3-1-2002

An Investigation of the Relationship Between Motivation, Test Preparation and Test Performance

Cassidy Walton
Western Kentucky University

Follow this and additional works at: http://digitalcommons.wku.edu/theses

Part of the Psychology Commons

Recommended Citation
http://digitalcommons.wku.edu/theses/571

This Thesis is brought to you for free and open access by TopSCHOLAR®. It has been accepted for inclusion in Masters Theses & Specialist Projects by an authorized administrator of TopSCHOLAR®. For more information, please contact topscholar@wku.edu.
AN INVESTIGATION OF THE RELATIONSHIP BETWEEN MOTIVATION, TEST PREPARATION AND TEST PERFORMANCE

A Thesis
Presented to
The Faculty of the Department of Psychology
Western Kentucky University
Bowling Green, Kentucky

In Partial Fulfillment
Of the Requirements for the Degree
Master of Arts

By
Cassidy Lane Walton

March 2002
AN INVESTIGATION OF THE RELATIONSHIP BETWEEN MOTIVATION, TEST PREPARATION AND TEST PERFORMANCE

Date Recommended March 5, 2002

Elizabeth L. Slaught
Director of Thesis

Dean, Graduate Studies and Research Date
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of Illustrations</td>
<td>iv</td>
</tr>
<tr>
<td>Abstract</td>
<td>v</td>
</tr>
<tr>
<td>Introduction</td>
<td>1</td>
</tr>
<tr>
<td>Method</td>
<td>15</td>
</tr>
<tr>
<td>Results</td>
<td>22</td>
</tr>
<tr>
<td>Discussion</td>
<td>28</td>
</tr>
<tr>
<td>Limitations and Future Directions</td>
<td>32</td>
</tr>
<tr>
<td>Applications</td>
<td>33</td>
</tr>
<tr>
<td>Conclusion</td>
<td>34</td>
</tr>
<tr>
<td>References</td>
<td>36</td>
</tr>
<tr>
<td>Appendix A: Arvey's Final Version of the Test Attitude Survey</td>
<td>38</td>
</tr>
<tr>
<td>Appendix B: Pretest Survey for the Louisville Fire Department</td>
<td>41</td>
</tr>
<tr>
<td>Appendix C: Posttest Survey for the Louisville Fire Department</td>
<td>43</td>
</tr>
<tr>
<td>Appendix D: Pretest Survey for the Louisville Fire Department- Physical Ability Test</td>
<td>45</td>
</tr>
<tr>
<td>Appendix E: Posttest Survey for the Louisville Fire Department- Physical Ability Test</td>
<td>47</td>
</tr>
<tr>
<td>Appendix F: Pretest Survey-Fourth Test</td>
<td>49</td>
</tr>
<tr>
<td>Appendix G: Posttest Survey-Fourth Test</td>
<td>51</td>
</tr>
<tr>
<td>Appendix H: Pretest Survey-Final Examination</td>
<td>53</td>
</tr>
<tr>
<td>Appendix I: Posttest Survey-Final Examination</td>
<td>55</td>
</tr>
</tbody>
</table>
List of Illustrations

Table 1  Number of Items, Reliability and Example Item for Test ..................... 17
          Attitude Survey
Table 2  Correlation Matrix and Descriptive Statistics for Fire Fighter .............. 24
          Applicant Written Test
Table 3  Correlation Matrix and Descriptive Statistics for Fire Fighter .............. 24
          Applicant Physical Ability Test
Table 4  Correlation Matrix and Descriptive Statistics for Student .................. 26
          Fourth Test
Table 5  Correlation Matrix and Descriptive Statistics for Student .................. 26
          Final Examination
The relationship between motivation, test preparation, and test performance was investigated using two samples, fire fighter applicants and college students. Motivation and test preparation were measured by Arvey and Stickland's (1991) Test Attitude Survey; test performance consisted of selection test scores or class examinations. The results indicated that the relationship between motivation, test preparation, and test performance varied depending on the sample (i.e., fire fighter applicants or college students) and the context (i.e., written or Physical Ability Test, class exam, or final examination). The results for fire fighters indicated that motivation was related to written test performance but not to performance on the Physical Ability Test, and that test preparation was related to performance on the Physical Ability Test but not on the written test. The results for the students revealed a significant, negative relationship between test preparation and test performance, suggesting that “cramming” for the test was not related to improved test performance.
An Investigation of the Relationship Between Motivation, Test Preparation and Test Performance

The present study attempted to identify and explore the relationship between test preparation, motivation and test performance. Motivation and test preparation have been proposed to affect test performance beyond ability on the construct being measured by the test. This study examined the effects of (a) test preparation and motivation on test performance and (b) test performance on test preparation and motivation for a subsequent test. Using both a field sample and a student sample, test-takers attitudes prior to and immediately following a test were examined for their relationship to test performance. The Test Attitude Survey (TAS) (Arvey & Strickland, 1991) was used to measure test-taking motivation and test preparation activities. Several hypothesized relationships between motivation, test preparation and test performance were studied.

The reader is first presented with various definitions of motivation and an explanation of the drive that motivation causes within an individual to exert behavior. Next, two instruments designed to measure motivation (i.e., the Test Attitude Survey and the Valence Instrumentality Expectancy Motivation Scale) are discussed. Subsequent sections provide documentation of the relationship between motivation and test performance, and test performance effects on posttest motivation. Once the underlying basis for the relationship between motivation and test performance has been demonstrated, a brief overview of another factor of interest to the current study, test preparation, is provided. Research documenting the relationship between test preparation (in its varying forms) and test performance is presented. Last, hypothesized relationships and the rationale for such relationships are stated.
Defining Motivation

In this section definitions of motivation are given followed by an explanation of how motivation creates a drive within an individual to exert certain behaviors. The reader is provided with an example of how motivation creates a force, which causes individuals to engage in behavior in hopes of achieving a desired goal.

Motivation has been extensively researched and has been defined in a variety of ways. Motivation has been defined as variability in behavior that is not based on stable individual differences, but rather a choice made by the individual to direct energy toward a particular behavior or set of behaviors (Quinones & Ehrenstein, 1997). Atkinson (1964) defined motivation as an action that is affected by an immediate influence (as cited in Steers & Porter, 1987).

Motivation has also been described as a drive or need one feels toward completing an action. Kelly (1980) described motivation as having “...to do with the forces that maintain and alter the direction, quality, and intensity of behavior” (p. 217). A common conception of motivation is that it creates in the individual a feeling of tension that in turn generates energy. Individuals then feel compelled to take some kind of action. This action or drive is evidenced to when one says for example, “I feel motivated to prepare for an upcoming test.” (Kelly).

Whether the working definition used for motivation is based on a drive, need, influence, expectancy, etc., the underlying premise is the same. Individuals experience a force that causes them to engage in a behavior that will hopefully lead them to obtain a desired goal (Steers & Porter, 1987). An individual may then receive feedback signaling if the behavior is on target to reach the goal. For example, an individual who wants to be
an employee of a Fire Department (need or drive) may put forth considerable effort when participating in the Fire Department’s hiring process (behavior) in hopes of getting hired (goal). The individuals will receive feedback informing them that they performed well enough to be hired or they may learn that the behavior was not sufficient to be hired. This feedback then allows those individuals to modify their behavior relative to eventually achieving their goal.

*Test-taking Motivation Instruments*

There are two known instruments utilized for measuring test-taker motivation. Both instruments, the Test Attitude Survey and the Valence Instrumentality Expectancy Motivation Scale, are discussed and reviewed. Particular emphasis is given to the Test Attitude Survey, as it is the instrument utilized in the current study.

Arvey and Strickland (1991) developed the Test Attitude Survey (TAS). The Test Attitude Survey has been found to reliably and validly measure test-taker motivational and attitudinal dispositions toward preemployment tests. The instrument consists of 45 questions measuring nine factors. Two of the nine factors contained in the TAS, test preparation and motivation, are of interest in the current study. After developing the TAS, Arvey and Strickland raised questions regarding factor-structure of the TAS and its relationship to test performance. This relationship is addressed shortly.

Since the TAS was the only known measure to assess test-takers motivation and it was not based on a specific theory of motivation, Sanchez, Truxillo, and Bauer (2000) developed another measure. This measure, the Valence Instrumentality Expectancy Motivation Scale (VIEMS), is based on expectancy theory. A significant positive correlation \( r = .37, p < .01 \) was found between the VIEMS and the TAS-M (Sanchez et
This convergent validity suggests that the TAS-M and VIEMS are both valid measures of test-taker motivation. Sanchez et al. tested several additional hypotheses; these will be discussed later.

