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# Improving Test-Taking Performance of Secondary At-Risk Youth and Students With Disabilities

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Preparing at-risk youth and students with mild disabilities for state and district tests is important for improving their test performance, and basic instruction in test preparation can significantly improve student test performance. The article defines noncognitive variables that adversely affect test-taker performance. The article also describes test-taking interventions informed by the review of the literature and provides suggestions for practical classroom use.

**Keywords:** at risk, disabilities, test-taking motivation, test-taking skills

Educational decisions are often made on the basis of performance of educational examinations and tests. Tests measure what students have learned as well as their ability to learn. Test performance determines the level of school success for all students. When students do poorly on tests, they end up failing and repeating courses. Students who lack the appropriate test-taking skills are at a disadvantage in comparison with students with test-taking skills. The best test takers are students who have skills beyond the content being tested, such as understanding the purposes, constraints, and requirements of the test. Research indicates that cognitive ability is a strong predictor of test-taker performance. It is clear that other variables cause test takers to put forth effort beyond the results or consequences of the test.

Understanding all variables that affect test-taker performance is critical because the validity of conclusions made from test scores relies on test-takers' efforts to demonstrate competence. Being aware of the association between noncognitive constructs and test-taker performance will result in more valid assumptions about student learning. This article aims to provide a review of the literature that will discuss noncognitive variables that affect test-taker performance. To support teachers in communicating test-taking skills, we describe strategies aimed at improving test-taking performance of at-risk youth and students with disabilities.

## Noncognitive Constructs That Affect Test-Taker Performance

Preparing at-risk youth and students with disabilities for state and district tests is important for improving their test performance. Educators cannot assume that all students make maximum effort when taking exams and must be able to view test preparation from an instructional and learning standpoint. *Noncognitive constructs* are defined as variables that influence motivation and subsequent effort required of the test taker to adequately perform on tests and examinations designed to measure achievement or aptitude. Motivational, cultural, attitudinal, and personality variables correlate with test-taker performance (Abdelfattah, 2010; Barry, Horst, Finney, Brown, & Kopp, 2006; Eklöf, 2006, 2007; Haydel & Roeser, 2002; Hong & Peng, 2008; Mucherah & Yoder, 2008). The work of Eklöf (2006, 2007) focused on measurement of student motivation in test-taking situations and test-taker performance in conjunction with test presentation and attitudes. Eklöf developed an assessment tool to measure students' motivation. The contention was that there is a paucity for sound instruments to measure test-taker motivation because motivation has been proven to affect test-taker performance. In addition, the presentation of the test items and attitudes of test takers can affect test performance. The findings supported previous research confirming that test-taking motivation is related to general attitudes, self-concept, and value.

Abdelfattah (2010) examined the relation between motivation and achievement in low-stakes examinations. The purpose of the study was to determine the level of effort students reportedly exercised during examinations. The associations between effort and importance of tests were fairly high. The results indicated that students reported lower levels of effort put into completing the examination for science and math examinations. Students who thought it was important to do well in the test tended to engage fully in behavior demonstrative of effort. In contrast, students who reported doing well as less important tended to demonstrate behaviors that were not indicative of test-taking effort.

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Mucherah and Yoder (2008) assessed motivation for reading and middle school students' performance on standardized testing in reading. They found that students who had high self-efficacy in reading, enjoyed reading challenging material, and enjoyed reading different kinds of literary material performed better on the test in reading. Those who were motivated to read more for social reasons did not do as well on the test in reading. Research has established the association between motivation, effort, and test-taker performance as well as the effects of demographic variables.

Culture-, ethnicity-, and gender-based variables can also affect test-taker performance. Hong and Peng (2008) examined students' perceptions of test value and whether test value affected test performance. They found that students who held stronger test value reported having regulated their motivation by putting forth more effort and being persistent while preparing for tests. Students who regarded tests as useful reported effort investment during test preparation that helped them perform better on the test compared with students who did not regard tests as useful. The findings of this study support the social-cognitive perspective of self-regulated learning.

