Generalization of the Model to Other Domains

Does the Formulation Have Generality?

The research we have reviewed indicates that the theory-goal-behavior formulation illuminates behavior patterns in achievement situations, but does it also illuminate behavior patterns in other major domains, such as social situations or moral situations? Do individuals hold theories about the malleability of their social and moral attributes, such as their personality or their moral character? Do these theories orient them toward different goals (to document vs. develop these attributes)? Finally, do these goals generate different behavior patterns?

Note that achievement situations are particularly suitable for developing and testing motivational models. Researchers can readily establish convincing and compelling situations that afford a high degree of control and precision. For example, achievement situations allow for standardization of tasks and feedback across individuals. They also allow one to separate ability or skill factors from motivational factors—to control for the former and investigate the latter. Finally, the moment-to-moment impact of motivational factors on cognitive performance can be precisely monitored in both laboratory and field settings. However, it is then important to examine the generality of the models developed in this context.

In this section we review research evidence that suggests that the motivational formulation developed in achievement situations can illuminate behavior in social relationships as well. Following this, we evaluate the applicability of the formulation to still other domains, reviewing relevant evidence when it is available and proposing relevant research when it is not.

Social Domain

As shown in Table 4, the model applied to the social domain would predict that (a) there are adaptive mastery-oriented and maladaptive helpless responses to difficulty (rejection, conflict) in social situations, (b) these reflect the social goal the individual is pursuing in that situation, and (c) the goal is linked to the individual's theory of his or her attributes as fixed entities or malleable qualities. What is the evidence for the model?

First, Goetz and Dweck (1980) documented helpless and mastery-oriented responses to social rejection that are clearly analogous to those found by Diener and Dweck (1978, 1980) in achievement settings. To tap children's attributions for social rejection, Goetz and Dweck developed a questionnaire depicting a series of hypothetical social situations involving rejection. For each situation, children were asked to evaluate different reasons the rejection might have occurred. Both the situations and their causes were based on those most frequently generated by children in pilot interviews, for example, "Suppose you move to a new neighborhood. A girl/boy you meet does not like you very much. Why would this happen to you?" The reasons

Table 4
Model of Social Motivation

Theory	Goal orientation	Behavior pattern
Entity (Social/personality attributes are fixed traits)	Performance (Goal is to gain positive judgments/avoid negative judgments of social attributes)	Helpless (Avoid risk; low persistence)
Incremental (Social/personality attributes are malleable qualities)	Learning/development (Goal is to increase social competence, develop relationships)	Mastery oriented (Seek challenge; high persistence)

Note. Predicted interaction of goal with confidence level (depicted in Table 1) is omitted here for simplicity.

offered included such factors as personal social incompetence, a negative characteristic of the rejector, the chance mood of the rejector, or a misunderstanding.

Within the 3-week period following the administration of this attribution questionnaire, each subject was seen individually in a situation that posed the possibility of rejection from a peer and that allowed assessment of changes in strategies in the face of rejection. Specifically, children tried out for a pen pal club by communicating their sample getting-to-know-you letter to a peer evaluator who represented the pen pal acceptance committee. The evaluator initially expressed uncertainty about admitting the child into the club, but allowed the child the opportunity to compose a second letter and attempt to obtain a positive decision. The pre- and postrejection letters were then coded and assessed for change. The major measure of adaptive change was the amount of new information the child introduced into the second letter.

As in the achievement research, children were initially classified into groups on the basis of their attributions. Those blaming personal social incompetence for rejection were predicted to show the helpless pattern, whereas those attributing rejection to the other factors were predicted to display a more mastery-oriented pattern. Also as in the achievement research, children falling into the different groups did not differ in their skill at the task, as evidenced by their performance prior to failure. That is, children in different groups showed no differences in the length or quality of the first letter they produced. However, clear differences emerged in the letter that followed rejection.

First, children making the incompetence attribution were far more likely than others to show complete disruption of performance following rejection. Approximately 39% of the children in this group showed withdrawal (initial refusal to try again after rejection) or perseveration (verbatim repetition of the first unsuccessful message). Few children in other groups showed this degree of disruption. Second, looking at the amount of new information contained in the second message, Goetz and Dweck found that children making the incompetence attribution showed the least message change of any group. Thus, the results directly parallel the Diener and Dweck findings that helpless children are less likely than others to formulate new strategies in the face of difficulty and are more likely than others

to repeat ineffective strategies or to abandon effective strategies entirely.

Looking at the specific content of the second message, another striking parallel to the Diener and Dweck results was apparent. Children making the incompetence attribution were more likely to engage in defensive self-aggrandizement than were children in the other groups. Specifically, they boasted in their postrejection message about their popularity in other contexts, even though they were not more popular than children in the other groups (as assessed by classroom sociometric ratings). In summary, this research provides clear evidence for the impact of motivational patterns in social situations.

Do children's social goals predict their motivational patterns? Although there is as yet no direct evidence linking goals to specific behavior patterns, Renshaw and Asher (1983) and Taylor and Asher (1984a, 1984b, 1985) have begun to link the goals children pursue in social situations to their sociometric status (i.e., their popularity with peers). They have devised a variety of means for tapping children's goals—having the child respond to hypothetical conflicts with a peer and probing for the goal of the child's actions (Renshaw & Asher, 1983) or having the child complete a questionnaire on which various goals are pitted against each other (e.g., Taylor & Asher, 1984b).

The consistent finding is that children of low sociometric status are more likely to formulate or endorse "avoidance" goals—performance goals in which the concerns center around avoiding negative outcomes. Indeed, on Taylor and Asher's questionnaire measure (which included concerns about social rejection, as well as about skill-related failures in a game-playing context), children of low sociometric status were more concerned than other children with avoiding both negative social outcomes and negative game-related achievement outcomes. Taylor and Asher suggested that this preoccupation with negative outcomes may be in part responsible for the lower popularity of these children. However, as they acknowledge, further research is necessary to establish more clearly the direction of causality between goals and sociometric status and determine more precisely the specific ways in which goals may affect social behavior to produce sociometric differences.

These issues can be directly addressed in studies that manipulate goals and then assess the quality and success of subsequent peer interactions. Another strategy for addressing the second issue (although it does not establish causal direction) is to measure children's goals and then examine important aspects of their social behavior, such as their response to conflict or rejection. One such study is currently underway in our laboratory. Olshefsky, Erdley and Dweck, (1987), using the Goetz and Dweck (1980) paradigm, are assessing children's goals in the pen pal acquaintanceship task: Is a given child pursuing predominantly a performance goal (hoping to win positive judgments and validation of his or her likeability, or avoid negative judgments and rejection), or is that child focusing on a learning/development goal (hoping to develop a new relationship, expand social horizons and social experiences, master a new social task)?⁶ It is hypothesized that the two goals will be differentially associated with the helpless and the mastery-oriented response to rejection found by Goetz and Dweck; specifically, the performance goal (particularly when combined with low confidence) will be most predictive of the helpless pattern, and the learning/

development goal (even when accompanied by low confidence) will be predictive of the mastery-oriented pattern.

In the Olshefsky et al. study and in another study as well (Benenson, 1987), we are testing the hypothesis that children's implicit theories of their social attributes predict their social goals. Olshefsky et al., as well as Benenson, have developed questionnaires assessing whether children believe their personality or their likeability to be a fixed, uncontrollable characteristic or a malleable, acquirable one. For example, Olshefsky et al. have asked children to indicate the degree to which they agree with statements such as "You have a certain personality and there isn't much you can do to change it." In both cases, pilot results have revealed clear individual differences in whether children subscribe to the entity or incremental theory of their social attributes, and it is hypothesized that, as in achievement situations, these theories will predict the goals they adopt and pursue.

In summary, past research has established the existence of helpless and mastery-oriented patterns of response to social rejection and has suggested a link between children's goals in social situations and the success of their social interactions. Current research is aimed at fleshing out and testing precisely the larger model of social motivation in which implicit theories predict social goals and social goals provide the framework for social behavior.

Morality and Other Attributes of the Self

As a final example, the same conceptualization may be applied to the moral domain to illuminate the reasons or purposes for which individuals (at any stage of moral development) engage in moral actions. As before, the model would suggest that some people tend to engage in moral actions in order to prove to themselves and others that they are moral individuals (performance goals), whereas other people might tend to pursue courses of action that would develop their moral understanding or that would allow them to master a morally difficult situation according to some standard (learning goals). It would be predicted, as well, that performance goals would create a vulnerability to risk avoidance (e.g., conformity) and low persistence in situations that contained the threat of negative moral judgments, whereas learning goals would better arm the individual to withstand conflict with or disapproval from others (see Rest, 1983, for a discussion of the need to consider motivational variables in the prediction of moral behavior).

Also as before, the model would predict that different "theories of morality" would be associated with the different goals. Those who believe that their goodness or moral character is a fixed trait would orient toward documenting that trait, whereas those who believe it is a malleable quality would orient toward developing and exercising that quality.

Thus far, we have developed a motivational model and examined its applicability to major attributes of the self: intellectual competence, social competence, and, very briefly, morality.

⁶ The learning goal in the social domain will include not only developing one's own social skills, but also developing relationships between oneself and others. It might thus be more accurate to call it a "development" goal.

However, it may be possible to generalize the model to any attribute of the self. Bempechat and Dweck (1985) sampled a variety of personal attributes (intelligence, morality, physical skills, and physical attractiveness) and found that each was seen by some children as quite malleable ("You can get more and more _____ all the time") but by others as more fixed ("You're a certain amount _____, and how _____ you are stays pretty much the same").⁷ The further prediction, of course, is that for any personal attribute that the individual values, viewing it as a fixed trait will lead to a desire to document the adequacy of that trait, whereas viewing it as a malleable quality will foster a desire to develop that quality.

Theories and Goals: Two Types of Self-Concept, Two Sources of Self-Esteem

The two theories about one's personal attributes may be seen as fundamentally different ways of conceptualizing the self. That is, entity and incremental theories represent two different forms of self-concept. Within a generalized entity theory, the self would be conceptualized as a collection of fixed traits that can be measured and evaluated. Within an incremental theory, the self would be seen as a system of malleable qualities that is evolving over time through the individual's efforts.

As a consequence of the different self-concepts, the processes that generate and maintain self-esteem (i.e., feelings of satisfaction with one's attributes) will differ (see Damon & Hart, 1982, for a discussion of the important distinction between self-concept and self-esteem). Indeed, the different goals allied with each theory may be seen as the means of generating self-esteem within that self-concept. For the entity theorist, self-esteem will be fed by performance goals. Outcomes indicating the adequacy of one's attributes will raise and maintain self-esteem. However, for the incremental theorist, self-esteem will be acquired and experienced via learning goals. Pursuit of, progress on, and mastery of challenging and valued tasks will raise and maintain self-esteem.

Data collected by Elliott and Dweck (see Dweck & Bempechat, 1983) provide support for this suggestion. Following an assessment of their theories of intelligence, children were asked to describe when they felt smart in school, that is, when they experienced high self-esteem with regard to their intelligence. They were told "Sometimes kids feel smart in school, sometimes not. When do you feel smart?" In line with prediction, children who had endorsed an entity theory reported that they felt smart when their schoolwork was error free ("When I don't do mistakes"), when their work surpassed that of their peers ("When I turn in my papers first"), or when the work was easy for them ("When I get easy work"). In sharp contrast, children with an incremental theory reported that they felt smart when they worked on hard tasks and when they personally mastered these challenges ("When I don't know how to do it and it's pretty hard and I figure it out without anyone telling me"; "When I'm doing school work because I want to learn how to get smart"; "When I'm reading a hard book"). Thus children with different theories reported experiencing high self-esteem under essentially opposite conditions, but these were conditions that represented the goals that accompany their theories.

