

How Does Students' Sense of Self-Worth Influence Their Goal Orientation in Mathematics Achievement?

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Abstract: In learning mathematics, students are naturally motivated to protect their self-worth by maintaining a belief that they are competent in this area. However, there is an important question which educators have to answer: “Why do students often confuse ability with worth?” The most important reason is that in our society students are widely considered to be worthy according to their ability to achieve in the given tasks in mathematics. Irrespective the contributions of the Multiple Intelligence Theory of intelligence in education, unfortunately mathematics is still regarded as predicting students’ overall ability to learn. Educators should realize that the need in order to protect self-worth arises primarily from fear of failure. Therefore, if this fear of failure is strong, some students will not try and gradually they will produce failure-avoiding strategies to avoid certain tasks in order not to look bad or receive negative assessments from others to protect his/her self-worth. It is important to make sure that the performance goals do not promote failure-avoidance (performance-avoidance-oriented) behavior, such as avoiding unfavorable judgments of capabilities and looking incompetent when the student encounters greater challenges. The main purpose of this qualitative study, therefore, is to explore students’ achievement goal motivation, their self-worth and how these motivational factors impact their learning goals in mathematics. This study hypothesizes that self-worth protection in math has also been considered from a performance-avoidance goal viewpoint. This study emphasizes that educators, who consider true self-worth as the student’s inherent value, should avoid comparing their students’ ability, capability relative to others as well as students’ academic performance and outcomes with others in class context.

Keywords: Mastery Goal, Performance Approach Goal, Performance Avoidance Goal, Students’ Sense of Self-Worth

1. Introduction

According to self-worth theory, as stated by Martin Covington (2000), students naturally have the tendency to establish and maintain a positive self-image, sense of self-worth, or an appraisal of their own value as an individual. Its fundamental premise is that “one’s sense of worth depends heavily on one’s accomplishments” (Covington, 1984, p. 8). Therefore, it more specifically links ability-related and value-related constructs to arouse and drive students’ behaviors in academic achievement. Self-worth theory focuses on the relation of expectancies and the belief that they are competent to achieve a certain goal.

In terms of success in learning mathematics, students are naturally motivated to protect their self-worth by maintaining a belief that they are competent in mathematics. The most important reason is that in our society students are widely considered to be worthy according to their ability to achieve in the given tasks in mathematics. Irrespective the contributions of the Multiple Intelligence Theory of intelligence in education, unfortunately, mathematics is still regarded as predicting students' overall ability to learn. In the achievement context, schools value and assess competencies as being able, competent, smart, and accomplished. Students' self-perceptions of competency become dominant and contribute to their self-worth (Covington, 1984). So it is understandable why students often confuse ability with worth. Because of that tendency many students come to believe that they are only as worthy as their accomplishment is, and that failure makes them unworthy of the approval of others (Covington, 1984; Covington & Mueller, 2001). From this point of view, the self-worth theory defines the goals adopted by students, whether performance-avoidant or performance-oriented, as the life-spanning endeavor to develop and maintain a sense of self-worth in a society that values competency and doing well (Covington, 1992). However, self-worth should be less about measuring oneself based on one's ability relative to others and more about valuing one's inherent worth as an individual. Therefore, "school achievement is best understood in terms of maintaining a positive self-image of one's ability, particularly when risking competitive failure" (Covington, 1998, p. 78). It has to be taken into consideration that the self-worth model emphasizes the feelings of worthlessness that arise from 'the disclosure of incompetency' (Covington, 1984, p. 8). Teachers should especially consider this point of view in their day-to-day class activities.

2. Literature Review

It is understandable from Covington's interrelation of human value and accomplishment that we gain a point of view that consists of two factors; *achievement* and *ability*. These factors constitute a strong value in the minds of many school children, and moreover this view is likely seen in adulthood (Covington, 1984). As it is mentioned before Self-worth theory allows to understand how much each student is driven to 'approach success' and to 'avoid failure' (Covington & Beery, 1976; Covington, 2000). The distinction of between 'approaching success' and 'avoiding failure' is central in understanding students' motivation in self-worth theory.

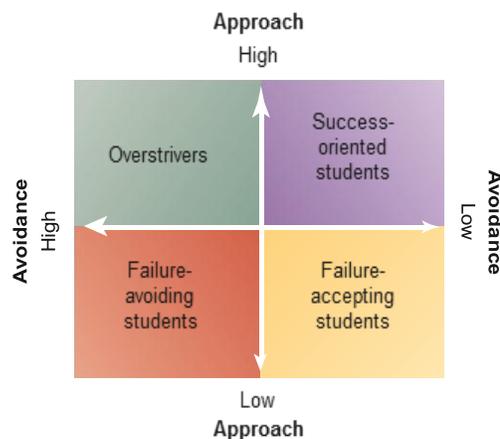


Figure 1: Students' Four Types of Motivation, According to Self-Worth Theory (Source: Covington & Mueller, 2001, p.168)

Covington and Mueller (2001) explain the types students have as follows:

1. Success-oriented (mastery goal) students: According to self-worth theory, success-oriented students are highly intrinsically motivated. Students with these goals view success as acquiring new skills and knowledge, improving intellectually and developing competence with the possibility of failure, closely balanced against the chances of success (Atkinson, 1957). Regardless of the achievements of others, success-oriented (mastery-oriented) students value ability as a tool to achieve mastery on personally meaningful goals and they tend to believe that failure despite trying hard does not necessarily imply incompetence. It may simply mean using wrong strategies.