**Test-taking Motivation and Test Performance**

Several studies have found a direct relationship between test-taking motivation and test performance (Arvey & Strickland, 1991; Covington & Omelich, 1979; Hart, 1967; Ryman & Biersner, 1975; Sanchez et al., 2000). The results of this research help lay the foundation for several hypotheses in the current study.

Arvey and Strickland (1991) examined the relationship between test scores and TAS factors by giving the TAS to actual job applicants taking a series of three employment tests. Arvey and Strickland found a significant correlation between both test preparation and test motivation and preemployment test performance. Similarly, Sanchez et al. (2000) found a positive relationship between test-taking motivation and actual test performance.

Ryman and Biersner (1975) found a significant relationship between trainee motivation and training performance. They measured motivation with a confidence scale that contained motivational items (i.e., “If I have trouble during training, I will try harder. I will get more from this training than most people. I volunteered for this training as soon as I could. Even if I fail, this training will be a valuable experience.”). Responses to the training confidence scale were significantly related to performance (operationalized as graduation from the training program). The greater the agreement with the confidence statements, the higher the likelihood the trainees would graduate from the training program.
The relationship between motivation and test performance was further supported by Covington and Omelich (1979) and Hart (1967). Both studies operationalized motivation as "need for achievement" (nAch). Hart hypothesized those individuals who are highly motivated to achieve success or high "need for achievement" (nAch) would perform significantly higher on a number facility test than would those who were classified as low nAch. There were no significant differences between the two groups on performance. Covington and Omelich examined individuals nAch following feedback on prior test performance. Contrary to Hart's findings, Covington and Omelich found a significant zero-order correlation between nAch and retest performance. Further examination of their proposed path diagram revealed a significant zero-order correlation between nAch and expectancy, and between expectancy and performance. Thus, Covington and Omelich found nAch and expectancy affect test performance through direct and indirect influences mediated primarily by expectancy.

**Previous Test Performance effects on Motivation**

The literature reviewed thus far demonstrates a relationship between test-taking motivation and performance. The focus now turns to exploring the effects test performance may have on motivation. Mixed support has been found for such a relationship. Chan and Schmitt (1997) and Sanchez et al. (2000) found a relationship between performance and subsequent test motivation while Arvey and Strickland (1991) did not find a relationship.

Chan and Schmitt (1997) examined the effects of test performance on test reactions. They found a positive, direct effect of test performance on test-taking motivation (Chan & Schmitt). Also of interest, they found that test-taking motivation
positively affected performance on a subsequent parallel test even after controlling for race and previous test performance.

Likewise, Sanchez et al. (2000) examined applicants' test performance and posttest motivation. They had applicants indicate their perceived test performance by having them rate how well they believed they performed on a selection test. After separating out pretest motivation, a significant relationship was found between perceived performance and posttest motivation. These results are consistent with those of Chan and Schmitt (1997) and provide further support for a relationship between performance and posttest motivation.

However, the results from Arvey and Strickland (1991) question the relationship between performance and posttest motivation. To test whether applicants would report a low level of motivation if they believed they performed badly on the test(s), Arvey and Strickland had applicants complete a modified version of the TAS (the nine questions in the motivation factor) prior to taking an employment test, and then complete the full TAS immediately following the test. There was no significant difference in motivation scores between pre and post-versions of the TAS. The results suggested that test performance does not affect applicants' reported level of motivation. However, the researchers caution that the relationship between the posttest TAS Motivation factor and employment test scores were not significant, suggesting that the findings were unclear.

Motivation Moderates Test Validity

In addition to motivation affecting test performance, it has been proposed to moderate test validity. Only one study, Schmitt and Ryan (1992), was found that
examined the moderating ability of motivation on test validity. Because the implications are quite important, examination of this study is warranted.

Schmit and Ryan (1992) found that test-taking motivation and dispositions moderate test validity. They examined test scores of both high and low motivated individuals on personality and ability tests. Interestingly, Schmit and Ryan found the criterion-related validity of the ability test to be higher for individuals with high motivation. Just the opposite was found upon examining the personality test; the criterion-related validity of the personality test was highest for individuals with lower motivation. One might wonder what these findings demonstrate; Schmit and Ryan offered several suggestions. Individuals low in motivation may respond recklessly to questions on the ability test while highly motivated individuals may concentrate and try hard to perform well. Those individuals high in motivation may distort their answers to personality test in need of good self-presentation, while those low in motivation may respond in a more realistic manner. The findings may demonstrate that individuals high in motivation may strive to perform satisfactorily when their ability is in question, while low motivated individuals do not. One could conclude that those highly motivated individuals participating in the current study will strive to perform well on a test measuring their ability (i.e., the employment selection test).

Summary of Research: Motivation and Test Performance

The review of recent research on motivation and test performance indicates that a relationship exists between the two variables (Arvey & Strickland, 1991; Chan & Schmitt, 1997; Covington & Omelich, 1979; Hart, 1967; Ryman & Biersner, 1975; Sanchez et al., 2000). Specific measures of motivation (e.g., "need for achievement") also
demonstrated the same relationship between motivation and test performance. Similar to the effects of pretest motivation affecting test performance, Sanchez et al. found that perceived performance on the test affects motivation experienced after the test. Furthermore, motivation experienced after taking a test was found to affect sores on subsequent parallel tests (Chan & Schmitt). Last, Schmit and Ryan (1992) found that motivation moderated the criterion-related validity of some tests.

**Test Preparation Overview**

In addition to motivation, test preparation has been proposed as a factor that can influence test performance. In order to better understand test preparation, a definition and explanation of its various forms are provided. Cited is literature that demonstrates the relationship between test preparation and test performance. Since research clearly demonstrates that engaging in test preparation increases test performance, it is important to recognize the various forms of test preparation and to measure it in the current study.

Test preparation consists of any activity designed to increase an individual’s knowledge in a certain area that will later be tested (Clause, Delbridge, Schmitt, Chan & Jennings, 2001). Test preparation may consist of many actions such as reviewing subject area problems, rereading passages from a text, rereading previously highlighted statements from a text, studying note cards containing relevant information, discussing the importance of the test with others, or actively elaborating information. Many different methods of test preparation and combinations of these methods have been proposed and evaluated for improving test performance. An important point to keep in mind when evaluating test preparation activities is that the primary purpose of test preparation is to increase the individuals true test performance, not to artificially inflate their test score or
increase the individual’s likelihood of successfully completing the test (Bookman & Iwanicki, 1983).

Relationship of Test Preparation and Test Performance

Test preparation along with motivation affect test performance; hence a review of the relevant research on test preparation is warranted. Intuitively it makes sense that those individuals who prepare for a test will out-perform those individuals who do not prepare for the test, but is there sufficient evidence for this inference? One might also wonder what factors cause certain individuals to engage in test preparation. Research addressing the above questions are cited.

Clause et al. (2001) examined motivation and self-efficacy as two possible factors related to test preparation. They also examined the subsequent relationship between test preparation and test performance. Results showed that self-efficacy for learning the material on the test and motivation to succeed on the test were positively correlated with the amount of metacognition (a form of test preparation) that took place (Clause et al.). Engaging in metacognition was found to have a significant indirect effect on test performance, while motivation was found to have a direct effect on test performance. Basically, Clause et al. found that test preparation acts as a mediating mechanism between motivation and test performance. Those individuals who feel motivated about an employment test will invest more effort in test preparation and therefore perform better on the employment test.

Ryan and Ployhart (1998) proposed a conceptual model of the antecedents and consequences of test preparation programs and the independent influence of study skills on outcomes. Ryan and Ployhart examined the relationship between study skills and three
outcomes: ability test performance, motivation, and anxiety. They found that within the group of applicants attending the preparation program, study habits and study self-efficacy were related to test performance. Similarly, Arvey and Strickland (1991) found a significant correlation between test preparation and test performance.

Research indicates that self-efficacy and motivation to learn the test content are two factors that cause individuals to engage in test preparation activities (Clause et al., 2001; Ryan & Ployhart, 1998). Furthermore, the existence of a relationship between study habits and test performance has been established (Arvey & Strickland, 1991; Ryan & Ployhart). Last, Clause et al. provided support for the belief that test preparation is a mediating mechanism between motivation and test performance.