In summary, it is proposed that the theories and their allied

goals can be seen as two distinct "self-systems": two forms of self-concept with two different sources of self-esteem. These notions may provide one way of thinking specifically and concretely about the global construct self-concept, of theoretically linking self-concept to self-esteem, and of placing both within a system that predicts patterns of behavior.

In the context of the entity versus the incremental self-systems, it is interesting to consider that different personality theories have focused primarily on one or the other. For example, Freud's psychodynamic theory depicts essentially an entity self-system (e.g., Freud, 1923/1960, 1933/1964), in which the judging superego continually assesses the adequacy of the ego and the various defenses are set up to deflect information that is threatening to the ego. Surprisingly, there appear to be no direct mechanisms within his system for generating goals oriented toward growth (see White, 1960).⁸ In contrast, and in reaction to Freud, theorists like Jung (1933) and White (1959) have described self-systems built around the impetus toward growth and development (see also Adler, 1927; Erikson, 1959; Rapaport, 1951). Clearly, a comprehensive theory of personality must take account of both systems.

Generalization of the Model Beyond the Self

Thus far we have discussed individuals' implicit theories about the mutability of self-attributes. But now we ask whether individuals hold implicit theories about the mutability of attributes of things outside of themselves: characteristics of other people, places, things, or the world in general (see Epstein, 1980, Janoff-Bulman, 1985, and Lerner, 1980, for related discussions of "world" beliefs). Here an entity theory would assert that people, places, things, and the world in general are what they are and there is little one can do to alter them. An incremental theory would propose that desirable qualities can be cultivated: People can be made more competent, institutions can be made more responsible, the environment can be made more healthful, the world can be made more just. We suggest that mutability or controllability is a dimension along which important things—be they internal or external, abstract or concrete—are categorized. We further suggest that the way something is categorized has important consequences for the way it is treated: Fixed or uncontrollable things that are important will tend to be monitored, measured, and judged, whereas controllable things that are important will tend to be acted on and developed.

The idea that mutability is a central dimension in terms of

⁷ Many children held the same theory across attributes, although others held different ones for different attributes. However, for purposes of clarity and simplicity in subsequent sections, we will often speak as though individuals held the same theory across attributes.

⁸ Although Freud was a therapist and therefore believed in the possibility of personal change, his therapy remained within the entity self-system. The aim was to repair the maladaptive patterns of cognition, affect, and behavior that arise within that system (such as overly harsh self-judgments, excessive anxiety, and the overuse of defenses and their behavioral sequelae), and thereby promote efficient functioning of that system. His vision of therapy did not encompass change toward a different (incremental) mode of functioning.

which things are conceptualized receives indirect support from a great variety of sources. Philosophers, anthropologists, historians of science, linguists, and psychologists have documented historical changes and cultural differences in whether people and things tend to be viewed in terms of fixed entities or malleable processes.

For example, Whitehead (1938) contrasted in detail scientific theories and philosophical systems that presuppose a world of static objects versus dynamic, evolving processes. Moreover, he details the consequences of each for the way in which one conducts scientific inquiry, that is, whether one focuses on measuring the entities or on understanding and influencing the processes.

Heller (1967/1981) contrasted pre- and post-Renaissance thought and proposed that the true revolution of the Renaissance was a revolution in the conception of persons. "During antiquity, a static conception of man prevailed; his potentialities were circumscribed both in his social and individual life. . . . With the Renaissance a dynamic concept of man appears" (p. 1). And with this dynamic conception of individuals, argued Heller, came the idea of development, whereby individuals can form and shape their own natures.

Furthermore, some linguists have suggested that different languages may embody, and different cultural-linguistic groups may favor, one mode of thought over the other. For example, Bloom, in his book *The Linguistic Shaping of Thought* (1981), developed the position that the English language, in contrast to the Chinese language, "entifies" properties of people and things. The English language, for instance, consistently takes adjectives that describe a person's action or way of behaving and creates nouns that accord this property a separate reality of its own. This entification, Bloom contended, is not simply a different way of expressing something, but rather reflects and perpetuates a different way of thinking about it (see Langer, 1982, for related arguments).

Finally, it has just come to our attention that Piaget, in his last book (Piaget & Garcia, 1983, currently being translated into English by J. Easley), modified his stage theory of cognitive development to include "conceptions of the world" similar to the ones we have described here. In this book, Piaget discussed at length how in addition to universal logical structures, the individual "possesses a conception of the world which controls his assimilation of any and every experience." In particular, he contrasted the conception of the world as fundamentally static (the Aristotelian view) with the conception of the world as being in a constant state of becoming and suggested how these ideologies can generate different interpretive frameworks for experience.

In summary, thinking in terms of relatively static, reified entities versus thinking in terms of dynamic, malleable processes can be seen as two alternative ways of conceptualizing many phenomena, with science and culture perhaps fostering particular views of particular phenomena at certain times.

Table 5 presents our model generalized to attributes external to the self (properties of people, places, things, phenomena, or the world). In this model, an entity theory predisposes the individual to adopt "judgment" goals. That is, when individuals believe that important external attributes are fixed or uncontrollable, they will tend to measure and evaluate those attributes in order to know what to expect: Is this person competent/trust-

Table 5
Generalization of Model to External Attributes

Theory	Goal orientation	Predicted pattern
Entity (Attributes of people and world are fixed or uncontrollable)	Judgment (Goal is to make positive or negative judgment of attributes)	Behavior: Low initiation of and persistence toward change Cognition: Rigid, oversimplified thinking Affect: Evaluative affect such as contempt
Incremental (Attributes of people and world are malleable)	Development (Goal is to understand and improve attributes)	Behavior: Mastery-oriented goal pursuit Cognition: Process analysis Affect: Empathy

worthy or not? Is this institution fair or not? Is the world benign or not? Judgment goals can be seen as the general case of performance goals: An attribute is being judged on the basis of a sample of actions or outcomes.

What patterns should follow from an entity theory of external attributes? An entity theory of external attributes, by its very nature, should inhibit the initiation and pursuit of change, even when an external attribute is judged negatively and improvement is seen as desirable.⁹ Individuals holding entity theories of external attributes and pursuing judgment goals might also display a tendency to derive oversimplified, all-or-nothing characterizations from a small sample of actions or outcomes. Believing others to possess fixed attributes that are positive or negative, adequate or inadequate, they may view actions and outcomes as providing a reading of those attributes. For example, just as some individuals with an entity theory of intelligence and performance goals were found to infer a lack of ability from a few failures (without considering such factors as task difficulty and without giving themselves the time and leeway to improve with experience), so individuals with an entity theory of others and judgment goals may ascribe to others broad traits like dishonesty, untrustworthiness, or incompetence on the basis of isolated pieces of evidence (perhaps without considering situational factors or taking the perspective of the individual in the situation).

In contrast, when individuals hold an incremental theory of important external attributes (*and* view the attributes as being in need of improvement), then, we predict, they will tend to adopt "development" goals toward those attributes. Develop-

⁹ Entity theorists may attempt to punish, restrain, exploit, or control those they judge to be evil or inferior, but they will not engage in ameliorative measures vis-à-vis the negative attribute.

ment goals can be viewed as the general case of learning goals: Improvement of valued attributes or mastery of valued tasks or situations is sought. For example, individuals may seek to increase the competence, sensitivity, or morality of another person, an institution, or a society. They may seek to tackle and rectify a problematic situation in their environment. As such, development goals should have all the characteristics described for learning goals, including a focus on process and a mastery-oriented response to difficulty.

One can also make predictions about the affect that might follow from the different theories and goals. For example, within an entity theory, a negative judgment of another's qualities (as permanently inferior) may well lead to contempt for that individual. In contrast, within an incremental theory, the observation of inadequate performance or deficient behavior may lead to compassion or empathy for the individual (Hoffman, 1978).

Erdley and Dweck (1987) are currently testing these hypotheses. They have suggested that an entity theory about others' traits—the belief that people or groups of people have unalterable positive or negative qualities—may lie at the heart of stereotypes and prejudices, and they have predicted that individuals who hold entity theories of others will be more susceptible to forming stereotypes of others, distorting information in terms of stereotypes, acting on stereotypes, and maintaining stereotypes in the face of counter information. In contrast, it is predicted that individuals who hold an incremental theory of others, because they do not see others in terms of fixed traits, should be more sensitive to situational factors that can account for a person's negative behavior (cf. Jones & Nisbett, 1972). They should also be more likely to take account of subsequent behavior that contradicts the initial negative behavior, and finally, they should be more willing to engage in behavior that will facilitate desired change in the other person.

To summarize the overall formulation thus far, it is proposed that individuals identify valued attributes or characteristics of themselves, others, and the world; that they have implicit theories about the controllability of those attributes; and that they adopt particular goals (judgment or development goals) with respect to those attributes.

We might also note that individuals will vary in the extent to which they pursue goals relating to the self versus other people versus the world. This will depend on where they place their values, that is, on the extent to which they value attributes in these different spheres. For example, among individuals with generalized incremental theories, some may prize self-attributes most highly and strive to develop their own qualities; others may focus on attributes of others, striving to teach new skills, perform psychotherapy, or cure physical illnesses; still others may focus on the societal level, striving to increase human rights or promote world peace. In our experimental situations thus far, we have constrained individuals' goal choices to "within-attribute" choices—to learning/development versus performance/judgment goals with respect to a given characteristic of the self or another person. However, it should be possible to construct situations that present between-attribute goal choices and to predict individuals' goals by measuring the relative values they place on the different attributes and the theories they hold of those attributes. In this way, we can gain a fuller

picture of these motivational processes in less constrained settings.

Relation to Other "Control" Formulations

Our formulation shares features with other formulations dealing with perceptions of control, but it differs from them in important ways.

Locus of control. How is the present conceptualization related to the more traditional locus of control conceptualization (Lefcourt, 1976; Rotter, 1966)? Both deal with the question of whether one perceives oneself to have personal control over important elements of one's life. However, whereas the locus of control work deals with perceptions of control over events or outcomes, the present formulation begins with beliefs that may set up the locus of control beliefs, namely, perceptions of control over the basic attributes that influence these events and outcomes (such as one's competence, other people's honesty, or the fairness of institutions). By beginning earlier in the psychological chain, the present formulation suggests the underlying factors that may produce or prevent perceptions of control over subsequent events.

Table 6 depicts the manner in which an entity theory may hinder perceived control over events, whereas an incremental theory may facilitate it. Specifically, within an entity theory, the basic attributes that influence outcomes are perceived to be uncontrollable and therefore perceptions of control over outcomes are conditional upon the attribute level: The individual will perceive control only when the relevant attribute level is judged to be high. For example, desirable outcomes will be viewed as possible only if, for example, one judges oneself to be intelligent, others to be honest, or institutions to be fair. If not—if one perceives oneself to be basically and unalterably incompetent, others to be dishonest, institutions to be corrupt—then control attempts will be perceived as futile, or at best their impact will be viewed as determined by chance. Thus, perceptions of control will be more difficult to generate and maintain when individuals operate within an entity framework.

In contrast, an incremental theory will more reliably generate perceived control over events and outcomes. Within an incremental theory, perceptions of control derive directly from a belief in the basic mutability of the attributes that influence outcomes. Even if the present level of an attribute is low or negative (e.g., one's competence is presently insufficient or the fairness of an institution is currently inadequate), this can be potentially altered and desirable outcomes can ultimately be achieved. Thus, because of belief in the controllability of the basic factors that determine outcomes, perceptions of control are deeply rooted in the incremental theory.