Arbuthnot (2009) assessed the effects of stereotype threat on standardized mathematics test performance and cognitive processing. The researcher wanted to know how stereotype threat affected Black students' test performance on items that do and do not include differential item function. Arbuthnot also wanted to understand the ways in which these same test takers process test items. The greater purpose of the research was to establish new connections between stereotype threat and differential item function, suggesting that stereotype threat can affect performance on particular types of items. The findings suggested that stereotype threat may adversely affect the performance of high-achieving Black students on standardized norm-referenced mathematics tests. In addition, when stereotype threat is reduced, high-achieving Black students can perform better on differential item function items. This finding supported the notion that stereotype threat is a source of differential item function. Moreover, the findings revealed that the rate at which one completes a test could be affected by stereotype threat. Therefore, stereotype threat has an effect on the cognitive organizational skills of Black test takers. Taken together, motivation-, effort-, value-, culture-, and ethnicity-based variables can provide information that is useful to test developers and educators who are often responsible for administering testing protocols in K–12 environments.

## Test-Taker Profiles and Performance

Barry and colleagues (2006) examined the types of effort amongst test takers. This study established examinee profiles. The purpose of the study was to determine test-taker profiles on the basis of type of effort. The results produced three test-taker profiles: (a) high dippers: higher levels of test-taking effort on noncognitive measures, and lower effort on cognitive measures; (b) consistently motivated: consistent effort across the testing session; and (c) low dippers: similar to consistently motivated, but test takers demonstrated decreased effort on cognitive measure. The researchers were able to identify effort profiles that informed the classroom interventions designed to increase test-taker effort.

Haydel and Roeser (2002) examined motivation, ability, and the perceived situation in science test performance. These researchers also categorized test takers. Participants were classified on the basis of their motivational profiles. The researchers found that girls were overrepresented in the helpless-oriented motivational profile group and boys were overrepresented in the ego-oriented motivational profile group. The ego-oriented motivational profile group scored significantly higher on the measure of cognitive ability than did those in the helpless motivational profile group. Ego- and mastery-oriented students perceived all testing as more valid than did helpless-oriented students. Students identified as having the mastery-oriented profile reported greater test engagement than did students in the other motivational profile groups. The findings from both of the previously described studies can positively affect the implementation of intervention to improve test-taker performance in K–12 settings.

Characteristics and associated strengths of test takers serve as plausible sources of information that can transform how tests are developed and delivered to the test taker to develop test performance. Educators are in the position to inspire students to recognize the importance of studying and learning. Testing professionals and teachers should consider the implications of the motivational testing profiles and consider how motivation can affect testing, teaching, and learning. For example, interventions should focus on changing how students value tests. Interventions can support better management of time and the use of conventional and unconventional strategies. Extrinsic motivation may be required for some students, but intrinsic motivation can affect test-taker effort. Providing instruction on how to perform on a test (e.g., strategic instruction on how to take tests, receiving regular feedback regarding test-taking performance, being reminded of test-taking strategies) can result in improved test-taker outcomes. Last, the classroom environment can be engineered to foster healthy competition and improve motivation of all students. For example, understanding the motivational profiles of students could lend to presenting tasks that foster progression for all learners (e.g., test type or format can be adjusted or formatted in such a way that aligns with the motivational profile of the test taker; identified skills of mastery-oriented students can be taught mapped onto the motivational profile of helpless- or ego-oriented students).

This section reviewed information that will inform test-taker performance in K–12 environments, particularly secondary students. Motivation, effort, stereotype threat, attitudinal and personality variables, and self-concept and value-based variables are associated with test-taking performance. The following sections describe test-taking strategies for all students as well as provide practical applications to improve test-taker performance in classroom settings.

## Test-Taking Strategies for All Students

Seminal research that has contributed to improving test-taking performance in the field of special education includes the work of Hughes and Deshler (1993); Hughes and Schumaker (1991); Lancaster, Lancaster, Schumaker, and Deshler (2006); and Lancaster, Schumaker, Lancaster, and Deshler (2009) as part of the University of Kansas Institute for Research in Learning Disabilities. The researchers focused on strategy instruction for students with disabilities in general, inclusive, and self-contained special education classes. The research examined instructional effectiveness of the test-taking strategy using traditional instructional modes and web-based platforms with students with disabilities (e.g., students identified as having emotional behavioral disorders or learning disabilities). Focusing on test-taking strategies alone is unlikely to produce socially valid improvements in students' test performance. For test-taking strategy instruction to have a more profound effect, teachers should couple the strategy with content instruction and appropriate modifications to form a comprehensive intervention package. Test-taking strategies should be addressed much earlier in students' academic programs. Introducing such instruction earlier in students' educational careers is likely to be better matched with motivation to perform. As a result, students will become practiced and well rehearsed in the use of test-taking skills over time, resulting in ownership and automaticity of skills.