**Varying Forms of Test Preparation Effects on Test Performance**

Along with the general concept of test preparation and its effects on test performance, several studies have addressed various methods of test preparation as regards test performance. Various methods of test preparation (i.e., (a) three main factors of study skills: distractibility, industry/compulsivity, and inquisitive; (b) positive or negative study habits; (c) reviewing practice problems; and (d) lecture/discussion on the importance of tests) and their relationship to test performance are discussed.

Estes and Richards (1985) examined different forms of studying and their relationships to test performance. Study habits were broken down into three main factors: distractibility, industry/compulsivity, and inquisitive. The factor of “Inquisitive” refers to—“to do something with information which might help to insure [sic] understanding” (Estes & Richards, p. 3). Results showed that the study habit of “inquisitive” was linearly related to test performance, suggesting that individuals who approach studying
by constantly questioning information will most likely perform successfully in testing situations (Estes & Richards).

Nist, Simpson and Hogrebe (1985) examined the relationship between positive or negative study strategies and test performance. Positive study strategies were defined similarly to the Estes and Richards (1985) “inquisitive” study habits. Positive study habits are “those which required active elaboration” (p. 20). Also, as in Estes and Richards, it was found that positive study behaviors were positively correlated with test performance (Nist et al., 1985). Negative study habits, which consist of no active elaboration or behaviors detrimental to learning, were found to be negatively correlated with test performance. The use of study strategies appears to have a positive effect on test performance; that is, the use of actively elaborating study materials increases test performance scores.

Methods of test preparation and their effect on test performance were also the focus of Bookman and Iwanicki’s (1983) study. They examined two methods of test preparation: practice problems and a lecture/discussion on the importance of tests. Bookman and Iwanicki found that providing students with practice problems significantly increased their performance on a standardized mathematics achievement test above that of students who received a lecture/discussion on the importance of tests and that of students who received no test preparation (control group). These results indicate that merely talking to students about the importance of tests does not improve test performance, but allowing students to practice problems similar to those or which they will be tested significantly increases test performance.
Summary of Relevant Research: Test Preparation and Test Performance

Research focusing on test preparation and test performance has provided convincing evidence that test preparation in its various forms is related to test performance (Arvey & Strickland, 1991; Bookman & Iwanicki, 1983; Estes & Richards, 1985; Nist et al., 1985; Ryan & Ployhart, 1998). It was found that study habits that involved constantly questioning information or actively elaborating study material increased test performance (Estes & Richards; Nist et al., 1985). Bookman and Iwanicki (1983) found that by allowing students to practice problems similar to those on which they will be tested significantly increased their test performance. Study habits and study self-efficacy were found to be related to test performance (Ryan & Ployhart, 1998). Last, an indirect effect was found between test preparation and test performance, while a direct effect was found between motivation and test performance (Clause et al., 2001). Taken together, these results suggest that test preparation is a mediating mechanism between motivation and test performance, and that those individuals who feel motivated will invest more effort in test preparation and therefore perform better on employment test (Clause et al.).

Current Study

A review of the motivation and test preparation literature indicated the need for another study investigating these variables and their relationship to test performance. Currently, there have been only two studies (Arvey & Strickland, 1991; Sanchez et al., 2000) that employed both student and field sample participants when examining motivation and performance. In addition, the majority of the studies have measured motivation only after participants have taken a test (Chan & Schmitt, 1997; Schmit &
A thorough review of the literature found no studies that have focused on motivation, test preparation, and test performance of the same participants prior to and immediately following two different employment tests over a period of time. The current study attempts to determine the relationship of motivation and test preparation to test performance before and after a written employment test, and before and after a subsequent Physical Ability employment test.

The following hypothesis is offered based on the findings of Arvey and Strickland (1991), Chan and Schmitt (1997), Ryman and Biersner (1997), and Sanchez et al. (2000) that found a relationship between motivation and test performance.

Hypothesis 1: There will be a significant positive correlation between motivation and test performance.

A relationship between perceived performance after taking a test and posttest motivation has been proposed and supported by Sanchez et al., (2000). This relationship has been demonstrated by only one known study; hence more evidence supporting this relationship is warranted. The current study attempts to explore the relationship between perceived performance and posttest motivation. It was hypothesized that

Hypothesis 2: Perceived performance after taking the first test will positively affect posttest motivation.

Chan and Schmitt (1997) found that motivation experienced after taking a test affects scores on a subsequent parallel test. Based on these results, it is believed that applicants' self-reported motivation experienced after passing the first test in the employee selection process will have a bearing on their performance on the following performance test. It was hypothesized that
Hypothesis 3: Motivation experienced after passing the first test will affect subsequent performance on the second test.

There is sufficient evidence to indicate a relationship between test preparation and test performance (Arvey & Strickland, 1991; Bookman & Iwanicki, 1983; Estes & Richards, 1985; Nist et al., 1985; Ryan & Ployhart, 1998). It has been found that engaging in test preparation activities positively affects test performance. The current study likewise explores the relationship between test preparation and test performance. It was hypothesized that

Hypothesis 4: There will be a significant relationship between test preparation and test performance.
Method

Study 1

Background Information

Applicants applying for the position of Fire Fighter with the City of Louisville Fire Department are required to pass several selection tests before being hired. The first selection test is a written examination. Prior to taking the written examination applicants are given test preparation materials, a list of study tips, and twenty-five practice questions. The Written examination given to the Fire fighter applicants, termed ALARM, consists of one hundred multiple-choice questions and has a time limit of two-and-one-half hours. ALARM consists of four parts: reading comprehension, mathematical skills, mechanical comprehension, and table interpretation. Separate scores on the four parts along with an overall score are generated. Those applicants who pass the written examination are invited to continue in the selection process by participating in a Physical Ability Test.

All applicants receiving a passing score on the Written Test were informed by mail that they could continue in the hiring process. They were given a date to take the Fire fighter Physical Ability Test, scheduled approximately one month after the written test. Applicants had the opportunity to practice running through the Physical Ability Test at the Fire Training Center (the site at which the test takes place) prior to their test date. The Physical Ability Test is individually administered to each applicant. Applicants have nine tasks they must complete within a specified time limit. The following tasks, in the order presented, comprise the actual sequence of events in the Physical Ability Test: (a) Ladder draw (b) Ladder raise (c) Ladder hoist (d) Stair climb with hose (e) Hose carry I
(f) Fire escape ascent/descent (g) Hose carry II (h) Fire escape ascent/descent and (i) Stair climb without hose. The first two tasks, Ladder draw and Ladder raise, must be completed within a specific time frame. The third task, Ladder hoist, is pass/fail with no time limit. Tasks four through nine have a time limit of eleven minutes. Those applicants who complete all tasks within the required time limit have passed the Physical Ability Test.

Participants

Participants were 299 individuals (289 male, 10 female) applying with the City of Louisville Fire Department for the position of fire fighter.

Instrument

The most commonly used instrument to measure the feelings, attitudes, and motivation that applicants experienced when taking selection tests is the Test Attitude Survey developed by Arvey and Strickland (1991). The Test Attitude Survey (TAS) consists of 45 items measuring nine different factors related to test-taker motivation and attitudinal disposition towards preemployment test. The TAS may be found in Appendix A.

Validation research conducted on the TAS found the instrument to independently measure nine factors. The internal consistency reliability for these factors were relatively high (Arvey & Strickland, 1991). The factor of motivation accounted for the most variance and had the highest estimate of internal consistency reliability (alpha = .85) among the nine factors comprising the TAS. Another factor of interest, with a coefficient alpha of (.74), was test preparation.
Items from Arvey and Strickland's TAS that compromised the two factors of test preparation and motivation were used in the current study. The motivation and test preparation scales consist of a total of twelve questions. Information on these factors (number of items, reliability and example item) is presented in Table 1. Item responses are made on a 5-point Likert-type scale with anchors ranging from (1) strongly disagree to (5) strongly agree.

<table>
<thead>
<tr>
<th>Factors</th>
<th>No. of Items</th>
<th>Reliability</th>
<th>Example Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Motivation</td>
<td>10</td>
<td>.85</td>
<td>Doing well on this test is important to me.</td>
</tr>
<tr>
<td>Test Preparation</td>
<td>2</td>
<td>.74</td>
<td>I prepared a lot for this test.</td>
</tr>
</tbody>
</table>

Additional items were added to the TAS for the present study. Applicants were asked to identify how many of the practice problems they completed prior to taking the Written examination. Also, applicants were asked to indicate (either "yes" or "no") whether or not they went to the Fire Training Academy to practice running through the Physical Ability Test. Last, an item was added to the end of the posttest TAS to determine applicants perceived performance. The item asked applicants to respond either "yes" or "no" to indicate their belief that they performed well enough on the Written examination or Physical Ability Test to continue in the selection process.