Attributional approach. How is the present conceptualization related to the attributional approach (e.g., Weiner, 1974)? The attributional approach posits that individuals' causal attributions for events determine their reactions to those events and their expectations about future events. Thus a failure that is attributed to a lack of ability will give rise to different reactions and future expectations than will a failure attributed to a lack of effort. The reformulated helplessness model of Seligman, Abramson, and their colleagues (Abramson, Seligman, & Teasdale, 1978; Seligman et al., 1979) also represents an attribu-

Table 6
Perceptions of Control as a Function of Theory

Theory	Perceived attribute level ^b	Perceptions of control over events
Entity (attributes are fixed or uncontrollable) ^a	High	Control is possible
	Low	Control is not possible: Outcomes will be negative or determined by chance
Incremental (attributes are controllable) ^a	High	Control is possible
	Low	Control is possible although requiring more time and effort

Note. For comparison, see Table 1.

^a Again, we assume a generalized theory for purposes of simplicity.

^b Perceived level of the attribute that is relevant to outcome.

tional approach, positing that individuals' attributional styles underlie their characteristic reactions to events. Thus a tendency to attribute negative events to global and stable factors is seen to elicit depressive, hopeless responses to such events. But what leads individuals to adopt particular attributional styles? What underlying beliefs about oneself and the world would prime an individual to interpret events in particular ways?

Our present formulation differs from the attributional approach in two major ways. First, we attempt to identify the source of attributional styles. That is, although we place attributions at the heart of the helpless and mastery-oriented patterns, we view the attributions as arising from yet more basic and prior processes. Again, our model proposes a chain of processes beginning with individuals' implicit theories and eventuating in response patterns that include attributions and their consequences. The earlier processes can be seen as setting up the later ones, such that an implicit entity theory, which portrays oneself and the world as composed of global, stable traits (and that promotes goals centering on the adequacy of those traits), should make it more likely that one will explain outcomes in terms of these traits. The current approach, then, seeks to establish the underlying processes that give rise to "attributional styles" and their desirable or undesirable consequences.

The second important difference is that classic attribution theory (e.g., Weiner, 1974) tends to depict particular factors as inherently controllable or uncontrollable, so that ability is considered to be a stable, uncontrollable factor. Although we would agree that individuals who dwell on ability and ability attributions might tend to view it in this way, a major point of the present approach is that virtually any factor can be viewed as controllable or uncontrollable. The difference between entity and incremental theorists, by definition, is that they do not see a given factor in the same way. Thus an incremental theorist who is led by the situation to attribute failure to a current lack of ability is not blaming an uncontrollable factor, but rather

something that is controllable over time. In the same vein, an entity and an incremental theorist may blame the same external factor for a failure, but the former will view that factor as uncontrollable and the latter will view it as controllable. The present formulation, then, places perceived controllability in the eyes of the perceiver, for it is these perceptions that will guide the individual's behavior.

In summary, the present conceptualization suggests a number of distinctions that may be of potential importance for understanding the origins and impact of perceptions of control.

Implications for Personality and Motivation

The current formulation, which began with patterns of cognition, affect, and behavior and then traced these patterns to underlying psychological processes, has implications for a number of theoretical issues in personality and motivation.

One class of issues concerns the role of situational versus dispositional factors in determining behavior (see D. Bem & Allen, 1974; D. Bem & Funder, 1978; and Mischel & Peake, 1982, for discussions of this issue). Dispositional approaches have had wide appeal because we know that people confronting the same situation react differently (and often, it seems, characteristically). Situational approaches have also had appeal in that many situations appear to constrain or compel behavior. Perhaps the widest appeal has been enjoyed by the interactionist (Disposition \times Situation) position because it grants the contribution of both types of variables and thereby promises a more complete story (see A. Buss, 1977; E. Diener, Larsen, & Emmons, 1984; and Endler, 1983, for reviews).

But how should we conceptualize dispositions? Does the existence of dispositions imply, as some have argued, that an individual's behavior should be similar across diverse situations? How should we think about situations? And how do dispositional and situational factors combine to produce behavior?

First, our research has clearly shown that both situational variables and dispositional variables play important roles in producing behavior. We have experimentally induced goals and behavior patterns by manipulating situational variables (Dweck, Davidson, Nelson, & Enna, 1978; Elliott & Dweck, 1988), but we have also predicted goal choice and behavior patterns by measuring existing dispositional variables (e.g., implicit theories: Bandura & Dweck, 1985; Leggett, 1985). A view that integrates these findings is one in which dispositions are seen as individual difference variables that determine the a priori probability of adopting a particular goal and displaying a particular behavior pattern, and situational factors are seen as potentially altering these probabilities.

In other words, we suggest that person-situation interactions are best understood in probabilistic terms, with the situation potentially altering the probability that a predisposing tendency will prevail. Let us assume that in a situation affording a choice between a performance goal and a learning goal, an individual brings to the situation a predisposition of a certain strength to favor one goal or the other. Where the situation offers no cue favoring either, the predisposition should hold sway. If, on the other hand, the situation offers strong cues in favor of either (appreciably increasing its salience or value), predispositions should be overridden and greater homogeneity among individu-

als will result. The stronger a predisposition, the less likely it is to be overridden by situational cues or the stronger will be the situational cues necessary to override it. Analogously, the weaker the predisposition, the more easily it can be altered by situational cues. Thus although we grant an important role to dispositional variables, this view of how situational cues and dispositional tendencies combine would lead one not to expect behavioral consistency across situations when the strength of the relevant situational cues varies across these situations.

Another factor that would work against finding behavioral consistency across situations is the fact that different goals may be available in different situations. Consider three situations: one affords a choice of intellectual achievement goals (learning or performance), the second affords a choice of these achievement goals along with social goals, and the third affords a choice of achievement goals along with social goals and moral goals. By measuring, for each individual, the relative value of intellectual, social, and moral attributes, as well as the theory attached to each (entity or incremental), one can begin to predict the goal that will be pursued in each situation. In some cases, it will be the same goal across situations; in other cases it may be a different one in each. In the latter case, little behavioral resemblance would be expected across situations. In fact, marked contradictions in behavior might emerge as the individual pursued different goals. A person might cheat in the first situation in order to obtain a high grade and be judged intelligent, but might be honest and altruistic in the latter two situations in order to be judged favorably on social and moral attributes.

In short, the power of personality theories and dispositional variables lies in their ability to predict what behavior will be displayed in various situations, not in their prediction that the same behavior will be displayed across these situations.

A second set of issues concerns the nature of the central construct(s) in formulations dealing with personality and motivation. Other existing formulations have taken schema (S. Bem, 1981; Cantor, 1981; Markus, 1977, 1983), traits (D. Bem & Funder, 1978; Block, 1961; Block & Block, 1980; Buss & Craik, 1983), or motives (Atkinson, 1964; McClelland, 1955) as their central constructs. Some, more recently, like the present approach, have organized their formulation around goals (Carroll, Perkowski, Lurigio, & Weaver, 1987; Cohen, 1981; Kreitler & Kreitler, 1982; Srull & Wyer, 1985; see also Pervin, 1983). How does the present formulation relate to these other approaches?

Schema approaches suggest that individuals describe themselves as possessing certain characteristics (e.g., "I am smart"), structure their experiences in terms of these characteristics, and generally tend to behave in ways suggested by these characteristics. In contrast, the present formulation suggests that individuals may value particular attributes, such as "smartness," regardless of whether they currently perceive themselves to possess a high level of those attributes. Moreover, the present model adds two important factors: It specifies the different theories that individuals hold about their attributes (entity or incremental), and it specifies the attribute-relevant goals that grow out of these theories (to judge or develop the attribute). By doing so, our model depicts a specific motivational mechanism through which valued attributes can generate goals and identifies the specific patterns of cognition-affect-behavior that will characterize the attribute-relevant strivings of different individuals.

Thus, two individuals, both placing high value on intelligence, may structure their experiences in different ways and pursue different courses of action, depending on their theories and goals.

Trait approaches (e.g., Block & Block, 1980) suggest that people have traits that characterize their personalities and that are displayed across situations in the form of coherent behavioral patterns. So, for example, some people might have the trait of shyness, others friendliness, and others competitiveness. Our approach attempts to spell out the chain of psychological processes that might produce such behavioral patterns. For example, "friendliness" may suggest that social attributes and goals are salient for the individual and that this behavior is a way of pursuing these goals. "Shyness" may also suggest that social attributes and goals are valued but that such individuals have low confidence in their ability to perform well and thus exhibit a helpless response rather than a more mastery-oriented one. "Competitiveness" may suggest that these individuals place high value on competence, seek the performance goal of documenting their competence, and actively structure situations so as to pursue these goals. However, as noted earlier, our analysis does not necessarily predict behavioral consistency across situations that offer or promote different goals; thus it does not view such consistency as the hallmark of personality or as the focal phenomenon that personality constructs should strive to capture.

The motive approach (see, McClelland, 1984, for a review) may be viewed as identifying classes of goals (achievement, affiliation, and power) that individuals differentially value and seek. (More specifically, it postulates internal motives whose strength determines the vigor with which these classes of goals are pursued.) And, indeed, many goals that individuals pursue may be placed in these categories. However, we suggest that a more fine-grained analysis of goals is necessary to classify them properly and predict their behavioral consequences. One must ask, For what more particular purpose is the individual pursuing something? Individuals may seek achievement, affiliation, or power for any number of purposes—to validate their worth, to develop new abilities, to master new tasks, to help others. These more specific goals, we suggest, are the ones that will bear a closer relationship to behavior.

Finally, the present formulation has much in common with recent formulations that identify goals as a central construct in personality (e.g., Pervin, 1983; Cohen & Ebbesen, 1979) and as the link between personality and motivational processes. However, the present approach identifies *specific classes* of goals, links them to dispositional antecedents, and spells out their behavioral consequences.

Summary and Conclusion

We began by documenting patterns of cognition-affect-behavior that have profound effects on adaptive functioning. We then asked questions about the underlying motivational and personality variables that give rise to these response patterns, first demonstrating the role of learning and performance goals in producing the patterns and then linking these goals to individuals' implicit theories of their attributes.

Next we examined the generalizability of the model to a vari-

ety of self-attributes. We suggested that each implicit theory could be seen as a different form of self-concept and that its allied goal could be seen as the way of generating and maintaining self-esteem within that self-concept. Finally, we proposed that the model could be extended to attributes outside of the self, hypothesizing that individuals hold implicit theories about the characteristics of other people, places, and things, and that these theories will predict the goals they adopt vis-à-vis these external variables.

In this context, we examined the relation of our model to other current formulations and developed the implications of our approach for contemporary issues in motivation and personality. In closing, we would like to highlight what we believe to be the central aspect of our model: its depiction of the manner in which underlying personality variables can translate into dynamic motivational processes to produce major patterns of cognition, affect, and behavior. Although much model-testing and model-building research remains to be done, the existing work lends encouraging support to the present model. It suggests that this model may be useful for both tying together existing lines of research and generating new lines of research in the future.