## Test-Taking Strategies

Carter and colleagues (2005) assessed the effects of strategy instruction on students' performance on high-stakes tests. The study was built on previous research on teaching test-taking strategies to students with high-incidence disabilities and to assess whether teaching such strategies will increase performance levels on a sample of simulated high-stakes exams. Paired sample *t*-tests were used to compare scores on the simulated Tennessee Competency Achievement Program–Mathematics before and after students received the test-taking strategy instruction. The Test-Taking Strategy Instruction is a series of six lessons over six 90-min class periods to provide students with a repertoire of test-taking strategies that they could use when taking multiple-choice math and language arts tests and exams. Subsequent lessons built upon the discrimination training exercises and included strategies that could be applied with particular types of problems. Analyses revealed that students in Group 1 demonstrated significant increase in percent of correct responses following the intervention: $t(19) = 2.37$, $p < .05$, $d = 0.54$. Similarly, students in Group 2 demonstrated a significant increase in the percentage of correct responses following the delayed intervention: $t(17) = 2.30$, $p < .05$, $d = 0.54$. The researchers confirmed that test-taking preparation may be more effective when the strategies taught to students are more closely aligned with the specific type of problems students will encounter on the test.

As previously noted, the effects of test anxiety are mediated by several variables, including the level of anxiety, the difficulty of the task, and the ability of the student. A small amount of anxiety can serve as a motivator and can enhance performance by encouraging the student to try. In contrast, too much anxiety can disrupt mental processes that are needed for the student to perform well. High test anxiety is associated with low self-esteem, poor reading and math achievement, failing grades, disruptive classroom behavior, negative attitudes toward school, and unpleasant feelings of nervousness and dread that stem from an intense fear of failure. These manifestations of anxiety can be present in students of all ages.

Wachelka and Katz (1999) examined the effectiveness of a cognitive behavioral treatment for reducing test anxiety and improving academic self-esteem in a cohort of high school and college students with learning disabilities. The intervention used for this study is a cognitive behavioral treatment package. The intervention consisted of relaxation training, guided imagery, and self-instructional training for reducing increased arousal and stress heightening cognitions as well as study skills training to improve efforts to prepare for and take examinations. Students participated in 1-hr sessions for 8 consecutive weeks:

Weeks 1–2: Participants practiced progressive muscle relaxation because relaxation reduces tension and is incompatible with anxiety.

Weeks 3–4: Participants were trained to recognize and dispute irrational beliefs as well as engage in more rational self-talk. They were told that negative beliefs give rise to negative emotions, so if they changed their negative attitudes about tests, the negative feelings that go along with them should gradually diminish.

Weeks 5–6: Participants were instructed in guided imagery. They were taught to imagine scenes from the hierarchy as vividly as possible by incorporating relevant stimuli in the imagery.

Weeks 7–8: Participants focused on strategies for exam preparation (e.g., time management, study checklist, flashcards, conceptualization of topic being tested) and test-taking strategies (e.g., arrive early, listen carefully to instructions, look over the entire test, develop a time management plan, read instructions carefully, jot down memory aids, strategize for specific types of questions such as multiple choice, true and false, and short answer).