Procedure

One month prior to the City of Louisville's Fire Fighter's Written examination, all applicants were given an information packet informing them of the nature of the test as well as a test preparation booklet. On the day of the Fire fighter's Written Test all
applicants were given two versions (pretest and posttest) of the Test Attitude Survey (TAS). Also, those applicants who passed the written test and participated in the Physical Ability Test were asked to complete two versions (pretest and posttest) of the Test Attitude Survey on the day of their Physical Ability Test.

All applicants took the Fire fighter's Written test simultaneously in several testing rooms within the same facility. In order to administer the TAS to all applicants at the same time, several test administrators (the researcher included) assisted in administering the survey. The written instructions were attached to each copy of the TAS in order to ensure that all applicants received the same directions. The instructions and the modified pretest version of the TAS may be found in Appendix B.

On the day of the Fire fighter's Written Test, applicants were asked to fill out the pretest version of the TAS. As they were seated in their desks they found pencils, pretest version of the TAS, and an envelope. Applicants were instructed to read the survey. Once all applicants had placed their finished survey in the envelope, returned it to the test administrator, and were seated, the test administrator started the written examination.

Applicants who finished the exam before the time limit was up were given a posttest version of the TAS (and an envelope) to complete and return to the test administrator along with their completed written exam. Applicants requiring the entire two- and-one-half-hour time limit were given the posttest TAS and an envelope in which to place the survey once the examinations were collected by the testing administrator. A set of written instructions and the posttest version of the TAS may be found in Appendix C. Applicants were permitted to leave the testing site once their written examination was completed or the two-and-one-half-hour time limit had expired.
Those applicants who took the Fire fighter Physical Ability Test were asked again to complete the pretest TAS before participating in the Physical Ability Test. A set of written instructions and pretest version of the TAS may be found in Appendix D. The Physical Ability Test was administered to the applicants individually over a period of twenty days. Varying Civil Service Staff Personnel assisted in administering the surveys to the applicants. Each applicant received written instructions, a pretest version of the TAS, an envelope, and a pencil, immediately prior to the beginning of the Physical Ability Test. Upon completing the survey and placing it in the envelope, the applicant was directed to the starting point of the Physical Ability Test.

Upon completing the Physical Ability Test, applicants were asked to fill out the posttest version of the TAS for the final time. Civil Service Staff Personnel gave each applicant written instructions, a posttest version of the TAS, an envelope, and a pencil. The written instructions and posttest version of the TAS may be found in Appendix E. Once applicants completed the survey and placed it in the envelope they were dismissed.

Study 2

Background

Students enrolled in an undergraduate psychology course take four unit tests throughout the semester and a comprehensive final exam. The final grade for the students is based on their four highest exam grades. If a student takes all five exams, his/her lowest test score will be dropped; or if they are satisfied with their four class exams, they need not take the final examination.

Participants
Participants were 127 undergraduate college students (49 male, 78 female) attending a southeastern university and enrolled in Psychology courses. No data were collected on age or ethnicity.

Instruments

The pre-and post-surveys given to student participants were similar to those given to the Fire fighter applicants. Students completed a modified version of Arvey and Stickland’s (1991) Test Attitude Survey (TAS) that measures test-takers motivation and attitudinal dispositions towards tests. The modified version of the TAS consists of twelve questions concerning motivation and test preparation. In addition, the students were asked to answer additional items about test preparation and perceived performance (see Appendices F-I).

Procedure

Students who volunteered to participate in the study were asked to fill out the pretest version of the TAS immediately prior to taking their fourth unit test. The written instructions and the pretest version of the TAS may be found in Appendix F. Once the students finished taking their fourth unit test they were asked to complete the posttest TAS. The written instructions and the posttest version of the TAS may be found in Appendix G. After the students finished the posttest TAS they were dismissed from the classroom.

Students who decided to take the comprehensive final were asked to complete the pretest TAS immediately prior to taking their final. The written instructions and the pretest version of the TAS may be found in Appendix H. After the students finished taking their comprehensive final they were asked to complete the posttest TAS. The
written instructions and the posttest TAS may be found in Appendix I. After students completed the posttest survey they were dismissed.
Results

Prior to data analysis, several composite scores for motivation and test preparation were computed. Four composite motivation factor scores were computed by summing individuals responses on the ten questions found on the TAS each participant completed on four occasions (i.e., prior to and immediately following the written test (firefighters) and fourth exam (students), and prior to and immediately following the Physical Ability Test (firefighters) and final exam (students)). Likewise, four composite test preparation scores were computed by summing individual responses on the two TAS questions completed on four occasions (i.e., prior to and immediately following the first test, and prior to and immediately following the second test). The motivation and test preparation composites were used in subsequent data analyses. Fire fighter test performance (i.e., Study 1) consisted of each applicant’s overall score on the written examination and his/her timed performance on the Physical Ability Test. Another variable, perceived performance, was simply the applicants’ yes or no response to whether or not they believed they performed well enough on the written/Physical Ability Test to continue in the selection process. In Study 2, test performance score was the student’s score on the fourth semester exam and the final exam.

Study 1

Hypothesis 1, that is, there will be a significant positive correlation between motivation and test performance (for the timed Physical Ability Test, lower scores indicate better test performance), was addressed by the correlation between the summed motivation factor for each applicant and his/her score on the written examination and timed performance on the Physical Ability Test. The correlation matrices, means, and
standard deviations for independent and dependent variables for the Fire fighter written and Physical Ability Tests are contained in Tables 2 and 3, respectively. A significant correlation was found between applicant's scores on the written examination and both pretest motivation \( r = .16, p < .01 \) and posttest motivation, \( r = .21, p < .01 \). A non-significant correlation was found between timed performance on the Physical Ability Test and both pretest motivation \( r = -.09, n. s. \) and posttest motivation, \( r = -.15, n. s. \).

Hypothesis 2, that is, perceived performance after taking the first test will positively affect posttest motivation, was tested by an independent samples \( t \) test. An independent sample \( t \) test was conducted on the posttest motivation factor score to compare those who believed they performed well enough to continue in the selection process and those who thought they did not perform well enough. The results indicated that reported motivation scores were significantly different based on applicants perceived performance on the written examination, \( t (250) = -2.08, p < .05 \). Those applicants who perceived they performed well enough to continue in the selection process reported a higher level of motivation \( (M = 48.60, SD = 4.16) \) than those believing they did not perform well enough to continue, \( M = 45.80, SD = 4.05 \).

Hypothesis 3, that is, motivation experienced after passing the first test will be related to subsequent performance on the second test, was investigated in the following manner. Applicants scores on the TAS motivation factor (immediately prior to the applicants engaging in the Physical Ability Test) were correlated with timed performance to complete the Physical Ability Test. A nonsignificant correlation was found, \( r = -.01 \),
Table 2
Correlation Matrix and Descriptive Statistics for Fire Fighter Applicant Written Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Motivation on Pretest</td>
<td>48.47</td>
<td>4.89</td>
<td>270</td>
<td>1.0</td>
<td>.60**</td>
<td>.32**</td>
<td>.09</td>
<td>.15*</td>
<td>.16**</td>
</tr>
<tr>
<td>2. Motivation on Posttest</td>
<td>48.44</td>
<td>4.19</td>
<td>261</td>
<td>1.0</td>
<td>.35</td>
<td>.14*</td>
<td>.23*</td>
<td>.21**</td>
<td></td>
</tr>
<tr>
<td>3. Test Prep. on Pretest</td>
<td>8.12</td>
<td>1.75</td>
<td>269</td>
<td>1.0</td>
<td>.23**</td>
<td>-.00</td>
<td>-.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Practice Test Items</td>
<td>.93</td>
<td>.24</td>
<td>261</td>
<td>1.0</td>
<td>.06</td>
<td>-.03</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Perceived Performance</td>
<td>.76</td>
<td>.43</td>
<td>250</td>
<td></td>
<td>1.0</td>
<td>.66**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Written Test Score</td>
<td>73.76</td>
<td>11.58</td>
<td>299</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Note.* **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).