References

- Abramson, L., Seligman, M., & Teasdale, J. (1978). Learned helplessness in humans: Critique and reformulation. *Journal of Abnormal Psychology, 87*, 49-74.
- Adler, A. (1927). *The practice and theory of individual psychology*. New York: Harcourt, Brace & World.
- Ames, C. (1984). Achievement attributions and self-instructions under competitive and individualistic goal structures. *Journal of Educational Psychology, 76*, 478-487.
- Ames, C., Ames, R., & Felker, D. W. (1977). Effects of competitive reward structure and valence of outcome on children's achievement attributions. *Journal of Educational Psychology, 69*, 1-8.
- Atkinson, J. (1964). *An introduction to motivation*. Princeton, NJ: Van Nostrand.
- Bandura, M., & Dweck, C. S. (1985). *The relationship of conceptions of intelligence and achievement goals to achievement-related cognition, affect and behavior*. Manuscript submitted for publication.
- Bem, D., & Allen, A. (1974). Predicting some of the people some of the time: The search for cross-situational consistencies in behavior. *Psychological Review, 81*, 506-520.
- Bem, D., & Funder, D. (1978). Predicting more of the people more of the time: Assessing the personality of situations. *Psychological Review, 85*, 485-501.
- Bem, S. (1981). Gender schema theory: A cognitive account of sex-typing. *Psychological Review, 88*, 354-364.
- Bempechat, J., & Dweck, C. S. (1985). *Children's conceptions of self-attributes*. Unpublished manuscript.
- Benenson, J. (1987). [Children's implicit theories and goals in their friendships]. Unpublished raw data.
- Berglas, S., & Jones, E. (1978). Drug choice as a self-handicapping strategy in response to non-contingent success. *Journal of Personality and Social Psychology, 36*, 405-417.
- Binet, A. (1973). *Les idées modernes sur les enfants* [Modern ideas on children]. Paris: Flammarion. (Original work published 1909)
- Block, J. (1961). *The Q-sort method in personality assessment and psychiatric research*. Springfield, IL: Charles C. Thomas.
- Block, J. H., & Block, J. (1980). The role of ego-control and ego-resiliency in the organization of behavior. In W. A. Collins (Ed.), *Minnesota Symposium on Child Psychology* (Vol. 13, pp. 39-101). Hillsdale, NJ: Erlbaum.
- Bloom, A. (1981). *The linguistic shaping of thought*. Hillsdale, NJ: Erlbaum.
- Brunson, B., & Matthews, K. (1981). The Type-A coronary-prone behavior pattern and reactions to uncontrollable stress: An analysis of performance strategies, affect, and attributions during failure. *Journal of Personality and Social Psychology, 40*, 906-918.
- Buss, A. (1977). The trait-situation controversy and the concept of interaction. *Personality and Social Psychology Bulletin, 3*, 196-201.
- Buss, D. M., & Craik, K. H. (1983). The act frequency approach to personality. *Psychological Review, 90*, 105-126.
- Cain, K., & Dweck, C. S. (1987). [The development of children's theories of intelligence]. Unpublished raw data.
- Cantor, N. (1981). A cognitive-social approach to personality. In N. Cantor & J. Kihlstrom (Eds.), *Personality, cognition, and social interaction* (pp. 23-44). Hillsdale, NJ: Erlbaum.
- Carroll, J. S., Perkwitz, W. T., Lurigio, A. J., & Weaver, F. M. (1987). Sentencing goals, causal attributions, ideology, and personality. *Journal of Personality and Social Psychology, 52*, 107-118.
- Carver, C. S., Peterson, L. M., Follansbee, D. J., & Scheier, M. F. (1983). Effects of self-directed attention on performance and persistence among persons high and low in test anxiety. *Cognitive Therapy and Research, 7*, 333-354.
- Cohen, C. E. (1981). Goals and schemata in person perception: Making sense from the stream of behavior. In N. Cantor & J. Kihlstrom (Eds.), *Personality, cognition, and social interaction* (pp. 45-62). Hillsdale, NJ: Erlbaum.
- Cohen, C. E., & Ebbesen, E. B. (1979). Observational goals & schema activation: A theoretical framework for behavior prediction. *Journal of Experimental Social Psychology, 15*, 305-329.
- Covington, M. V. (1983). Strategic thinking and the fear of failure. In J. Sigal, S. Chipman, & R. Glaser (Eds.), *Thinking and learning skills: Relating instruction to research* (Vol. 2, pp. 389-416). Hillsdale, NJ: Erlbaum.
- Covington, M. V., & Omelich, C. (1979). Effort: The double-edged sword in school achievement. *Journal of Educational Psychology, 71*, 169-182.
- Crandall, V. C., Katkovsky, W., & Crandall, V. J. (1965). Children's beliefs in their own control of reinforcement in intellectual-academic situations. *Child Development, 36*, 91-109.
- Damon, W., & Hart, D. (1982). The development of self-understanding from infancy through adolescence. *Child Development, 53*, 841-864.
- Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz, (Ed.), *Advances in experimental social psychology* (Vol. 13, pp. 39-80). New York: Academic Press.
- 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.
- Diener, E., Larsen, R., & Emmons, R. (1984). Person \times Situation interactions: Choice of situations and congruence response models. *Journal of Personality and Social Psychology, 47*, 580-592.
- 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., & 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: Erlbaum.
- Dweck, C. S., Davidson, W., Nelson, S., & Enna, B. (1978). Sex differ-

- ences in learned helplessness: II. The contingencies of evaluative feedback in the classroom and III. An experimental analysis. *Developmental Psychology*, 14, 268-276.
- Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In P. H. Mussen (Gen. Ed.) & E. M. Hetherington (Vol. Ed.), *Handbook of child psychology: Vol. IV. Social and personality development* (pp. 643-691). New York: Wiley.
- Dweck, C. S., & Reppucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology*, 25, 109-116.
- Dweck, C. S., Tenney, Y., & Dinces, N. (1982). [Implicit theories of intelligence as determinants of achievement goal choice]. Unpublished raw data.
- Elliott, E. S., & Dweck, C. S. (1988). Goals: An approach to motivation and achievement. *Journal of Personality and Social Psychology*, 54, 5-12.
- Endler, N. (1983). Interactionism: A personality model, but not yet a theory. In R. A. Dienstbier (Ed.), *Nebraska Symposium on Motivation* (pp. 155-200). Lincoln: University of Nebraska Press.
- Epstein, S. (1980). The self-concept: A review and the proposal of an integrated theory of personality. In E. Straub (Ed.), *Personality: Basic aspects and current research* (pp. 81-131). Englewood Cliffs, NJ: Prentice-Hall.
- Erdley, C. A., & Dweck, C. S. (1987). [Implicit personality theories: Effects on social judgment]. Unpublished raw data.
- Erikson, E. H. (1959). Identity and the life cycle. *Psychological Issues*, 1, 1-171.
- Farrell, E., & Dweck, C. S. (1985). *The role of motivational processes in transfer of learning*. Manuscript submitted for publication.
- Frankl, A., & Snyder, M. (1978). Poor performance following unsolvable problems: Learned helplessness or egotism? *Journal of Personality and Social Psychology*, 36, 1415-1423.
- Freud, S. (1960). *The ego and the id*. (J. Riviere, Trans.). New York: W. W. Norton. (Original work published 1923)
- Freud, S. (1964). New introductory lectures on psychoanalysis. (J. Stachey, Trans.). New York: W. W. Norton. (Original work published 1933)
- Goetz, T. E., & Dweck, C. S. (1980). Learned helplessness in social situations. *Journal of Personality and Social Psychology*, 39, 249-255.
- Goodnow, J. J. (1980). Everyday concepts of intelligence and its development. In N. Warren (Ed.), *Studies in cross-cultural psychology* (Vol. 2, pp. 191-219). Oxford, England: Pergamon Press.
- Gould, S. J. (1981). *The mismeasure of man*. New York: W. W. Norton.
- Heller, A. (1981). *Renaissance man* (R. Allen, Trans.). New York: Schocken. (Original work published 1967)
- Henderson, V., Cain, K., & Dweck, C. S. (1987). [Theories of intelligence and their dimensions]. Unpublished raw data.
- Hoffman, M. (1978). Empathy, its development and prosocial implications. In C. B. Keasey (Ed.), *Nebraska Symposium on Motivation* (pp. 169-218). Lincoln: University of Nebraska Press.
- Jagacinski, C., & Nicholls, J. (1983, March). *Concepts of ability*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
- Janoff-Bulman, R. (1985, March). *Understanding people in terms of their assumptive worlds*. Paper presented at the Boston University Symposium on the Interdisciplinary Study of Personality, Boston.
- Janoff-Bulman, R., & Brickman, P. (1981). Expectations and what people learn from failure. In N. T. Feather (Ed.), *Expectancy, incentive, and action* (pp. 207-237). Hillsdale, NJ: Erlbaum.
- Jones, E. E., & Nisbett, R. E. (1972). The actor and the observer: Divergent perceptions of the causes of behavior. In E. E. Jones, D. E. Kanouse, H. H. Kelley, R. E. Nisbett, S. Valins, & B. Weiner (Eds.), *Attribution: Perceiving the causes of behavior* (pp. 79-94). Morristown, NJ: General Learning Press.
- Jung, C. (1933). *Modern man in search of a soul*. New York: Harcourt, Brace & World.
- Kreitler, H., & Kreitler, S. (1982). The theory of cognitive orientation: Widening the scope of behavior prediction. In B. Maher & W. Maher (Eds.), *Progress in experimental personality research* (pp. 100-135). New York: Academic Press.
- Langer, S. K. (1982). *Mind: An essay on human feeling, Vol. III*. Baltimore: Johns Hopkins University Press.
- Lefcourt, H. (1976). *Locus of control: Current trends in theory and research*. New York: Wiley.
- Leggett, E. L. (1985, March). *Children's entity and incremental theories of intelligence: Relationships to achievement behavior*. Paper presented at the annual meeting of the Eastern Psychological Association, Boston.
- Leggett, E. L., & Dweck, C. S. (1986). *Goals and inference rules: Sources of causal judgments*. Manuscript submitted for publication.
- Lepper, M. (1981). Intrinsic and extrinsic motivation in children: Detrimental effects of superfluous social controls. In W. W. Collins (Ed.), *Minnesota Symposium on Child Psychology* (Vol. 14, pp. 155-214). Hillsdale, NJ: Erlbaum.
- Lerner, M. (1980). *The belief in a just world: A fundamental delusion*. New York: Plenum Press.
- Licht, B. G., & Dweck, C. S. (1984). Determinants of academic achievement: The interaction of children's achievement orientations with skill area. *Developmental Psychology*, 20, 628-636.
- Markus, H. (1977). Self-schemata and processing information about the self. *Journal of Personality and Social Psychology*, 35, 63-78.
- Markus, H. (1983). Self-knowledge: An expanded view. *Journal of Personality*, 51, 543-565.
- McClelland, D. C. (1955). *Studies in motivation*. New York: Appleton-Century-Crofts.
- McClelland, D. C. (1984). *Human motivation*. Oakland, NJ: Scott, Foresman.
- Mischel, W., & Peake, P. K. (1982). Beyond deja-vu in the search for cross-situational consistency. *Psychological Review*, 89, 730-755.
- Nicholls, J. G. (1978). The development of the concepts of effort and ability, perception of academic attainment, and the understanding that difficult tasks require more ability. *Child Development*, 49, 800-814.
- Nicholls, J. G. (1984). Achievement motivation: Conceptions of ability, subjective experience, task choice, and performance. *Psychological Review*, 91, 328-346.
- Olshefsky, L. M., Erdley, C. A., & Dweck, C. S. (1987). [Self-conceptions and goals in social situations]. Unpublished raw data.
- Pervin, L. A. (1983). The stasis and flow of behavior: Toward a theory of goals. In R. A. Dienstbier (Ed.), *Nebraska Symposium on Motivation* (pp. 1-53). Lincoln: University of Nebraska Press.
- Piaget, J., & Garcia, R. (1983). *Psychogenese et l'histoire des sciences* [Psychogenesis and the history of the sciences]. Paris: Flammarion.
- Rapaport, D. (1951). *Organization and pathology of thought: Selected sources*. New York: Columbia University Press.
- Renshaw, P. D., & Asher, S. R. (1983). Children's goals and strategies for social interaction. *Merrill-Palmer Quarterly*, 29, 353-374.
- Rest, J. R. (1983). Morality. In P. H. Mussen (Gen. Ed.) & J. H. Flavell & E. M. Markman (Vol. Eds.), *Handbook of child psychology: Vol. III. Cognitive development* (pp. 556-629). New York: Wiley.
- Rotter, J. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs*, 80(1, Whole No. 609).
- Sarason, I. G. (1975). Anxiety and self-preoccupation. In I. G. Sarason & C. D. Spielberger (Eds.), *Stress and anxiety* (Vol. 2, pp. 27-44). Washington, DC: Hemisphere.
- Sarason, I. G. (1980). *Test anxiety: theory, research, and applications*. Hillsdale, NJ: Erlbaum.