The groups differed at the posttest stage for the experimental group on all dependent variables: Test Anxiety Inventory, $F(1, 25) = 30.75$, $p < .0001$, 5.08; School Scale, $F(1, 25) = 5.08$, $p < .03$; Coopersmith, $F(1, 25) = 5.80$, $p < .02$. The results showed that cognitive behavior treatment using relaxation training, guided imagery, self-instructional training, and study skills training reduced test anxiety in high school and college students with learning disabilities. Of all the strategies, participants reported that the relaxation training was the most helpful. The findings suggest that improvements occurred because students were coping differently in testing situations by relaxing or because they felt less distressed and

more empowered in knowing what to do, regardless of whether they used the relaxation technique. The researchers noted that it was difficult to determine which of the strategies were most effective. Beyond the anecdotal record of the participants, it is clear that addressing coping and faulty thinking patterns, as well as equipping youth with practical approaches for preparing and taking tests, served as an effective intervention.

## Postsecondary Test-Taking Strategies

Over the years, more students with learning disabilities have been enrolling in college, although more in two-year colleges. It has been shown that six percent of college freshmen have disabilities. Of these students, 40% have learning disabilities. This is due to the increase in the number of students with learning disabilities graduating from high school, as well as legal foundations such as the Individuals With Disabilities Education Act and the Americans With Disabilities Act. As a result, it is important to provide the right accommodations to students with learning disabilities for their postsecondary education. Allsopp, Minskoff, and Bolt (2005) determined whether strategy instruction could be learned by college students identified as having learning disabilities as measured by GPA by content area (academic improvement). The authors in this study described an individualized strategy instruction model to help postsecondary students with learning disabilities and attention deficit hyperactivity disorder meet their academic demands. The model has four unique characteristics:

(1) The student's individual learning needs are tied to learning strategy intervention by informal assessment.
(2) The informal assessment questionnaire helps each student to receive select learning strategies.
(3) Learning strategies are taught on the basis of systematic explicit instruction in the context of the specific courses a student takes.
(4) The effects of individualized strategy instruction models are evaluated by using qualitative and quantitative analyses.

Strategy instruction with the students was 1–2 hr for one to three times per week. Staff created a list of learning strategies to use with the students. Some approaches included advanced organizers, where students were provided with a context for what they were about to learn, on the basis of the learning objective, relation to preknowledge, and relation to their lives. The students' strategy use was measured through work samples, student demonstration, and assignment grades. The results indicated that students tended to increase their academic performance for the semester that they received the intervention. GPA also increased right after the semester of intervention. The students who did not use the intervention did not have significant academic improvement. Students who were on academic probation tended to improve their GPA a significant amount as well.

Holzer, Madaus, Bray, and Kehle (2009) explored the effects of the test-taking strategy on test-taking performance for students with learning disabilities at the college level, test anxiety and use of accommodations, and extended time for testing. PIRATES is a test-taking strategy (Hughes & Deshler, 1993) whose steps are as follows:

(1) *P*repare to succeed.
(2) *I*nspect the instructions.
(3) *R*ead, remember, reduce.
(4) *A*nswer or abandon.
(5) *T*urn back.
(6) *E*stimate.
(7) *S*urvey.

The testing materials included probe tests, which measured the students' use of the test-taking strategy. The mnemonic strategy in general has been shown to help students with learning disabilities remember pertinent information and is commonly used as part of strategy training for students with learning disabilities. The test-taking strategy is designed to help students become active rather than passive test takers. It was created considering the test-taking skills deficits that often pose difficulties for students with learning disabilities. The strategy is an all-encompassing approach that helps students learn to use metacognition so that they may, in turn, generalize the aspects of the strategy to other aspects of their lives. For this study, each student completed at least three overlapping baseline performance prompts while the previous student was in the intervention phase. Strategy training consisted of three to four 1-hr sessions. The number of sessions depended on the student's ability to master the strategy verbally and through application on training probes supplied in the manual (Hughes & Deshler, 1993). During training, all wording came from scripts in the manual. The mnemonic was taught directly to the students. The next stage of the strategy training involved modeling the strategy for students through the use of training probes from the manual. Once the students memorized the strategy, they practiced the strategy using training probes from the manual until mastery of the strategy's application. Last, students discussed ways in which the PIRATES strategy could be used in real-life testing situations.