Table 3
Correlation Matrix and Descriptive Statistics for Fire Fighter Applicant Physical Ability Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Motivation on Pretest</td>
<td>48.69</td>
<td>4.23</td>
<td>207</td>
<td>1.0</td>
<td>.53**</td>
<td>.39**</td>
<td>-.01</td>
<td>-.06</td>
<td>-.01</td>
</tr>
<tr>
<td>2. Motivation on Posttest</td>
<td>48.61</td>
<td>3.26</td>
<td>191</td>
<td>1.0</td>
<td>.40**</td>
<td>.24**</td>
<td>.05</td>
<td>-.06</td>
<td></td>
</tr>
<tr>
<td>3. Test Prep. on Pretest</td>
<td>8.75</td>
<td>1.5</td>
<td>207</td>
<td>1.0</td>
<td>.31**</td>
<td>.04</td>
<td>.21**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Practice Test Course</td>
<td>.62</td>
<td>.49</td>
<td>204</td>
<td>1.0</td>
<td>-.03</td>
<td>-.22**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Perceived Performance</td>
<td>.53</td>
<td>.50</td>
<td>152</td>
<td>1.0</td>
<td>-.56**</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. PA Test Time</td>
<td>0:08:58</td>
<td>0:0:59</td>
<td>178</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
</tbody>
</table>

*Note.* **Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).
The correlation between posttest motivation and timed performance on the Physical Ability Test was also found to be nonsignificant, $r = -.06$, n.s.

To test the last hypothesis, that is, there will be a significant relationship between test preparation and test performance (Hypothesis 4), the correlation was calculated between the summed test preparation factor for each applicant and his/her score on the written examination and his/her timed performance on the Physical Ability Test. A nonsignificant relationship was found between test preparation and applicant’s score on the written test, $r = -.07$, n.s. A negative, significant relationship was found between test preparation and applicant’s Physical Ability Test time, $r = -.21$, $p < .01$, two-tailed. The correlation indicated that those who reported a higher rate of test preparation performed the Physical Ability Test in a shorter period of time (i.e., had better test scores).

**Study 2**

Analyses analogous to those in Study 1 were conducted for Study 2. The correlation matrices, means, and standard deviations for the fourth exam and final exam may be found in Tables 4 and 5, respectively. To test Hypothesis 1, that is, there will be a significant positive correlation between motivation and test performance, a correlation was calculated between the summed motivation factor for each student and their score on the fourth test and their score on the final examination. A nonsignificant correlation was found between student’s scores on the fourth test and both pretest motivation ($r = .06$, n.s.) and posttest motivation, $r = .11$, n.s. Likewise, a nonsignificant correlation was found between student’s scores on the final examination and pretest motivation, $r = -.28$, n.s. A significant, negative correlation was found between student’s scores on the final exam and posttest motivation, $r = -.37$, $p < .05$; that is, a lower posttest motivation
Table 4
Correlation Matrix and Descriptive Statistics for Student Fourth Test

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Motivation on Pretest</td>
<td>45.58</td>
<td>4.65</td>
<td>94</td>
<td>1.0</td>
<td>.90**</td>
<td>.62**</td>
<td>.35**</td>
<td>.05</td>
<td>.06</td>
</tr>
<tr>
<td>2. Motivation on Posttest</td>
<td>45.29</td>
<td>5.32</td>
<td>93</td>
<td>1.0</td>
<td>.55**</td>
<td>.27*</td>
<td>.03</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td>3. Test Prep. on Pretest</td>
<td>6.73</td>
<td>2.11</td>
<td>94</td>
<td></td>
<td></td>
<td>.47**</td>
<td>-.11</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>4. Study Time</td>
<td>150.66</td>
<td>103.66</td>
<td>86</td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
<td>-0.01</td>
<td></td>
</tr>
<tr>
<td>5. Perceived Performance</td>
<td>.80</td>
<td>.41</td>
<td>92</td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
<td>.11</td>
<td></td>
</tr>
<tr>
<td>6. Test Score</td>
<td>79.06</td>
<td>15.90</td>
<td>119</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
<td></td>
</tr>
</tbody>
</table>

Note. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

Table 5
Correlation Matrix and Descriptive Statistics for Student Final Examination

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Motivation on Pretest</td>
<td>45.03</td>
<td>4.84</td>
<td>31</td>
<td>1.0</td>
<td>.86**</td>
<td>.37**</td>
<td>.33</td>
<td>-.28</td>
</tr>
<tr>
<td>2. Motivation on Posttest</td>
<td>45.61</td>
<td>4.13</td>
<td>30</td>
<td></td>
<td>.25</td>
<td>.19</td>
<td></td>
<td>-.37*</td>
</tr>
<tr>
<td>3. Test Prep. on Pretest</td>
<td>6.68</td>
<td>2.45</td>
<td>31</td>
<td></td>
<td></td>
<td>.66**</td>
<td>-.49**</td>
<td></td>
</tr>
<tr>
<td>4. Study Time</td>
<td>170.48</td>
<td>114.38</td>
<td>29</td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
<td>-.55**</td>
</tr>
<tr>
<td>5. Final Exam Score</td>
<td>74.75</td>
<td>10.44</td>
<td>44</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.0</td>
</tr>
</tbody>
</table>

Note. ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).
score was related to a higher test score.

An independent samples t test was used to test Hypothesis 2, perceived performance after taking the first test will positively affect posttest motivation. The results indicated that reported motivation was not significantly different as a function of student’s perceived performance on the fourth test, \( t (92) = -1.7, \text{n.s.} \)

Hypothesis 3, motivation experienced after passing the first test will affect subsequent performance on the second test, was tested with the correlation between student’s reported motivation score immediately following the fourth class exam and his/her score on the final exam. A non-significant correlation \( r = .00, \text{n.s.} \) was found.

To test the last hypothesis, there will be a significant relationship between test preparation and test performance, a simple correlation was calculated. The measure of test preparation was the amount of time students reported studying for the tests. The data for one outlier, who reported studying twice the amount of time of the next highest participant, was eliminated from the analyses due to a suspicion of dishonesty. A correlation was conducted between reported preparation time and scores on the fourth exam and scores on the final exam. A nonsignificant relationship was found between reported preparation time and student’s scores on the fourth exam, \( r = -.01, \text{n.s.} \). A significant relationship was found between reported preparation time and student’s scores on the final exam, \( r = -.55, p < .01 \). Thus, students who reported they studied less earned a higher score on the exam. This significant, negative correlation is interesting and will be addressed in the discussion.
Discussion

The purpose of this study was to investigate the relationship between motivation, test preparation, and test performance. Based on a review of relevant research from industrial/organizational psychology and educational psychology, several hypotheses were proposed and tested on two different samples. Results indicated that the relationship between motivation, test preparation and test performance varied depending on the sample (i.e., fire fighter applicants and college students) and the context (i.e., written or Physical Ability Test, fourth test or final examination).

Motivation and Test Performance

Researchers have found a direct relationship between test-taking motivation and test performance (Arvey & Strickland, 1991; Covington & Omelich, 1979; Hart, 1967; Ryman & Biersner, 1975; & Sanchez et al., 2000). The current study found mixed results as regards the relationship between motivation and test performance in two samples. The relationship between motivation and test performance varied depending upon the sample (i.e., fire fighter applicants and students) and the type of test (i.e., written test, Physical Ability Test, fourth test, or final examination). In Study 1, fire fighter applicants’ pretest motivation and post-motivation was significantly related to their written test score. However, fire fighter applicants’ pretest and post-motivation was not related to their Physical Ability Test performance. One explanation for the significant relationship between motivation and test performance on the written test is that motivation does positively influence performance. If applicants have sufficient cognitive ability to perform well on the test, a high level of motivation may increase test performance. However, it may be that some applicants simply lacked the physical ability needed to
pass the test despite high levels of motivation. The nonsignificant relationship with the
Physical Ability Test also may have been caused by the applicant’s false sense of
success. Although the majority of the applicants completed the Physical Ability Test
under the eleven-minute time limit and reported high pre and posttest motivation, only
those applicants who completed the test in the seven-to-eight minute range were
recommended to continue in the selection process.

A positive relationship between test-taking motivation and actual test
performance, such as that found by Sanchez, Truxillo, and Bauer (2000), was expected in
Study 2. However, results from Study 2 indicated the students reported pretest and
posttest motivation was not related to scores on a class test. Likewise, the reported pretest
motivation and scores on a final examination were not related. Posttest motivation and
final examination scores were negatively related. The significant, negative relationship
between posttest motivation and final exam scores suggests that even though students
were highly motivated following the exam, perhaps because it was the end of the
semester and they had spent an average of 2.5 hours preparing for the test, they did not
perform well on the test.