- Sarason, S., & Mandler, G. (1952). Some correlates of test anxiety. *Journal of Abnormal and Social Psychology*, 47, 561-565.
- Seligman, M. E. P., Abramson, L. Y., Semmel, A., & von Baeyer, C. (1979). Depressive attributional style. *Journal of Abnormal Psychology*, 88, 242-247.
- Seligman, M. E. P., Maier, S. F., & Solomon, R. L. (1971). Unpredictable and uncontrollable aversive events. In F. R. Brush (Ed.), *Aversive conditioning and learning* (pp. 347-400). New York: Academic Press.
- Sohn, D. (1977). Affect generating powers of effort and ability self-attributions of academic success and failure. *Journal of Educational Psychology*, 69, 500-505.
- Spielberger, C. (1958). On the relationship between anxiety and intelligence. *Journal of Consulting Psychology*, 22, 220-224.
- Srull, T., & Wyer, R. (1985). The role of chronic and temporary goals in social information processing. In R. M. Sorrentino & E. T. Higgins (Eds.), *Handbook of motivation and cognition* (pp. 503-549). New York: Guilford Press.
- Sternberg, R., Conway, B. E., Ketrion, J. L., & Bernstein, M. (1981). People's conceptions of intelligence. *Journal of Personality and Social Psychology*, 41, 37-55.
- Surber, C. (1984). Inferences of ability and effort: Evidence for two different processes. *Journal of Personality and Social Psychology*, 46, 249-268.
- Taylor, A. R., & Asher, S. R. (1984a). *Children's interpersonal goals in game situations*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Taylor, A. R., & Asher, S. R. (1984b). Children's goals and social competence: Individual differences in a game-playing context. In T. Field, J. L. Roopnarine, & M. Segal (Eds.), *Friendship in normal and handicapped children* (pp. 53-77). Norwood, NJ: Ablex.
- Taylor, A. R., & Asher, S. R. (1985, April). *Goals, games and social competence: Effects of sex, grade level, and sociometric status*. Paper presented at the biennial meeting of the Society for Research in Child Development, Toronto, Canada.
- Tesser, A., & Campbell, J. (1983). Self-definition and self-evaluation maintenance. In J. Suls & A. Greenwald (Eds.), *Social psychological perspectives on the self* (Vol. 2, pp. 123-149). Hillsdale, NJ: Erlbaum.
- Weiner, B. (1972). *Theories of motivation: From mechanism to cognition*. Chicago: Markham.
- Weiner, B. (1974). *Achievement motivation and attribution theory*. Morristown, NJ: General Learning Press.
- Weiner, B., & Graham, S. (1984). An attributional approach to emotional development. In C. Izard, J. Kagan, & R. Zajonc (Eds.), *Emotions, cognition, and behavior* (pp. 167-191). New York: Cambridge University Press.
- Wellman, H. M. (1985). The child's theory of mind: The development of conceptions of cognition. In S. R. Yussen (Ed.), *The growth of reflection in children* (pp. 169-206). New York: Academic Press.
- White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review*, 66, 297-333.
- White, R. W. (1960). Competence and the psycho-sexual stages of development. In C. B. Keasey (Ed.), *Nebraska Symposium on Motivation* (pp. 97-138). Lincoln: University of Nebraska Press.
- Whitehead, A. N. (1938). *Modes of thought*. New York: Free Press.
- Wine, J. (1971). Test anxiety and direction of attention. *Psychological Bulletin*, 76, 92-104.
- Yussen, S. R., & Kane, D. T. (1985). Children's conceptions of intelligence. In S. R. Yussen (Ed.), *The growth of reflection in children* (pp. 207-241). New York: Academic Press.

Received May 27, 1987

Revision received October 9, 1987

Accepted October 12, 1987 ■

Women and Ethnic Minority Men and Women: Reviewers for Journal Manuscripts Wanted

If you are interested in reviewing manuscripts for APA journals, the APA Publications and Communications Board would like to invite your participation. Manuscript reviewers are vital to the publication process. As a reviewer, you would gain valuable experience in publishing. The P & C Board is particularly interested in encouraging women and ethnic minority men and women to participate more in this process.

If you are interested in reviewing manuscripts, please write to Leslie Cameron at the address below. Please note the following important points:

- To be selected as a reviewer, you must have published articles in peer-reviewed journals. The experience of publication provides a reviewer with the basis for preparing a thorough, objective evaluative review.
- To select the appropriate reviewers for each manuscript, the editor needs detailed information. Please include with your letter your vita. In your letter, please identify which APA journal you are interested in and describe your area of expertise. Be as specific as possible. For example, "social psychology" is not sufficient—you would need to specify "social cognition" or "attitude change" as well.
- Reviewing a manuscript takes time. If you are selected to review a manuscript, be prepared to invest the necessary time to evaluate the manuscript thoroughly.

Write to Leslie Cameron, Journals Office, APA, 1400 N. Uhle Street, Arlington, Virginia 22201.

Motivational Processes Affecting Learning

Carol S. Dweck *University of Illinois*

ABSTRACT: *Motivational processes influence a child's acquisition, transfer, and use of knowledge and skills, yet educationally relevant conceptions of motivation have been elusive. Using recent research within the social-cognitive framework, Dweck describes adaptive and maladaptive motivational patterns and presents a research-based model of motivational processes. This model shows how the particular goals children pursue on cognitive tasks shape their reactions to success and failure and influence the quality of their cognitive performance. Dweck argues that this approach has important implications for practice and the design of interventions to change maladaptive motivational processes. She presents a compelling proposal for explaining motivational influences on gender differences in mathematics achievement and observes that empirically based interventions may prevent current achievement discrepancies.*—The Editors

Most research on effective learning and performance of cognitive tasks analyzes the particular cognitive skills required to succeed at those tasks. In contrast, the focus here is on motivational processes that affect success on cognitive tasks. That is, the focus is on psychological factors, other than ability, that determine how effectively the individual acquires and uses skills.

It has long been known that factors other than ability influence whether children seek or avoid challenges, whether they persist or withdraw in the face of difficulty, and whether they use and develop their skills effectively. However, the components and bases of adaptive motivational patterns have been poorly understood. As a result, commonsense analyses have been limited and have not provided a basis for effective practices. Indeed, many "commonsense" beliefs have been called into question or seriously qualified by recent research—for example, the belief that large amounts of praise and success will establish, maintain, or reinstate adaptive patterns, or that "brighter" children have more adaptive patterns and thus are more likely to choose personally challenging tasks or to persist in the face of difficulty.

In the past 10 to 15 years a dramatic change has taken place in the study of motivation. This change has resulted in a coherent, replicable, and educationally relevant body of findings—and in a clearer understanding of motivational phenomena. During this time, the emphasis has shifted to a social-cognitive approach—away from external contingencies, on the one hand, and global, internal states on the other. It has shifted to an emphasis on cognitive mediators, that is, to how children construe the situation, interpret events in the situation, and process

information about the situation. Although external contingencies and internal affective states are by no means ignored, they are seen as part of a process whose workings are best penetrated by focusing on organizing cognitive variables.

Specifically, the social-cognitive approach has allowed us to (a) characterize adaptive and maladaptive patterns, (b) explain them in terms of specific underlying processes, and thus (c) begin to provide a rigorous conceptual and empirical basis for intervention and practice.

Adaptive and Maladaptive Motivational Patterns

The study of motivation deals with the causes of goal-oriented activity (Atkinson, 1964; Beck, 1983; Dollard & Miller, 1950; Hull, 1943; Veroff, 1969). Achievement motivation involves a particular class of goals—those involving competence—and these goals appear to fall into two classes: (a) *learning goals*, in which individuals seek to increase their competence, to understand or master something new, and (b) *performance goals*, in which individuals seek to gain favorable judgments of their competence or avoid negative judgments of their competence (Dweck & Elliott, 1983; Nicholls, 1984; Nicholls & Dweck, 1979).¹

Adaptive motivational patterns are those that promote the establishment, maintenance, and attainment of personally challenging and personally valued achievement goals. Maladaptive patterns, then, are associated with a failure to establish reasonable, valued goals, to maintain effective striving toward those goals, or, ultimately, to attain valued goals that are potentially within one's reach.

Research has clearly documented adaptive and maladaptive patterns of achievement behavior. The adaptive ("mastery-oriented") pattern is characterized by challenge seeking and high, effective persistence in the face of obstacles. Children displaying this pattern appear to enjoy exerting effort in the pursuit of task mastery. In contrast, the maladaptive ("helpless") pattern is characterized by challenge avoidance and low persistence in the face of difficulty. Children displaying this pattern tend to evidence negative affect (such as anxiety) and negative self-cogni-

Correspondence concerning this article should be addressed to Carol S. Dweck, Department of Psychology, University of Illinois, 603 E. Daniel, Champaign, IL 61820.

¹ The word *performance* will be used in several ways, not only in connection with performance goals. It will also be used to refer to the child's task activity (performance of a task) and to the product of that activity (level of performance). The meaning should be clear from the context.

Table 1
Achievement Goals and Achievement Behavior

Theory of intelligence	Goal orientation	Confidence in present ability	Behavior pattern
Entity theory (Intelligence is fixed)	Performance goal (Goal is to gain positive judgments/avoid negative judgments of competence)	If high but If low	Mastery-oriented Seek challenge High persistence Helpless Avoid challenge Low persistence
Incremental theory (Intelligence is malleable)	Learning goal (Goal is to increase competence)	If high or low	Mastery-oriented Seek challenge (that fosters learning) High persistence

tions when they confront obstacles (e.g., Ames, 1984; C. Diener & Dweck, 1978, 1980; Dweck & Reppucci, 1973; Nicholls, 1975).

Although children displaying the different patterns do not differ in intellectual ability, these patterns can have profound effects on cognitive performance. In experiments conducted in both laboratory and classroom settings, it has been shown that children with the maladaptive pattern are seriously hampered in the acquisition and display of cognitive skills when they meet obstacles. Children with the adaptive pattern, by contrast, seem undaunted or even seem to have their performance facilitated by the increased challenge.

If not ability, then what are the bases of these patterns? Most recently, research has suggested that children's goals in achievement situations differentially foster the two patterns. That is, achievement situations afford a choice of goals, and the one the child preferentially adopts predicts the achievement pattern that child will display.

Table 1 summarizes the conceptualization that is emerging from the research. Basically, children's theories of intelligence appear to orient them toward different goals: Children who believe intelligence is a fixed trait tend to orient toward gaining favorable judgments of that trait (performance goals), whereas children who believe intelligence is a malleable quality tend to orient toward developing that quality (learning goals). The goals then appear to set up the different behavior patterns.²

Learning and Performance Goals Contrasted

How and why do the different goals foster the different patterns? How do they shape task choice and task pursuit to facilitate or impede cognitive performance? The research reviewed below indicates that with performance goals, the entire task choice and pursuit process is built around children's concerns about their ability level. In contrast, with learning goals the choice and pursuit processes involve a focus on progress and mastery through

effort. Further, this research shows how a focus on ability judgments can result in a tendency to avoid and withdraw from challenge, whereas a focus on progress through effort creates a tendency to seek and be energized by challenge.