Students in the other three categories are called performance-oriented and they define success (and their resulting self-worth) as outperforming others. Their main concern in learning is proving their ability and not looking less competent than their peers (Covington & Mueller, 2001). So they are highly motivated to avoid failure or to avoid appearing to lack ability. In this case, performance-oriented students develop strategies such as procrastination, making excuses, avoiding challenging tasks, and, perhaps most important, not trying (Eccles & Wigfield, 2002). Consequently all these external factors may let students become extrinsically motivated, and their intrinsic motivation to learn becomes compromised.

2. Overstrivers: Like success-oriented students, **overstrivers (performance-approach goal)** students are driven by high desire for success, but, unlike success-oriented students, they have high fear of failure (Beery, 1975). In order to prove their ability by performing better than others, they use several strategies to guarantee overstrivers' success as they see it (Covington, 1984, 1998). Success-guaranteeing strategies for overstrivers listed by Covington are as follows:

1. Consider challenging tasks as threats that are to be avoided. From self-worth perspective, students approach difficult tasks as threats to be avoided rather than as challenges to be mastered. So they are attempting only very easy tasks in order to guarantee their success.

2. Have low aspirations to the goals they choose. A student might hope simply to pass and state that he is not well prepared for a test.

3. Rote learning or memorization. In order to minimize any possible errors, an elementary school student might rehearse a part of text that he/she expects to read aloud (instead of getting ready for reading the whole text). In a similar manner a student in a high school mathematics class might practice the answer to a certain question before being called upon without caring about having an ability to answer any question.

4. Excessive attention to detail. According to self-worth theory, overstrivers (performance-approach goal-oriented students) are not sure of their actual abilities and attribute success to excessive effort, such as being over-prepared (Covington, 1984; Beery, 1975). For instance, a middle or high school student might ask the teacher for clarification while working on an individual study.

5. Cheating: According to the self-worth view, overstrivers (performance-approach-oriented students) are motivated to demonstrate or prove their competence. Their main desire is to do better than others for the ego satisfaction which is greatly influenced by their points. The desire to get high points, however, increases the temptation to cheat in order to achieve these goals.

3. Failure-avoiding students: Failure-avoiding students do not expect to succeed, they just want to avoid failing situations, especially in the presence of an audience. Therefore, these students' fear of failure is greater than their hope for success. They might believe that he or she has no adequate ability to succeed in mathematics or that repeated failure experiences might diminish their belief during the lesson activities in mathematics. Their main concern is '*What if I put a lot of effort, but still fail?*' As the fear of failure is directly linked to students' self-worth (Covington, 1984), they try to protect their self-worth. Because of that reason they can be called self-worth-protective students, too (Covington, 1992). Hence, the ability to achieve in mathematics is critical to maintain their self-worth; their main goal is not to be seen incompetent and avoid possible failing situations, which implies low ability and, hence, low worth. As a result, Covington found that students can produce some failure-avoiding strategies. Especially students', adopting competitive, grade-focused activities self-worth is at risk, because they have doubts in about their ability and whether it is possible to do the tasks, as the rules of competition dictate that only a few can succeed. As a result, the more competitive situation in the teaching-learning process, the more excuses and avoidance strategies are used by those students. Self-worth-protective students, to avoid looking less competent or incompetent, produce several actions that can be seen as strategies in the struggle to protect the sense of self-worth. These – in reality self-handicapping - strategies can prevent any real learning (Covington, 1984; Covington & Beery, 1976). Such strategies are:

1. Do not participate in practices consciously (sit at the back of the class, out of the teacher's view, miss the exam day), because failure without effort does not imply student's low ability, so it enables him/her to experience less shame (Covington & Beery, 1976).
2. Make excuses in order to preserve one's self-worth (for unfulfilled homework).
3. Procrastinate (postpone the study till the last moment - study the night before the exam).
4. Set unattainable or very difficult goals.

4. Failure-accepting students: Failure-accepting students accept failure and give up the struggle to demonstrate their ability and maintain their self-worth (Covington & Omelich, 1979). In essence, they neither approach success, nor avoid failure. Students attribute the cause of failure outcomes to their lack of ability (an internal and stable factor = entity view) and blame themselves (because of low ability) for failure. They also attribute the cause of success outcomes to external, uncontrollable factors. It means that effort is just a waste of time.