Perceived Performance and Posttest Motivation

Perceived performance on the first test and its effects on posttest motivation were
explored. Based on Sanchez, Truxillo, and Bauer’s (2000) discovery of a significant
relationship between perceived performance and posttest motivation, the current study
hypothesized a similar relationship. In Study 1, fire fighters who believed they had
performed well on the written exam reported significantly higher motivation than did fire
fighters who believed they performed poorly on the written exam. Thus, applicants’
perceived performance on the written test significantly affected their reported motivation scores. Perhaps, those applicants who believed they did not perform well enough to continue on in the selection process accordingly decreased their motivation to be consistent with their poor performance.

In Study 2, students perceived performance on the fourth test did not significantly affect their reported motivation scores. The contradictory results of perceived performance and posttest motivation from Study 1 and 2 suggest that context may moderate the relationship. Perhaps a direct relationship is found when the test is part of a selection process, but not in a classroom setting. Similarly, the importance/impact of the test may be a moderating factor between perceived performance and posttest motivation as well; that is, some college students (especially those who need to take an optional final exam) may not care as much about their test performance as do job applicants.

*Subsequent (experienced after passing a test) Pretest Motivation and Test Performance*

Chan and Schmitt (1997) found that motivation experienced after taking a test affected scores on a subsequent parallel test. This relationship was examined in the current study. In Study 1, fire fighter applicant’s reported motivation prior to taking the Physical Ability Test was not related to test performance. The applicants had passed the written test and had progressed in the selection process to the Physical Ability Test. One would infer, based on Chan et al.’s findings, applicants would be highly motivated to perform well. However, the Physical Ability Test may not parallel the written test; therefore motivation experienced after passing the first test was not necessarily transferred to the second test. Likewise in Study 2, no relationship was found between students reported motivation score immediately following the fourth class exam and their
score on the examination. The lack of relationship between reported posttest motivation (following the fourth class exam) and final exam score in both samples could be attributable to a ceiling effect in reported motivation scores (i.e., means of 48.69 and 45.29, respectively, out of a top score of 50).

Test Preparation and Test Performance

Numerous studies have provided evidence of a positive relationship between test preparation and test performance (Arvey & Strickland, 1991; Bookman & Iwanicki, 1983; Estes & Richards, 1985; Nist et al., 1985; Ryan & Ployhart, 1998). In Study 1, no relationship was found between fire fighter applicant’s reported test preparation score and written test score. However, a significant, negative relationship was found between applicants reported test preparation and timed performance on the Physical Ability Test. These results provide inconsistent support for the earlier findings of a relationship between preparation and performance. More specifically, there was no relationship between preparation and written test performance; however the more applicants prepared for the Physical Ability Test, the better they performed on the test (i.e., shorter time needed to complete the test). The suggestion is that the written test is likely measuring cognitive abilities not apt to be altered by short practice experiences. The results also suggest that practice has a positive impact on Physical Ability Test scores. This finding is supportive of efforts by municipalities to provide practice sessions for Physical Ability Tests. Although many of these practice sessions were initiated to reduce gender-based discrimination, they may improve test performance for all applicants.

An interesting relationship between test preparation and test performance was found in Study 2. Although no relationship was found between reported amount of study
time and performance on the fourth test, a relationship was found between test preparation and performance on the final examination. However, it was a significant, negative relationship that was discovered between the amount of time students reported studying and their score on the final examination. It is not possible to determine from the present data why this significant, negative relationship was found. A potential explanation is these students may have studied very little all semester and then crammed at the end of the semester in hopes of somehow salvaging their grade. Evidently, it was too late for these students to learn the material necessary to obtain the grade they desired. It suggests a contradiction to the axiom “it is never too late to try!”

Limitations and Future Directions

As with most research, there are limitations to the current study. These limitations will be addressed along with suggestions for future research. The generalizability of the results of this study may be limited due to the restricted range in motivation. Especially in Study 1 utilizing applicants for the position of fire fighter, there was likely a ceiling effect as all applicants were highly motivated. Also, the majority of applicants in Study 1 were white males possibly making the results limited to a specific sample. Study 2 employed a different sample, and it is possible this sample (i.e., students) was not equivalent to the sample in Study 1 (i.e., fire fighter applicants). The students were taking a test as part of a course requirement, not as part of a selection process and may have been less motivated. Also, the student sample taking the final was likely skewed because students were not required to take the final if they were satisfied with their course grade, could not improve their grade based on the test score, or simply did not want to take the final (i.e., low motivation), thus there may have been a floor effect for this sample. It should be noted
that the sample of fire fighters is clustered at the high end of the performance distribution while the sample of students is clustered at the low end. Future research should utilize at least two samples of applicants applying for actual job positions. If students are used as participants, tests other than an optional final should be utilized.

Although self-report questionnaires are a common source of research data, the level of accuracy and honesty obtained in the current study on self-reported motivation and test preparation could be questioned. It is possible participants, especially those trying to secure a job, inflated their responses on the questionnaire in order to impress decision-makers. Another measure of motivation and test preparation should be utilized, and those responses should be compared to self-reported measures to test for concurrence. In this study, the posttest questionnaire items were stated in the present tense. Future researchers utilizing the TAS should change the tense of the questionnaire statements to past tense when measuring posttest motivation and test preparation.

No studies other than the current study are known to have examined motivation, test preparation, and test performance on the same participants prior to and immediately following two different employment tests over a period of time. Subsequent tests of this nature are needed. Likewise, the mixed results concerning the relationship between motivation, test preparation, and test performance suggests future research is needed to clarify the relationship.

Applications

A better understanding of how test preparation and motivation affects test performance has major implications for both research and practice. Results from the current study show that motivation, and not test preparation, may affect test performance
on a written test in a selection context. Therefore, researchers and human resource
practitioners might experiment with methods with which to increase motivational states
of applicants when taking selections tests. However, preparation rather than motivation
impacted applicant’s test performance on the Physical Ability Test. Thus, providing
applicants with an opportunity to prepare for a Physical Ability Test may improve
increase test performance.

Results from Study 2 (i.e., student sample) of the current study can be applied in
an educational setting. The significant, negative relationship between test preparation and
test performance on the final examination suggests that increased preparation (i.e.,
cramming) does not guarantee increased performance. Although students reportedly spent
quite some time preparing for the final examination, their grades did not increase—likely
because it was too late to learn an entire semester of material. Educators can use these
findings to convince students that cramming does not work.

Conclusion

The current study examined the relationship between motivation, test preparation
and test performance on two samples (i.e., fire fighter applicants and college students).
Results suggested that the relationships varied depending on the sample examined and the
context in which the measures were taken (i.e., written or Physical Ability Test, fourth
test of final examination). Several interesting relationships emerged that have practical
applications. First, a significant relationship was found between motivation and test
performance on a written test for actual job applicants, suggesting researchers and
practitioners could increase applicant’s job performance by implementing motivational
incentives. Next, test preparation increased test performance on Physical Ability Tests,
suggesting that applicants should be given the opportunity to prepare for this type of test. Last, test preparation for a final examination had a significant, negative effect on test performance, suggesting to educators and students that “cramming” does not always increase test performance (especially cramming at the end of the semester).

The current study is but a simple piece in a much larger puzzle than needs further exploration. It is believed that the current study has begun to uncover potential relationships between motivation, test preparation, and test performance. However, more research of this type is needed and hopefully will follow in the future.
References


Appendix A

Arvey's Final Version of the Test Attitude Survey

Motivation

Doing well on this test (or these tests) is important to me.

I wanted to do well on this test or tests.

I tried my best on this test or tests.

I tried to do the very best I could to on this test or tests.

While taking this test or tests, I concentrated and tried to do well.

I want to be among the top scorers on this test (or these tests).

I pushed myself to work hard on this test or these tests.

I was extremely motivated to do well on this test or tests.

• [*] I just didn't care how I did on this test or tests.

• [*] I didn't put much effort into this test or tests.

Lack of Concentration

It was hard to keep my mind on this test or tests.

I found myself losing interest and not paying attention to the test or tests.

During the test session, I was bored.

I get distracted when taking tests of this type.

Belief in Tests

[*] This test or tests was a good reflection of what a person could do in the job.

[*] Tests are a good way of selecting people into jobs.
This kind of *test* or tests should be eliminated.

I don't believe that tests are valid.

**Comparative Anxiety**

I probably didn't do as well as most of the other people who took these tests.

I am not good at *taking* tests.

During the testing, I often thought about how poorly I was doing.

I usually get very anxious about *taking* tests.

• [*] I usually do pretty well on tests.

• [*] I expect to be among the people who score really well on this *test*.

My *test* scores don't usually reflect my true abilities.

I very much dislike *taking* tests of this type.

During the *test* or tests, I found myself thinking of the consequences of failing.