Although relatively few studies as yet have explicitly induced and compared (or measured and compared) learning versus performance goals (see M. Bandura & Dweck, 1985; Elliott & Dweck, 1985; Farrell & Dweck, 1985; Leggett, 1985, 1986), many have manipulated the salience and value of performance goals, and hence the relative value of the two types of goals. This has been done, for example, by instituting a competitive versus individual reward structure (e.g., Ames, 1984; Ames, Ames, & Felker, 1977), by varying the alleged diagnosticity of the task vis à vis important abilities (e.g., Nicholls, 1975), by introducing an audience or evaluator versus allowing the individual to perform privately or focusing his or her attention on the task (e.g., Brockner & Hulton, 1978; Carver & Scheier, 1981; E. Diener & Srull, 1979), and by presenting the task with "test" instructions versus "game" or neutral instructions (e.g., Entin & Raynor, 1973; Lekarczyk & Hill, 1969; McCoy, 1965; Sarason, 1972).

Taken together, the results suggest that highlighting performance goals relative to learning goals can have the following effects on achievement behavior.

Goals and Task Choice

Appropriately challenging tasks are often the ones that are best for utilizing and increasing one's abilities. Recent research has shown that performance goals work against the pursuit of challenge by requiring that children's perceptions of their ability be high (and remain high) before the children will desire a challenging task (M. Bandura & Dweck, 1985; Elliott & Dweck, 1985). That is, if the goal is to obtain a favorable judgment of ability, then children need to be certain their ability is high before displaying it for judgment. Otherwise, they will choose tasks that conceal their ability or protect it from negative evaluation. For example, when oriented toward performance goals, individuals with low assessments of their ability are often found to choose personally easy tasks on which success is ensured or excessively difficult ones on

² See M. Bandura and Dweck (1985), Dweck and Elliott (1983), and Leggett (1985) for a more extensive treatment of children's theories of intelligence. The present article will focus on achievement goals and their allied behavior patterns.

which failure does not signify low ability (M. Bandura & Dweck, 1985; Elliott & Dweck, 1985; see also deCharms & Carpenter, 1968; Moulton, 1965; Nicholls, 1984; Raynor & Smith, 1966). Even individuals with high assessments of their ability may sacrifice learning opportunities (that involve risk of errors) for opportunities to look smart (Elliott & Dweck, 1985; see Covington, 1983). Thus, performance goals appear to promote defensive strategies that can interfere with challenge seeking.

With learning goals, however, even if children's assessment of their present ability is low, they will tend to choose challenging tasks that foster learning (M. Bandura & Dweck, 1985; Elliott & Dweck, 1985). Specifically, in studies by Elliott and Dweck (1985), in which learning and performance goals were experimentally manipulated, and by M. Bandura and Dweck (1985), in which learning and performance goals were assessed, children with learning goals chose challenging tasks regardless of whether they believed themselves to have high or low ability (see also Meyer, Folkes, & Weiner, 1976; Nicholls, 1984). Thus with a learning goal, children are willing to risk displays of ignorance in order to acquire skills and knowledge. Instead of calculating their exact ability level and how it will be judged, they can think more about the value of the skill to be developed or their interest in the task to be undertaken.

Goals and Task Pursuit

Outcome interpretation and impact. Although within a performance goal children's confidence in their ability needs to remain high to sustain task involvement, that confidence is difficult to maintain. Research shows that children with performance goals are more likely to interpret negative outcomes in terms of their ability. That is, they attribute errors or failures to a lack of ability (Ames, 1984; Ames et al., 1977; Elliott & Dweck, 1985) and view them as predictive of continued failure (Anderson & Jennings, 1980). This in turn tends to result in defensive withdrawal of effort or debilitation in the face of obstacles (Covington & Omelich, 1979; Elliott & Dweck, 1985; Frankl & Snyder, 1978; Nicholls, 1976, 1984; see also Berglas & Jones, 1970; Weiner, 1972, 1974).

In contrast, children with learning goals tend to use obstacles as a cue to increase their effort or to analyze and vary their strategies (Ames, 1984; Ames et al., 1977; Elliott & Dweck, 1985; Leggett, 1986; Nicholls, 1984), which often results in *improved* performance in the face of obstacles. That is, the more children focus on learning or progress, the greater the likelihood of maintaining effective strategies (or improving their strategies) under difficulty or failure (A. Bandura & Schunk, 1981; Elliott & Dweck, 1985; Farrell & Dweck, 1985; see also Anderson & Jennings, 1980; C. Diener & Dweck, 1978).

Satisfaction with outcomes. Once again, within the performance goal versus learning goal framework, the focus is on ability versus effort. For performance-goal children, satisfaction with outcomes is based on the ability they believe they have displayed, whereas for learning-goal children, satisfaction with outcomes is based on the

effort they have exerted in pursuit of the goal. Ames et al. (1977), for example, found that with an autonomous reward structure (learning goal), children's pride in their performance in both the success and the failure conditions was related to the degree of effort they perceived themselves to have exerted. However, within the competitive reward structure (performance goal), pride in performance was related to the degree of ability (and luck) they believed themselves to have. Thus, failure within a performance goal, because it signifies low ability, yields little basis for personal pride or satisfaction.

Indeed, within a performance goal, high effort may be *negatively* related to satisfaction: Leggett (1986) showed that children with performance goals are significantly more likely than children with learning goals to view effort per se as indicative of low ability (see also Jagacinski & Nicholls, 1982; Surber, 1984).

Findings by M. Bandura and Dweck (1985) also support the differential emphasis on effort versus ability as the basis for satisfaction within learning and performance goals. When asked to indicate their affective reactions to low-effort mastery, children with learning goals were more likely than children with performance goals to choose "bored" or "disappointed" as opposed to "proud" or "relieved."

Finally, within a performance framework, children's own outcome satisfaction and that of their peers may be in conflict. Results from the Ames et al. (1977) study are consonant with this view. Children's own satisfaction and perceived other's satisfaction with performance were negatively correlated under the competitive reward structure ($-.70$) but not in the autonomous reward structure ($.06$), even though their relative outcomes were identical in the two conditions. In addition, in rating how deserving of rewards (stars) both persons were, given their level of performance, children were more magnanimous toward the poorer performer (whether it was self or other) in the noncompetitive condition than they were in the competitive one. Indeed, in the noncompetitive condition, they even awarded the losing other slightly more stars than they awarded themselves.

Intrinsic motivation. It has been noted that persistence in the face of obstacles is made more difficult within a performance goal because obstacles tend to cast doubt on the child's ability and hence to call into question goal attainment (favorable ability judgments). Persistence is also made more difficult by the fact that "intrinsic" motivational factors—such as task interest or the enjoyment of effort—may be more difficult to access within a performance goal. That is, effort in the face of uncertainty appears to be experienced as aversive for children with performance goals, and worry about goal attainment may well overwhelm any intrinsic interest the task may hold for the child (Ames et al., 1977; M. Bandura & Dweck, 1985; Elliott & Dweck, 1985). Indeed, performance goals may well create the very conditions that have been found to undermine intrinsic interest (Deci & Ryan, 1980; Lepper, 1980; Lepper & Greene, 1978; Maehr & Stallings, 1972; Ryan, Mims, & Koestner, 1983).

In concluding this section on goal orientation and task pursuit, we might ask: Do children's goal orientations play a role in what and how they actually learn in classroom settings? One of the hallmarks of effective learning (and of intelligent thinking) is the tendency to apply or transfer what one has learned to novel tasks that embody similar underlying principles.

In a recent study, Farrell and Dweck (1985) examined the relationship between children's goal orientations and transfer of learning. As a week-long unit in their regular science classes, eighth-grade children were taught one of three scientific principles by means of self-instructional booklets. They were then tested for their generalization of this learning to tasks involving the two (conceptually related) principles that had not been taught. The results showed that children who had learning goals for the unit, compared to those who had performance goals, (a) attained significantly higher scores on the transfer test (and this was true for children who had high and low pretest scores); (b) produced about 50% more work on their transfer tests, suggesting that they were more active in the transfer process; and (c) produced more rule-generated answers on the test even when they failed to reach the transfer criterion, again suggesting more active attempts to apply what they had learned to the solution of novel problems.

To summarize, a performance goal focuses children on issues of ability. Within this goal, children's confidence in their current ability must be high and must remain high if they are to choose appropriately challenging tasks and pursue them in effective ways. Yet the same focus on ability makes their confidence in their ability fragile—even the mere exertion of effort calls ability into question. A strong orientation toward this goal can thus create a tendency to avoid challenge, to withdraw from challenge, or to show impaired performance in the face of challenge. Ironically, then, an overconcern with ability may lead children to shun the very tasks that foster its growth.

In contrast, a learning goal focuses children on effort—effort as a means of utilizing or activating their ability, of surmounting obstacles, and of increasing their ability. Not only is effort perceived as the means to accomplishment, it is also the factor that engenders pride and satisfaction with performance. The adoption of learning goals thus encourages children to explore, initiate, and pursue tasks that promote intellectual growth.

The Relation of Ability and Motivation

Does Ability Predict Motivational Patterns?

One might suppose that children who had the highest IQ scores, achievement test scores, and grades would be the ones who had by far the highest expectancies for future test scores and grades, as well as for performance on novel experimental tasks. Surprisingly often, this is not the case. In fact, one of the things that makes the study of motivation particularly intriguing is that measures of children's actual competence do not strongly predict their confidence of future attainment (M. Bandura & Dweck,

1985; Crandall, 1969; Stipek & Hoffman, 1980; see also Phillips, 1984). Indeed, M. Bandura and Dweck found that their low-confidence children tended to have somewhat higher achievement test scores than their high-confidence group. Interestingly, the low-confidence children did not have poorer opinions of their past attainment or abilities but faced the upcoming task with low expectancies of absolute and relative performance.

One might also suppose that high-achieving children would be much less likely than low achievers, when encountering an obstacle, to attribute their difficulty to a lack of ability and to show deteriorated performance. But this supposition, too, is often contradicted by the evidence (e.g., Licht & Dweck, 1984; Stipek & Hoffman, 1980; see also C. Diener & Dweck, 1978, 1980).

A tendency toward unduly low expectancies (Crandall, 1969; Stipek & Hoffman, 1980), challenge avoidance (Licht, Linden, Brown, & Sexton, 1984; see also Leggett, 1985), ability attributions for failure (Licht & Shapiro, 1982; Nicholls, 1979), and debilitation under failure (Licht et al., 1984; Licht & Dweck, 1984) has been especially noted in girls, particularly bright girls.³ Indeed, some researchers have found a negative correlation for girls between their actual ability and these maladaptive patterns (Crandall, 1969; Licht et al., 1984; Licht & Dweck, 1984; Licht & Shapiro, 1982; Stipek & Hoffman, 1980).

An extensive study of sex differences in achievement cognitions and responses to failure recently completed by Licht et al. (1984) yields illustrative evidence. On the basis of their grades, Licht divided her subjects into A, B, C, and D students and, among other measures, administered a novel concept formation task. A significant sex difference was found among the A students (and only among the A students) in their response to failure, with the A girls showing the greatest debilitation of the eight groups and the A boys being the only group to show any facilitation. In addition, Licht found a strong sex difference in task preferences between A girls and A boys: The A girls much preferred tasks they knew they were good at, whereas A boys preferred ones they would have to work harder to master.

It is also interesting to note that in Leggett's (1985) study of bright junior high school students, there was a greater tendency for girls than boys to subscribe to an "entity" theory of intelligence (smartness as a fixed trait, a static entity) and for those who did to choose a performance goal that avoided challenge.