The results showed that learning the strategy has a positive effect on performance prompt scores in relationship to the level of strategy use. Test anxiety scores decreased from the baseline to the follow-up phases for all students. Students with learning disabilities application of the test-taking strategies with 80% or more usage could possibly increase scores in certain testing situations and that using less than 80% of the strategy would not result in increased test scores. The results point to the value of using the test-taking strategy with college students with learning disabilities as well as secondary students who have the goal of postsecondary education. Recognizing the effects of affective variables on test-taker performance and providing basic instruction in test preparation can significantly improve student test performance.

**Table 1.** Suggestions for Strategy Adaptation in Test Preparation

1. Teachers provide students sufficient information about their intended task demands and ensure that various types of task information available to students are aligned with the test they give to their students.
2. Teachers ensure that the task demands they formulate are convincing and compelling enough.
3. Teachers vary the types of study tasks they give to their students.
4. Teachers provide metacognitive supports to students by asking them to judge the importance of text units and to explain their judgments. By doing this, teachers not only stimulate strategy adaptation processes, but also inform themselves whether the students' ways of studying match their own intentions regarding the task.

## Strategies for Test Anxiety and Related Motivational Constructs: Suggestions for Classroom Practice

Poor test preparation and test-taking skills, motivational problems, and test anxiety have negative outcomes on students' test performance and achievement. Test anxiety is associated with performance in a wide variety of testing situations, such as school examinations. Researchers who question the causal relation between test anxiety and test performance rely on skill-deficit theories as a basis of contention. Skill-deficit theories purport that the correlation between test anxiety and test performance is mediated by skill or lack thereof on both variables. Therefore, low skill leads to low test performance and high levels of test anxiety. Consequently, skill brings to the forefront the association between performance and anxiety. Test-anxious persons have chronic doubts and pessimistic attitudes about their ability to perform and overestimate the effort they need to succeed. Two prevalent models exist for test anxiety and imply different types of intervention that help some test-anxious students but not others. Moreover, the two models are not mutually exclusive. Some students may present test anxiety that is characteristic of the interference and skill-deficit model. In such cases, practitioners should consider various strategies that are composed of a treatment package designed to help students manage feelings of anxiety, as well as equip students with a strategic approach to counteract faulty thinking patterns that interfere with goal attainment. In this case, performing well on tests,

**Table 2.** Guidelines for Appropriate Instructional Strategies for Test Preparation

1. Begin to teach the strategies that students are naturally inclined to use.
2. Support skill development in the strategies that students are most likely to use.
3. Explicitly teach strategies that have been proven to be effective, such as time management.
4. Encourage passive learners to ask for help.

*Note.* Teaching test-taking skills is an appropriate instruction for test preparation.

**Table 3.** Four Areas of Self-Management Strategies

1. Organizing materials and space
2. Managing time
3. Getting help and managing stress
4. Stress reduction techniques can significantly reduce levels of anxiety commonly associated with stress

*Note.* Self-management techniques refer to skills that can help students monitor and direct their own behavior.

teaching students how to prepare for tests, and equipping them with test-taking strategies will increase the likelihood of testwiseness if used over time.

In terms of strategy adaptation, teachers need to find task information that is specific enough when they want to emphasize some parts of the learning content more than other parts or stress some types of processing over other types of processing. Teachers can most effectively use tests as learning tools when they align their intended task demands with the test demands and the various cues that may inform students about task demands. Table 1 provides suggestions for encouraging strategy adaptation in test preparation.

## Strategy Instruction

As previously discussed, test-taking strategy is a scripted program that includes components for test preparation in consideration of how an item is constructed. This strategy is applicable across populations, including general education, special education, and at-risk children and youth. Previous research has shown that students are inclined to use some type of strategy in the preparation of test-taking that translates to use during the administration of the test. It would then behoove teachers and test makers to build on the natural inclination of strategy use and ensure that students are using strategies correctly in a time efficient manner. Teaching effective test-taking strategies to build a repertoire of skills and motivational awareness will positively affect students' desire to put forth more effort that is facilitated by learning practical test-taking strategies. To promote successful strategy instruction and student engagement in strategy application, teachers should do the following:

(1) Include motivational concerns, such as effort, value, interest, self-efficacy, and test anxiety.
(2) Revisit content to ensure that students understand what is being tested.
(3) Provide students with test-taking preparation approaches that will facilitate student ownership; that way, students can check for understanding before taking the exam.
(4) Closely align test-taking strategy instruction with specific types of problems that students will encounter.
(5) Take steps to alleviate the anxiety that students may associate with participating in high-stakes testing, as students may be aware of the consequences attached to poor performance on statewide assessment tests.