During the testing, I got so nervous I couldn't do as well as I should have.

**Test Ease**

This *test* was (or these tests were) too easy for me.

I found this *test* or tests too simple.

• [*] I found this *test* or tests interesting and challenging.

• [*] I felt frustrated because many of the *test* questions were too difficult.

**External Attribution**

I became fatigued and tired during the testing.
The questions on this test or tests were ambiguous and unclear.

I have not been feeling well lately and this affected my performance on the test or tests.

While taking the test or tests, I was preoccupied with how much time I had left.

I felt a lot of time pressure when taking this test or tests.

**General Need Achievement**

Once I undertake a task, I usually push myself to my limits.

I try to do well in everything I undertake.

• [*] In general, I like to work just hard enough to get by.

**Future Effects**

[*] My performance on this test will not affect my chances for obtaining a job or gaining a promotion.

Scores from this test or tests will probably affect my future.

These test scores will be used in future decisions made about me.

**Preparation**

I spent a good deal of time preparing for this test or tests.

I prepared a lot for this test or tests.

[*] Reverse scored.
Appendix B

PRETEST SURVEY
FOR THE
LOUISVILLE FIRE DEPARTMENT

DIRECTIONS

Welcome to the Louisville Fire Department’s Written examination! Please read these directions and complete the survey on the back of this sheet.

Research is currently being done in the areas of motivation, test preparation, and test performance. The 12 questions on the survey concern test preparation and motivation. Responses should be made with the 5-point scale of (1) strongly disagree to (5) strongly agree. An item at the end of the survey asks how many of the practice problems (given to you in the application packet) you completed. Please take your time and answer the questions to the best of your ability. Your responses to the survey will not be seen by anyone making hiring decisions; they will be used for research purposes only. No individual data will be reported to anyone; the data from all test applicants will be combined and reported as overall results. Participation in the completion of the survey is voluntary.

After you have completed the survey, please place the survey in the envelope provided and return it to the test administrator at the front of the room. Once all surveys have been collected and everyone is seated, the written examination procedure will begin. Upon completion of your written examination, you will be asked to complete another, very similar survey.

Please remember to put the last four digits of your social security number on the top of the survey so that your pre- and posttest surveys can be matched.

Thank you for your honesty and effort in completing the survey!
Survey ID (last four digits of your social security number)

Please read each question, then choose the one answer that best represents your response to that question. Place the corresponding number on the blank line. Some of the items may seem similar to each other; it is very important that you answer every question.

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Neutral</td>
<td>Agree</td>
<td>Strongly agree</td>
<td></td>
</tr>
</tbody>
</table>

_1. Doing well on this test is important to me._
_2. I just don’t care how I do on this test_
_3. I want to do well on this test.
_4. I will try to do my best on this test._
_5. I spent a good deal of time preparing for this test._
_6. I will try to do the very best I can on this test._
_7. While taking this test, I will concentrate and try to do well._
_8. I’m not going to put much effort into this test._
_9. I want to be among the top scorers on this test._
_10. I will push myself to work hard on this test._
_11. I prepared a lot for this test._
_12. I am extremely motivated to do well on this test._

Did you answer the practice questions in the application packet? Yes No

If yes, how many of the practice questions did you complete? ______
Appendix C

POSTTEST SURVEY
FOR THE
LOUISVILLE FIRE DEPARTMENT

DIRECTIONS

Please read these directions and complete the survey on the back of this sheet.

This survey is similar to the survey you completed before taking the written examination. The twelve questions concern test preparation and motivation. Responses should be made with the 5-point scale of (1) strongly disagree to (5) strongly agree. An item at the end of the survey asks whether or not you believed you performed well enough on the written examination to continue in the selection process. Please take your time and answer the questions to the best of your ability. Your responses to the questions will not be seen by anyone making hiring decisions; they will be used for research purposes only. No individual data will be reported to anyone; the data from all test applicants will be combined and reported as overall results. Participation in the completion of the survey is voluntary.

After you have completed the survey, please place the survey in the envelope provided and return it to the test administrator at the front of the room.

Please remember to put the last four digits of your social security number on the top of the survey so that your pre and posttest surveys can be matched.

Thank you for your honesty and effort in completing the survey!
Post-Survey

_______ Survey ID (last four digits of your social security number)

Please read each question, then choose the one answer that best represents your response to that question. Place the corresponding number on the blank line. Some of the items may seem similar to each other; it is very important that you answer every question.

1 2 3 4 5
Strongly disagree Disagree Neutral Agree Strongly agree

1. I am extremely motivated to do well on this test.
2. I prepared a lot for this test.
3. I will push myself to work hard on this test.
4. I want to be among the top scorers on this test.
5. I'm not going to put much effort into this test
6. While taking this test, I will concentrate and try to do well
7. I will try to do the very best I can on this test.
8. I spent a good deal of time preparing for this test.
9. I will try to do my best on this test.
10. I want to do well on this test.
11. I just don’t care how I do on this test
12. Doing well on this test is important to me.

Do you believe you performed well enough on this Written examination to continue in the selection process?

YES NO
Appendix D

PRETEST SURVEY
FOR THE
LOUISVILLE FIRE DEPARTMENT-PHYSICAL ABILITY TEST

DIRECTIONS

Welcome to the Louisville Fire Department’s Physical Ability test! Please read these directions and complete the survey on the back of this sheet.

Research is currently being done in the areas of motivation, test preparation and test performance. The 12 questions on the survey concern test preparation and motivation. Responses should be made with the 5-point scale of (1) strongly disagree to (5) strongly agree. An item at the end of the survey asks whether or not you went to the Fire Training Center to practice running through the Physical Ability Test. Please take your time and make an effort to answer the questions to the best of your ability. Your responses to the survey will not be seen by anyone making hiring decisions, they will be used for research purposes only. No individual data will be reported to anyone; the data from all test applicants will be combined and reported as overall results. Participation in the completion of the survey is voluntary.

After you have completed the survey, please place the survey in the envelope provided and return it to the test administrator. Upon completion of your Physical Ability Test, you will be asked to complete another, very similar survey.

Please remember to put the last four digits of your social security number on the top of the survey so that your pre and posttest surveys can be matched.

Thank you for your honesty and effort in completing the survey!
Pre-survey

Survey ID (Last four digits of your social security number)

Please read each question, then choose the one answer that best represents your response to that question. Place the corresponding number on the blank line. Some of the items may seem similar to each other; it is very important that you answer every question.

1. Strongly disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

__ 1. Doing well on this test is important to me.
__ 2. I just don’t care how I do on this test
__ 3. I want to do well on this test.
__ 4. I will try to do my best on this test.
__ 5. I spent a good deal of time preparing for this test.
__ 6. I will try to do the very best I can on this test.
__ 7. While taking this test, I will concentrate and try to do well.
__ 8. I’m not going to put much effort into this test.
__ 9. I want to be among the top scorers on this test.
__ 10. I will push myself to work hard on this test.
__ 11. I prepared a lot for this test.
__ 12. I am extremely motivated to do well on this test.

Did you go to the Fire Training Center and practice running through the Physical Ability Test prior to today?

YES    NO
Appendix E

POSTTEST SURVEY
FOR THE
LOUISVILLE FIRE DEPARTMENT- PHYSICAL ABILITY TEST

DIRECTIONS

Please read these directions and complete the survey on the back of this sheet.

This survey is similar to the survey you completed before taking the Physical Ability Test. The twelve questions concern test preparation and motivation. Responses should be made with the 5-point scale of (1) strongly disagree to (5) strongly agree. An item at the end of the survey asks whether or not you believed you performed well enough on the Physical Ability Test to continue on in the selection process. Please take your time and answer the questions to the best of your ability. Your responses to the survey will not be seen by anyone making hiring decisions; they will be used for research purposes only. No individual data will be reported to anyone; the data from all test applicants will be combined and reported as overall results. Participation in the completion of the survey is voluntary.

After you have completed the survey, please place the survey in the provided envelope and return it to the test administrator.

Please remember to put the last four digits of your social security number on the top of the survey so that your pre and posttest surveys can be matched.

Thank you for your honesty and effort in completing the survey!
Post-survey

_________ Survey ID (Last four digits of your social security number)

Please read each question, then choose the one answer that best represents your response to that question. Place the corresponding number on the blank line. Some of the items may seem similar to each other; it is very important that you answer every question.