Again, it is not the case that these girls are unaware of their attainments (Licht & Dweck, 1984; Nicholls, 1979; Parsons, Meece, Adler, & Kaczala, 1982), but knowledge of past successes does not appear to arm them for confrontations with future challenges. For example, in a study by Licht and Dweck (1984) that examined the

³ It is important to note that sex differences, like most individual differences, are by no means found in every study. However, when sex differences are found, the same ones are typically found. Thus, the pattern described is a recurrent one that has been found in many studies from many different laboratories.

impact of initial confusion (vs. no confusion) on subsequent learning, high-achieving girls rated themselves as being bright but still showed greater debilitation than low-achieving girls. Whereas in the no-confusion condition, the brighter the girl (by her own self-rating and by IQ score), the more likely she was to master the new material ($r = .47$), in the confusion condition, the brighter the girl, the less likely she was to reach the mastery criterion ($r = -.38$, $p_{diff} < .02$). (For boys in this study the correlation between self-rated ability and task performance tended to increase from the no-confusion to the confusion condition: $r_s = .15$ and $.34$, respectively.)

In short, being a high achiever and knowing one has done well in the past does not appear to translate directly into high confidence in one's abilities when faced with future challenges or current difficulties. Nor does it clearly predict the maintenance of one's ability to perform or learn under these conditions. It is apparent, then, that a maladaptive motivational pattern is not the sole province of the low-achieving, "failure-prone" child.

Does Motivational Pattern Predict Ability Over Time?

If there is a sizable proportion of high achievers with maladaptive motivational patterns (see Phillips, 1984), and if these patterns are important to achievement, then why are these children still high achievers? Drops in achievement can result from performance debilitation or task avoidance. That is, both the presence of failure or the opportunity to avoid challenging subject areas may lead to cumulative skill deficits in children with maladaptive patterns. For good students, grade school may not provide either of these. It may present neither tasks that are difficult enough to create failure and debilitation nor the choice of not pursuing a given subject area. For these reasons, maladaptive patterns may not yet typically come into play. Licht and Dweck (1984) showed, however, in an experiment conducted in classrooms, that when confusion does accompany the initial attempt to learn new material, mastery of the material is seriously impaired for these children.

It may be that only in subsequent school years will these maladaptive tendencies have their impact on achievement, when children with these patterns may elect to avoid challenging courses of study, drop out of courses that pose a threat of failure, or show impairment of performance under real difficulty. Thus, our experimental studies may create conditions that good students will encounter fully only in later years but that reveal underlying patterns already in place in the grade school years.

In the following section, sex differences in motivational patterns and achievement are used as a means of exploring the ways in which motivational patterns can affect achievement, and ability, over time.

The Case of Sex Differences in Mathematical Versus Verbal Achievement

Discrepancies between males and females in mathematical and verbal achievement have long been a source of puzzlement and concern. Although in the grade school

years girls equal boys in mathematical achievement (and surpass them in verbal achievement), during the junior high and high school years, boys pull ahead and remain ahead in mathematical achievement (Donlon, Ekstrom & Lockheed, 1976; Fennema & Sherman, 1977; Hilton & Berglund, 1974; Maccoby & Jacklin, 1974). A wide assortment of explanations has been advanced, ranging from claims about the nature of the genetic equipment (Benbow & Stanley, 1980) to arguments about the impact of sex role stereotypes (Sherman & Fennema, 1977). Without ruling out other explanations, one can add a motivational explanation based on the research findings reviewed above. Specifically, the fact that the two sexes often display different motivational patterns and the fact that the academic subject areas in question differ in major ways aside from the skills they require suggest that perhaps motivational patterns contribute to these achievement discrepancies.

This suggestion is made even more plausible when one considers that (a) sex differences in mathematical achievement are greatest among the brightest students (Astin, 1974; Fox, 1976) and (b) sex differences in motivational patterns and associated behavior appear to be greatest among the brightest students. As noted above, bright girls compared to bright boys (and compared to less bright girls) seem to display shakier expectancies, lower preference for novel or challenging tasks, more frequent failure attributions to lack of ability, and more frequent debilitation in the face of failure or confusion (Licht et al., 1984; Licht & Dweck, 1984; Stipek & Hoffman, 1980). Moreover, some characteristics of mathematical versus verbal areas are precisely those that would work against individuals with this pattern but that would favor individuals with the more confident, challenge-seeking pattern (see Licht & Dweck, 1984, for a more detailed discussion of these characteristics).

Specifically, new units and courses in mathematics, particularly after the grade school years, tend to involve new skills, new concepts, or even entirely new conceptual frameworks (for example, algebra, geometry, calculus). These new skills and concepts are not only different from but are often more difficult than those the child has mastered in the past. In the verbal areas, however, once the basic skills of reading and writing are mastered, one does not as typically encounter leaps to qualitatively different tasks, tasks requiring mastery of completely unfamiliar verbal skills. Increments in difficulty appear to be more gradual, and new units or courses often simply ask the student to bring existing skills to bear on new material.

This general difference between mathematical and verbal areas may have several important psychological consequences. For one thing, as children ponder future math courses, the greater novelty and difficulty of the future courses compared to present ones would be expected to precipitate declines in confidence for bright girls, but not for bright boys. Indeed, in the study cited above, Parsons et al. (1982) found significant sex differences in expectancies for future math courses even when females

and males were equivalent in their perceptions of their present mathematical ability and in their expectancies for their present math courses.

Task preference data as well suggest that a greater discrepancy between present and future tasks in mathematical versus verbal areas may render math less appealing to bright girls, but perhaps more appealing to bright boys. Bright girls, it will be recalled, tend to prefer tasks they are fairly certain they are good at and can do well on, whereas bright boys are more attracted to tasks that pose some challenge to mastery (Licht et al., 1984; see also Leggett, 1985).

Yet another consequence of this proposed math-verbal difference is that in math, children are more likely to experience failure or confusion at the beginning of a new unit or course. This might be expected to produce debilitation (or escape attempts, such as course-dropping) in bright girls but perseverance in bright boys. And, indeed, support for this prediction of differential debilitation comes from the Licht and Dweck (1984) study, described earlier, in which confusion (or no confusion) attended the introduction of new subject matter, and from the Licht et al. (1984) study in which obstacles were encountered in the acquisition of a new skill. In both cases, bright girls showed the most impairment and bright boys the most facilitation.

In short, mathematics appears to differ from verbal areas in ways that would make it more compatible with the motivational patterns of bright boys and less compatible with those of bright girls. Thus, given two children with equal mathematical aptitude and mathematical achievement in the grade school years, but with differing motivational patterns, we would predict precisely the sex differences in course taking and long-term achievement that are found to occur (Donlon et al., 1976; Fennema & Sherman, 1977; Hilton & Berglund, 1974).

With increasing age, children make increasingly consequential decisions, and maladaptive patterns may begin to impair their achievement and constrict their future choices. Maladaptive patterns such as those displayed by bright girls may even fail to foster intellectual growth in general. In a 38-year longitudinal study of IQ change (measured at mean ages of 4.1, 13.8, 29.7, and 41.6), Kangas and Bradway (1971) found that for males the higher the preadult level, the more they gained in later years, whereas for females the higher the preadult level, the less they gained in later years. In fact, of the six groups in the study (males and females with high, medium, and low preadult IQs), all showed surprisingly large gains over the years (between 15 and 30 points) except the high-IQ females, who showed little gain (about 5 points). Although there are many possible interpretations of these results, the general picture suggests that bright females, compared to bright males, are not thriving. Our analysis suggests that appropriate motivational interventions may help prevent some of the achievement discrepancies between the sexes. Let us turn, then, to the experiences or interventions that appear to foster adaptive motivational patterns.

Experiences That Foster Adaptive Patterns

The question for motivational interventions is: What are we aiming for and how do we get there? When one considers the necessity for, but the vulnerability of, confidence within a performance goal framework, one is led to the position that challenge seeking and persistence are better facilitated by attempts to foster a learning goal orientation than by attempts to instill confidence within a performance framework.

Nonetheless, much current educational practice aims at creating high-confidence performers and attempts to do so by programming frequent success and praise. (See Brown, Palincsar, & Purcell, 1984, for a discussion of this issue.) How did this situation arise? I propose that misreadings of two popular phenomena may have merged to produce this approach. First was the growing belief in "positive reinforcement" (interpreted as frequent praise for small units of behavior) as the way to promote desirable behavior. Yet a deeper understanding of the principles of reinforcement would not lead one to expect that frequent praise for short, easy tasks would create a desire for long, challenging ones or promote persistence in the face of failure. On the contrary, continuous reinforcement schedules are associated with poor resistance to extinction, and errorless learning, as evidenced by Terrace's (1969) renowned pigeons, has been found to produce bizarre emotional responses following nonreinforcement.

Second was a growing awareness of teacher expectancy effects. As is well known, the teacher expectancy effect refers to the phenomenon whereby teachers' impressions about students' ability (e.g., manipulated via test information) actually affect students' performance, such that the students' performance falls more in line with the teachers' expectancies (Rosenthal & Jacobson, 1968). The research on this "self-fulfilling prophecy" raised serious concerns that teachers were hampering the intellectual achievement of children they labeled as having low ability. One remedy was thought to lie in making low-ability children feel like high-ability children by means of a high success rate.

In light of the implications that were drawn from teacher expectancy effects, it is interesting to contrast them with the views of the original researchers (see, e.g., Rosenthal, 1971, 1974; Rosenthal & Jacobson, 1968). Unlike many of their followers, they appeared to frame their work within (and provide teachers with) an incremental theory of intelligence. Specifically, in the Rosenthal and Jacobson (1968) study, teachers were told that the "test for intellectual blooming" indicated that the target children would show remarkable gains in intellectual competence during the school year. Moreover, when hypothesizing possible mechanisms through which gains were produced, the original researchers thought in terms of teachers' having stimulated intellectual growth through challenge. And, in reviewing work on undesirable expectancy effects, they lamented that "lows" seemed to be given too little work, and work that was too easy, to spur cognitive gains (Rosenthal, 1971). (See also, Brown et al.,

1984, who argued cogently that it is not ill treatment, but a failure to teach the necessary high-level skills, that accounts for much of the achievement deficit of low-reading groups.) Thus, these original researchers were oriented toward producing intellectual growth in children rather than simply giving children an illusion of intelligence.

The motivational research is clear in indicating that continued success on personally easy tasks (or even on difficult tasks within a performance framework) is ineffective in producing stable confidence, challenge seeking, and persistence (Dweck, 1975; Relich, 1983). Indeed, such procedures have sometimes been found to backfire by producing lower confidence in ability (Meyer, 1982; Meyer et al., 1979). Rather, the procedures that bring about more adaptive motivational patterns are the ones that incorporate challenge, and even failure, within a learning-oriented context and that explicitly address underlying motivational mediators (Andrews & Debus, 1978; A. Bandura & Schunk, 1981; Covington, 1983; Dweck, 1975; Fowler & Peterson, 1981; Relich, 1983; Rhodes, 1977; Schunk, 1982). For example, retraining children's attributions for failure (teaching them to attribute their failures to effort or strategy instead of ability) has been shown to produce sizable changes in persistence in the face of failure, changes that persist over time and generalize across tasks (Andrews & Debus, 1978; Dweck, 1975; Fowler & Peterson, 1981; Relich, 1983; Rhodes, 1977).

Thus far, only short-term experimental manipulations of children's goal orientations have been attempted (Ames, 1984; Ames et al., 1977; Elliott & Dweck, 1985). Although these goal manipulations have been successful in producing the associated motivational patterns, much research remains to be conducted on how best to produce lasting changes in goal orientation.

To date, motivational interventions, such as attribution retraining, have been conducted primarily with less successful students (those who display both a lag in skill level and a maladaptive response to difficulty). Yet, the earlier discussion suggests that some of the brightest students, who in grade school as yet show little or no obvious impairment in the school environment, may be prime candidates for such motivational interventions. Among these are children (e.g., bright girls) who have had early, consistent, and abundant success yet, despite this (or perhaps even because of this), do not relish the presence or the prospect of challenge.