**Table 4.** Skills Students Should Know for Objective Tests

| |
|---|
| 1. Getting familiar with test formats |
| 2. Responding to the intention of the test maker |
| 3. Foreseeing the answer |
| 4. Considering all alternatives before responding |
| 5. Using logical reasoning strategies |
| 6. Using time wisely |
| 7. Guessing when the answer is unknown |

Teachers who use good strategy instruction introduce a few strategies at a time, promote using a strategy over extended time periods, model the strategy with verbal explanations to encourage flexible strategy application, make the most of student strengths during the acquisition process by using scaffold instruction, and realize learning is an emotional process. Tables 2 and 3 list guidelines and specific areas for teaching instructional strategies for test preparation and self-management skills.

## Test Item Construction

Teachers should be aware of the type of items and item construction. Not all test items are created to assess the same level of content understanding. Teaching students the purpose of an item and understanding test item construction (e.g., knowing if the item is asking for basic knowledge, application, or synthesis) may lend to a better demonstration of understanding. A few researchers have provided a review of the best practices that highlighted several ways to prepare students with mild disabilities for taking state and district standardized assessments that can be effective for teachers (Conderman & Pedersen, 2010; Lambert & Nowacek, 2006). The review of practices included discussing ways to prepare for tests in advance, incorporating daily instructional tips, teaching general and specific strategies, motivating students, and involving interdisciplinary teams; these can be effective practices for teachers. Scruggs and Mastropieri (1988) suggested that teachers evaluate what students have learned so that they can determine whether or not they are likely to apply this knowledge in appropriate situations. The researchers stated that teachers should teach from the test and not stray away just because it seems like they are only teaching test answers. They also delineated skills students should know for objective tests and short-answer or essay tests. Tables 4 and 5 list skills students should know for objective tests and short-answer or essay tests.

**Table 5** Skills Students Should Know for Short Answer and Essay Tests

| |
|---|
| 1. Read the question carefully. |
| 2. Write the amount of information expected. |
| 3. Jot down main points urgently. |
| 4. Get to the point of the questions. |
| 5. Answer all questions. |
| 6. Use time effectively. |

## Conclusion

Increased participation and the new demands for educational accountability under No Child Left Behind have changed consequences for schools and individual students. Principals and teachers are accountable for results, and they use test scores to determine whether students should advance to the next grade, attend summer school, or earn a high school diploma. Outcomes measured by high-stakes tests are tied to funding, which makes the results important to local and state school administrators. Because of the high-stakes nature of these assessments, students need to perform their best and take tests seriously. Without understanding the motivational problems of students and without making an effort to deal with these problems, teachers waste much instructional time and the final learning rate will not meet the teacher's or state's expectation.

The literature confirms that noncognitive constructs do affect test-taker performance and that strategies can be employed to assist students in achieving improved test performance. The research indicated that motivation, effort, stereotype threat, attitudinal and personality variables, and self-concept and value-based variables are associated with test-taking performance. Student motivation is a key factor in triggering the desire to provide an accurate demonstration of learning. Without motivation, the committed effort by students to accurately display their true abilities will provide underestimates of student learning. Practitioners and relevant stakeholders should not only ensure mastery of content knowledge but also testwiseness and management of affective constructs that affect demonstration of knowledge attained on tests and exams.

Salient themes that resonated in the review of literature is that all teachers use effective teaching of test-taking skills through daily review, clearly stated objectives, providing of information, guided practice, independent practice, and formative evaluation. Test-taking skills and strategies should be integrated as part of the curriculum. Last, school reform advocates should consider moving from a "testing culture" to an "assessment culture." Assessment of students' knowledge and skills is juxtaposed with measuring how much students know and understand in alignment with the instructional curriculum. Until such time, it is imperative that noncognitive test-taking strategies are integrated as part of the classroom curriculum to ensure that all students are able to demonstrate what they know without bias.

## Author Notes

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