Therefore, failure-accepting students show similarity to students with learned helplessness, those who probably are capable of academic success, but think their efforts are useless. They are not motivated to study, because they believe that past failures are due to their lack of ability. Motivating these students is very hard because positive reinforcement for successes does not work with them, and to persuade them that they could succeed in the future occasions is difficult (Covington & Omelich, 1985).

Empirical support for these views is given by the study at the University of Michigan. A series of self-esteem studies has been conducted on more than 600 college freshman students three times during the year by the psychologist Jennifer Crocker (2002). Crocker made this study in order to prove that the dependence of self-worth on external factors is actually harmful to one's mental health. She was also arguing in her study that one's self esteem is an internal sense of worth and without self-worth self-esteem does not work. Overall, the students in her research indicated to have a high level of self-esteem.

The question was about what they base their self-worth on. Their responses and distribution was as follows:

- More than 80% - academic competence,
- 77% - their family's support,
- 66% - doing better than others,
- 65 -70% - their appearance (women's response)

The findings of Crocker's (2002) study were interesting according to the responses of college students:

- Students who base their self-worth on academic performance, appearance and approval from others (all external reasons) reported more tension, anger, academic problems and relationship conflicts because of higher levels of alcohol and drug use.
- As they have serious problems in their personal and social life, they also have problems in academic performance.
- They did not reach academic success, despite being highly motivated and studying more than enough each week, compared to the students who did not rate academic performance as important to their self-worth.
- College students, who based their self-worth on academic outcomes, also report conflicts with professors and greater tension.
- Conversely, college students, who based their self-worth on internal sources, not only felt better, but also received academic success and were less likely to use drugs and alcohol.
- These students have higher motivation to be successful academically, but their self-worth does not depend on their academic performance and outcomes.
- She also argued that college students, who base their self-worth on academic outcomes, might be overwhelmed by the feelings of failure, and their anxiety might interfere with their motivation and then learning.

3. Discussion and Conclusion

As Covington (1992) indicated, the best way to maintain one's self-worth for a student is to protect one's sense of academic competence. Even high-achieving students can be failure-avoidant because of the question that they ask themselves: *What if I try my best and then fail?* Rather than responding to a challenging task with a greater effort, these students may try to avoid the task in order to maintain both their own sense of competence, and others' conclusions regarding their competence. Focusing on the demonstration of competence may cause avoiding strategies. Thus, developing competence is the best choice in goal adaptation. Besides the pedagogical (clear presentation, effective activities) and managerial (effective planning, student engagement, pair and small group work) ways to support students' learning and positive views on it, the psychological ways (positive atmosphere in the class, explanation of the role of mathematics, of students' ability to perform the tasks, of teacher's belief in their abilities) are also very important.

Educators, especially teachers, in their class context have to realize the value of true self-worth. They need to answer these questions:

- Are their students proud of themselves for who they are, regardless of what they stand for or what actions they take?
- Are they valuable or worthy as persons in their eyes?

Teachers also have to realize that there are many psychologically beneficial ways for a person to value him/herself and assess his/her worth as a human being. Therefore, teacher's important role is to find out how to build this type of self-worth in their students and give the answer why so many students lack a feeling of worthiness in mathematics. All educators, who consider true self-worth as the student's inherent value, have to stop comparing their students' ability, capability relative to others as well as students' academic performance and outcomes with others in class context. Mathematics teachers have to support the student's self-worth, whatever the student's achievement in mathematics is. The students should be treated respectfully and not humiliated in front of other peers. However, privately, a teacher can recommend a student to change the majors for the one which is not based on the knowledge of mathematics. To sum up the analysis in the sub-chapter, the researchers made up Table 1.

Table 1: Bases of self-worth and mathematics learning goal types

Bases	Learning goals
Competence (due to involvement)	Mastery goals
Support (teacher, family, others)	Mastery goals
Comparison to others	Performance-approach goals or performance avoidance goals, according to comparison results

It is important for educators to inspire mastery goal-oriented behavior, therefore, they need to identify students with failure-avoiding or failure-accepting orientations. Based on the theoretical findings, it is evident that teachers, in order to help students pose adequate goals and acquire knowledge and skills, should:

- not compare students to each other or let them make such comparisons, especially conclusions, who of them is gifted in mathematics and who is not (here the story about Isaac Newton's low grades in mathematics at school is helpful);
- explain that competence depends on efficient (with right cognitive strategies) work, not on genetic inclinations or gender only (here the story about Sophia Kovalevskays is useful);
- explain effective cognitive strategies;
- work with parents who should not put wrong and harmful ideas in their children's brains;
- provide sufficient doable practice, with difficulty level increasing step by step.

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