Summary and Conclusion

Motivational processes have been shown to affect (a) how well children can deploy their existing skills and knowledge, (b) how well they acquire new skills and knowledge, and (c) how well they transfer these new skills and knowledge to novel situations. This approach does not deny individual differences in present skills and knowledge or in "native" ability or aptitude. It does suggest, however, that the use and growth of that ability can be appreciably influenced by motivational factors.

The social-cognitive approach, with its emphasis on specific mediating processes, has generated important

implications for practice and ameliorative interventions. Indeed, ways of appropriately incorporating issues of "self-concept" into education have long been sought. The social-cognitive approach, by identifying particular self-conceptions (e.g., children's theories of their intelligence) and by detailing their relationship to behavior, may well provide the means.

In addition, there is growing evidence that the conceptualization presented here is relevant not only to effectiveness on cognitive tasks but also to effectiveness in social arenas. For example, children's attributions for social outcomes predict whether they respond adaptively to rejection (Goetz & Dweck, 1980), and children's social goals are related to their popularity among their classmates (Taylor & Asher, 1985). Thus the present approach may illuminate adaptive and maladaptive patterns in diverse areas of children's lives and may thereby provide a basis for increasingly effective socialization and instructional practices across these areas.

REFERENCES

- Ames, C. (1984). Achievement attributions and self-instructions under competitive and individualistic goal structures. *Journal of Educational Psychology, 76*, 478-487.
- Ames, C., Ames, R., & Felker, D. W. (1977). Effects of competitive reward structure and valence of outcome on children's achievement attributions. *Journal of Educational Psychology, 69*, 1-8.
- Anderson, C. A., & Jennings, D. L. (1980). When experiences of failure promote expectations of success: The impact of attributing failure to ineffective strategies. *Journal of Personality, 48*, 393-407.
- Andrews, G. R., & Debus, R. L. (1978). Persistence and the causal perceptions of failure: Modifying cognitive attributions. *Journal of Educational Psychology, 70*, 154-166.
- Astin, H. (1974). Sex differences in scientific and mathematical precocity. In J. C. Stanley, D. P. Keating, & L. H. Fox (Eds.), *Mathematical talent: Discovery, description and development*. Baltimore, MD: Johns Hopkins University Press.
- Atkinson, J. W. (1964). *An introduction to motivation*. Princeton, NJ: Van Nostrand.
- Bandura, A., & Schunk, D. H. (1981). Cultivating competence, self-efficacy, and intrinsic interest through proximal self-motivation. *Journal of Personality and Social Psychology, 41*, 586-598.
- Bandura, M., & Dweck, C. S. (1985). *Self-conceptions and motivation: Conceptions of intelligence, choice of achievement goals, and patterns of cognition, affect, and behavior*. Manuscript submitted for publication.
- Beck, R. C. (1983). *Motivation: Theories and principles*. Englewood Cliffs, NJ: Prentice-Hall.
- Benbow, C. P., & Stanley, J. C. (1980). Sex differences in mathematics ability: Fact or artifact. *Science, 10*, 1262-1264.
- Berglas, S., & Jones, E. E. (1970). Drug choice as a self-handicapping strategy in response to noncontingent success. *Journal of Personality and Social Psychology, 36*, 405-417.
- Brockner, J., & Hulton, A. J. B. (1978). How to reverse the vicious cycle of low self-esteem: The importance of attentional focus. *Journal of Experimental Psychology, 14*, 564-578.
- Brown, A. L., Palincsar, A. S., & Purcell, L. (1984). Poor readers: Teach don't label. In U. Neisser (Ed.), *The academic performance of minority children: A new perspective*. Hillsdale, NJ: Erlbaum.
- Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer-Verlag.
- Covington, M. V. (1983). Strategic thinking and the fear of failure. In S. F. Chipman, J. Segal, & R. Glaser (Eds.), *Thinking and learning skills: Current research and open questions* (Vol. 2). Hillsdale, NJ: Erlbaum.
- Covington, M. V., & Omelich, C. L. (1979). Effort: The double-edged

- sword in school achievement. *Journal of Educational Psychology*, 71, 169-182.
- Crandall, V. C. (1969). Sex differences in expectancy of intellectual and academic reinforcement. In C. P. Smith (Ed.), *Achievement-related motives in children*. New York: Russell Sage.
- deCharms, R., & Carpenter, V. (1968). Measuring motivation in culturally disadvantaged school children. In H. J. Klausmeier, & G. T. O'Hearn (Eds.), *Research and development toward the improvement of education*. Madison, WI: Dembar Educational Services.
- Deci, E. L., & Ryan, R. M. (1980). The empirical exploration of intrinsic motivational processes. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 13). New York: Academic Press.
- 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.
- Diener, E., & Srull, T. K. (1979). Self-awareness, psychological perspective, and self-reinforcement in relation to personal and social standards. *Journal of Personality and Social Psychology*, 37, 413-423.
- Dollard, J., & Miller, N. E. (1950). *Personality and psychotherapy*. New York: McGraw-Hill.
- Donlon, T., Ekstrom, R., & Lockheed, M. (1976, September). *Comparing the sexes on achievement items of varying content*. Paper presented at the meeting of the American Psychological Association, Washington, DC.
- 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., & Elliott, E. S. (1983). Achievement motivation. In E. M. Hetherington (Ed.), *Socialization, personality, and social development*. New York: Wiley.
- Dweck, C. S., & Reppucci, N. D. (1973). Learned helplessness and reinforcement responsibility in children. *Journal of Personality and Social Psychology*, 25, 109-116.
- Elliott, E., & Dweck, C. S. (1985). *Goals: An approach to motivation and achievement*. Manuscript submitted for publication.
- Entin, E. E., & Raynor, J. O. (1973). Effects of contingent future orientation and achievement motivation on performance in two kinds of tasks. *Journal of Experimental Research in Personality*, 6, 320-341.
- Farrell, E., & Dweck, C. (1985). *The role of motivational processes in transfer of learning*. Manuscript submitted for publication.
- Fennema, E., & Sherman, J. (1977). Sex-related differences in mathematics achievement, spatial visualization, and affective factors. *American Educational Research Journal*, 14, 51-71.
- Fowler, J. W., & Peterson, P. L. (1981). Increasing reading persistence and altering attributional style of learned helpless children. *Journal of Educational Psychology*, 73, 251-260.
- Fox, L. (1976). Sex differences in mathematical precocity: Bridging the gap. In D. P. Keating (Ed.), *Intellectual talent: Research and development*. Baltimore, MD: Johns Hopkins University Press.
- Frankl, A., & Snyder, M. L. (1978). Poor performance following unsolvable problems: Learned helplessness or egotism? *Journal of Personality and Social Psychology*, 36, 1415-1423.
- Goetz, T., & Dweck, C. (1980). Learned helplessness in social situations. *Journal of Personality and Social Psychology*, 39, 246-255.
- Hilton, T., & Berglund, G. (1974). Sex differences in mathematics achievement—A longitudinal study. *Journal of Education Research*, 67, 231-237.
- Hull, C. L. (1943). *Principles of behavior*. New York: Appleton-Century-Crofts.
- Jagacinski, C. M., & Nicholls, J. G. (1982, March). *Concepts of ability*. Paper presented at the meeting of the American Educational Research Association, New York.
- Kangas, J., & Bradway, K. (1971). Intelligence at middle age: A thirty-eight year follow-up. *Developmental Psychology*, 5, 333-337.
- Leggett, E. (1985, March). *Children's entity and incremental theories of intelligence: Relationships to achievement behavior*. Paper presented at the meeting of the Eastern Psychological Association, Boston.
- Leggett, E. (1986, April). *Individual differences in effort-ability inference rules: Implications for causal judgments*. Paper presented at the meeting of the Eastern Psychological Association, New York.
- Lekarczyk, D. T., & Hill, K. T. (1969). Self-esteem, test anxiety, stress and verbal learning. *Developmental Psychology*, 1, 147-154.
- Lepper, M. R. (1980). Intrinsic and extrinsic motivation in children: Detrimental effects of superfluous social controls. In W. A. Collins (Ed.), *Minnesota Symposium on Child Psychology* (Vol. 14). Hillsdale, NJ: Erlbaum.
- Lepper, M. R., & Greene, D. (Eds.) (1978). *The hidden costs of reward: New perspectives on the psychology of human motivation*. Hillsdale, NJ: Erlbaum.
- Licht, B. G., & Dweck, C. S. (1983). Sex differences in achievement orientations: Consequences for academic choices and attainments. In M. Marland (Ed.), *Sex differentiation and schooling*. London: Heinemann.
- Licht, B. G., & Dweck, C. S. (1984). Determinants of academic achievement: The interaction of children's achievement orientations with skill area. *Developmental Psychology*, 20, 628-636.
- Licht, B. G., Linden, T. A., Brown, D. A., & Sexton, M. A. (1984, August). *Sex differences in achievement orientation: An "A" student phenomenon?* Paper presented at the meeting of the American Psychological Association, Toronto, Canada.
- Licht, B. G., & Shapiro, S. H. (1982, August). *Sex differences in attributions among high achievers*. Paper presented at the meeting of the American Psychological Association, Washington, DC.
- Maccoby, E. E., & Jacklin, C. N. (1974). *The psychology of sex differences*. Stanford, CA: Stanford University Press.
- Mach, M. L., & Stallings, W. M. (1972). Freedom from external evaluation. *Child Development*, 43, 177-185.
- McCoy, N. (1965). Effects of test anxiety on children's performance as a function of instructions and type of task. *Journal of Personality and Social Psychology*, 2, 634-641.
- Meyer, W. U. (1982). Indirect communications about perceived ability estimates. *Journal of Educational Psychology*, 74, 888-897.
- Meyer, W., Bachman, M., Biermann, U., Hempelmann, M., Ploger, F., & Spiller, H. (1979). The informational value of evaluative behavior: Influences of praise and blame on perceptions of ability. *Journal of Educational Psychology*, 71, 259-268.
- Meyer, W. W., Folkes, V., & Weiner, B. (1976). The perceived informational value and affective consequences of choice behavior and intermediate difficulty task selection. *Journal of Research in Personality*, 10, 410-423.
- Moulton, R. W. (1965). Effects of success and failure on level of aspiration as related to achievement motives. *Journal of Personality and Social Psychology*, 1, 399-406.
- Nicholls, J. G. (1975). Causal attributions and other achievement related cognitions: Effects of task outcome, attainment value, and sex. *Journal of Personality and Social Psychology*, 31, 379-389.
- Nicholls, J. G. (1976). Effort is virtuous but it's better to have ability: Evaluative responses to perceptions of effort and ability. *Journal of Research in Personality*, 10, 306-315.
- Nicholls, J. G. (1979). Development of perception of own attainment and causal attributions for success and failure in reading. *Journal of Educational Psychology*, 71, 94-99.
- Nicholls, J. G. (1984). Conceptions of ability and achievement motivation. In R. Ames & C. Ames (Eds.), *Research on motivation in education* (Vol. 1). New York: Academic Press.
- Nicholls, J. G., & Dweck, C. S. (1979). *A definition of achievement motivation*. Unpublished manuscript, University of Illinois.
- Parsons, J. E., Meece, J. L., Adler, T. F., & Kaczala, C. M. (1982). Sex differences in attributions and learned helplessness. *Sex Roles*, 8, 421-432.
- Phillips, D. (1984). The illusion of incompetence among high-achieving children. *Child Development*, 55, 2000-2016.
- Raynor, J. O., & Smith, C. P. (1966). Achievement related motives and risk-taking in games of skill and chance. *Journal of Personality*, 34, 176-198.
- Relich, J. D. (1983). *Attribution and its relation to other affective variables in predicting and inducing arithmetic achievement*. Unpublished doctoral dissertation, University of Sydney, Sydney, Australia.