1 2 3 4 5

Strongly disagree Disagree Neutral Agree Strongly agree

___ 1. I am extremely motivated to do well on this test.
___ 2. I prepared a lot for this test.
___ 3. I will push myself to work hard on this test.
___ 4. I want to be among the top scorers on this test.
___ 5. I’m not going to put much effort into this test.
___ 6. While taking this test, I will concentrate and try to do well.
___ 7. I will try to do the very best I can on this test.
___ 8. I spent a good deal of time preparing for this test.
___ 9. I will try to do my best on this test.
___ 10. I want to do well on this test.
___ 11. I just don’t care how I do on this test.
___ 12. Doing well on this test is important to me.

Do you believe you performed well enough on this Physical Ability Test to continue in the selection process?

YES NO
Appendix F

PRETEST SURVEY-FOURTH TEST

DIRECTIONS

Please read these directions and complete the survey on the back of this sheet.

Research is currently being done in the areas of motivation, test preparation, and test performance. The 12 questions on the survey concern test preparation and motivation. Responses should be made with the 5-point scale of (1) strongly disagree to (5) strongly agree. Please take your time and answer the questions to the best of your ability. Your professor will not see your responses to the survey; they will be used for research purposes only. No individual data will be reported to anyone; the data will be combined and reported as overall results. Participation in the completion of the survey is voluntary.

After you have completed the survey, please return it to the test administrator at the front of the room. Once all surveys have been collected and everyone is seated, the test will begin. Upon completion of your test, you will be asked to complete another, very similar survey.

Please remember to put the last four digits of your social security number on the top of the survey so that your pre- and posttest surveys can be matched.

Thank you for your honesty and effort in completing the survey!
Pre-Survey

Survey ID (last four digits of your social security number)

Please read each question, then choose the one answer that best represents your response to that question. Place the corresponding number on the blank line. Some of the items may seem similar to each other; it is very important that you answer every question.

1. Doing well on this test is important to me.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

2. I just don't care how I do on this test.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

3. I want to do well on this test.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

4. I will try to do my best on this test.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

5. I spent a good deal of time preparing for this test.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

6. I will try to do the very best I can on this test.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

7. While taking this test, I will concentrate and try to do well.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

8. I'm not going to put much effort into this test.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

9. I want to be among the top scorers on this test.
   __ 1. Strongly disagree
   __ 2. Disagree
   __ 3. Neutral
   __ 4. Agree
   __ 5. Strongly agree

10. I will push myself to work hard on this test.
    __ 1. Strongly disagree
    __ 2. Disagree
    __ 3. Neutral
    __ 4. Agree
    __ 5. Strongly agree

11. I prepared a lot for this test.
    __ 1. Strongly disagree
    __ 2. Disagree
    __ 3. Neutral
    __ 4. Agree
    __ 5. Strongly agree

12. I am extremely motivated to do well on this test.
    __ 1. Strongly disagree
    __ 2. Disagree
    __ 3. Neutral
    __ 4. Agree
    __ 5. Strongly agree

Did you review the study guide in preparation for the test? YES NO

Did you attend the review session that was provided for this test? YES NO

Did you review copies of the old exams that are on reserve in the Educational Resource Center? YES NO

How much time did you spend preparing for this test? ______minutes ______hours
Appendix G

POSTTEST SURVEY-FOURTH TEST

DIRECTIONS

Please read these directions and complete the survey on the back of this sheet.

This survey is similar to the survey you completed before taking the test. The twelve questions concern test preparation and motivation. Responses should be made with the 5-point scale of (1) strongly disagree to (5) strongly agree. Please take your time and answer the questions to the best of your ability. Your professor will not see your responses to the questions; they will be used for research purposes only. No individual data will be reported to anyone; the data will be combined and reported as overall results. Participation in the completion of the survey is voluntary.

After you have completed the survey, please return it to the test administrator at the front of the room.

Please remember to put the last four digits of your social security number on the top of the survey so that your pre and posttest surveys can be matched.

Thank you for your honesty and effort in completing the survey!
Post-Survey

Survey ID (last four digits of your social security number)

Please read each question, then choose the one answer that best represents your response to that question. Place the corresponding number on the blank line. Some of the items may seem similar to each other; it is very important that you answer every question.

1 2 3 4 5
Strongly disagree Disagree Neutral Agree Strongly agree

___ 1. I am extremely motivated to do well on this test.
___ 2. I prepared a lot for this test.
___ 3. I will push myself to work hard on this test.
___ 4. I want to be among the top scorers on this test.
___ 5. I'm not going to put much effort into this test
___ 6. While taking this test, I will concentrate and try to do well
___ 7. I will try to do the very best I can on this test.
___ 8. I spent a good deal of time preparing for this test.
___ 9. I will try to do my best on this test.
___ 10. I want to do well on this test.
___ 11. I just don't care how I do on this test
___ 12. Doing well on this test is important to me.

Do you believe you performed well enough on this Written examination to obtain the grade you wanted, so that you don’t have to take the final examination?

YES           NO
Appendix H

PRETEST SURVEY- FINAL EXAMINATION

DIRECTIONS

Please read these directions and complete the survey on the back of this sheet.

Research is currently being done in the areas of motivation, test preparation, and test performance. The 12 questions on the survey concern test preparation and motivation. Responses should be made with the 5-point scale of (1) strongly disagree to (5) strongly agree. Please take your time and answer the questions to the best of your ability. Your professor will not see your responses to the survey; they will be used for research purposes only. No individual data will be reported to anyone; the data will be combined and reported as overall results. Participation in the completion of the survey is voluntary.

After you have completed the survey, please return it to the test administrator at the front of the room. Once all surveys have been collected and everyone is seated, the test will begin. Upon completion of your test, you will be asked to complete another, very similar survey.

Please remember to put the last four digits of your social security number on the top of the survey so that your pre- and posttest surveys can be matched.

Thank you for your honesty and effort in completing the survey!
Pre-Survey

Survey ID (last four digits of your social security number)

Please read each question, then choose the one answer that best represents your response to that question. Place the corresponding number on the blank line. Some of the items may seem similar to each other; it is very important that you answer every question.

1 Strongly disagree 2 Disagree 3 Neutral 4 Agree 5 Strongly agree

1. Doing well on this test is important to me.
2. I just don’t care how I do on this test.
3. I want to do well on this test.
4. I will try to do my best on this test.
5. I spent a good deal of time preparing for this test.
6. I will try to do the very best I can on this test.
7. While taking this test, I will concentrate and try to do well.
8. I’m not going to put much effort into this test.
9. I want to be among the top scorers on this test.
10. I will push myself to work hard on this test.
11. I prepared a lot for this test.
12. I am extremely motivated to do well on this test.

Did you review the study guide in preparation for the test? YES NO
Did you attend the review session that was provided for this test? YES NO
Did you review copies of the old exams that are on reserve in the Educational Resource Center? YES NO
How much time did you spend preparing for this test? _____ minutes _____ hours
Appendix I

POSTTEST SURVEY- FINAL EXAMINATION

DIRECTIONS

Please read these directions and complete the survey on the back of this sheet.

This survey is similar to the survey you completed before taking the test. The twelve questions concern test preparation and motivation. Responses should be made with the 5-point scale of (1) strongly disagree to (5) strongly agree. Please take your time and answer the questions to the best of your ability. Your professor will not see your responses to the questions; they will be used for research purposes only. No individual data will be reported to anyone; the data will be combined and reported as overall results. Participation in the completion of the survey is voluntary.

After you have completed the survey, please return it to the test administrator at the front of the room.

Please remember to put the last four digits of your social security number on the top of the survey so that your pre and posttest surveys can be matched.

Thank you for your honesty and effort in completing the survey!
Post-Survey

_____ Survey ID (last four digits of your social security number)

Please read each question, then choose the one answer that best represents your response to that question. Place the corresponding number on the blank line. Some of the items may seem similar to each other; it is very important that you answer every question.

1 2 3 4 5
Strongly disagree Disagree Neutral Agree Strongly agree

____ 1. I am extremely motivated to do well on this test.
____ 2. I prepared a lot for this test.
____ 3. I will push myself to work hard on this test.
____ 4. I want to be among the top scorers on this test.
____ 5. I’m not going to put much effort into this test
____ 6. While taking this test, I will concentrate and try to do well
____ 7. I will try to do the very best I can on this test.
____ 8. I spent a good deal of time preparing for this test.
____ 9. I will try to do my best on this test.
____ 10. I want to do well on this test.
____ 11. I just don’t care how I do on this test
____ 12. Doing well on this test is important to me.

Do you believe you performed well enough on this Written Examination to obtain your desired grade for this class?

YES NO