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MMPI-2 Scores as a Predictor of Outcomes on the Phase II Profile Integrity Inventory

Lynne Dawn Murray
University of Rhode Island

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MMPI-2 SCORES AS A PREDICTOR OF OUTCOMES ON THE
PHASE II PROFILE INTEGRITY INVENTORY

BY

LYNEE DAWN MURRAY

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
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IN
PSYCHOLOGY

THE UNIVERSITY OF RHODE ISLAND

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Abstract

Many personality inventories have been developed and used for clinical assessment purposes as well as pre-employment screening devices. Examples include the Woodworth Personal Data Sheet, the Thematic Apperception Test (TAT), the California Psychological Inventory (CPI), the Sixteen Personality Factor Questionnaire (16PF), and the Minnesota Multiphasic Personality Inventory (MMPI, MMPI-2) (Kaplan & Saccuzzo, 1993).

Sackett and Wanek (1996) reviewed the use of measures of honesty, integrity, conscientiousness, dependability, trustworthiness, and reliability for personnel selection, and found that the criterion-related validity studies are well represented. Using this as a basis, Murray (2000) completed a construct validation study of the Phase II Profile Integrity Inventory, which provided compelling results for its valid use in pre-employment and promotion screening purposes.

This study investigated the factorial validity of the Phase II Profile Integrity Inventory by assessing the predictive power of the MMPI-2 scores for outcomes on the Phase II Profile Integrity Inventory using the statistical technique of structural equation modeling, a confirmatory factor analysis procedure. Several goodness-of-fit indices indicate that MMPI-2's Anti-social Practices, Cynicism, and Work Interference Scales are a viable predictor of outcomes on the Phase II Profile's overall confidence scale score.

In addition to the equation modeling, a hierarchical cluster analysis was used to examine the underlying relationships of constructs measured by the Phase II

Profile Integrity Inventory, yielding cluster structures that are similar to the results of a previous principal components analysis. Analysis of variance statistics reflect that there are gender differences (for this college sample) on the overall confidence scale scores, which is derived from the Phase II Profile. Findings indicate that the use of the Phase II Profile with this younger, inexperienced age group (mean age = 19.5 years) could be inappropriate.

It may be that employers have differing screening needs and while one employer may want a full clinical picture of the applicant another may want to focus on only a partial picture of the applicant. If this is true, many employers and human resource specialists may benefit by adding this 117-item inventory to their set of tools.

Acknowledgment

I wish to thank my committee members for graciously sharing their time and knowledge with me. Having been exposed to all of their different aspects towards research and practice in pursuing practical solutions to real problems has been invaluable to me. A very special thanks goes to both Joe and Sue Rossi for giving me critical insights during critical moments.

My goal is to forge collaborative professional relationships with every person who has contributed to my graduate training experience. Thank you.

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Statement of the Problem

Assessing a potential employee before hiring him/her is of great importance. One major reason is because the impact of employee theft on business and the consumer is enormous. Internal theft has increased over the prior two decades at an alarming rate (Bales, 1988). This estimated annual loss to American business from employee theft is in excess of 40 billion dollars (Palmiotto, 1983). Zemke (1986) pointed out that when calculated on a per-minute basis, a 40 billion-dollar loss due to employee theft is equivalent to a loss of \$7,125 per minute.

More recently, according to Effective Media Inc. (1998), at least 110 billion dollars is annually lost as a result of theft in the workplace. This accounts for money, merchandise, information, and time that is stolen from employers. Industries that allow employees access to money and merchandise such as retail stores, banks, and warehouses are those having the greatest need for pre-employment screening (Sackett & Harris, 1984).

Previously, employers have typically used two methods prior to employment to assess the honesty of employees: written tests and the polygraph. However, in 1988 Congress passed a law prohibiting use of the polygraph by private employers as a pre-employment test (Hartnett, 1991). Today, with the increasing demand by employers for paper-and-pencil measurements, psychologists are developing more reliable pre-employment tests (Jones, Joy, Werner & Orban, 1991; Hartnett & Terranova, 1991).

An example of why these measurements are desired is described here. Most businesses of medium to large size perform a physical inventory once a year. There are types of inventory control systems that allow disparities between actual inventory amounts and what is shown on records to exist, without this coming to the attention of the manager/owner. Even if businesses could afford to perform two physical inventories a year in an attempt to have a tighter inventory control, potentially dishonest employees still have plenty of time to abscond with merchandise.

Pre-employment screening tests are widely used in business and industry in an attempt to reduce internal theft (Martin, 1989; Sackett & Harris, 1984). One paper and pencil pre-employment screening test, the Phase II Profile Integrity Inventory (Lousig-Nont & Associates, 1982a), has been used for assessing the personality trait of honesty (Lillie-Murray, 1999; Martelli, 1988). Sackett and Wanek (1996) have reviewed the use of measures of honesty, integrity, conscientiousness, dependability, trustworthiness, and reliability for personnel selection, and have found that criterion-related validity studies are well represented. In addition to finding that the criterion-related validity investigations are well represented in the literature, other scientists have found that through an analysis of employment longevity there is a significant and measurable relationship between employment longevity and the scores on the Phase II Profile Integrity Inventory (Cotton, 1990).

A previous study added to the body of knowledge of pre-employment screening/testing by investigating the construct validity (Murray, 2000) of the

Phase II Profile Integrity Inventory by examining its results with those of the Minnesota Multiphasic Personality Inventory, 2nd edition (Butcher, et al., 1989). This measure, the MMPI-2, was selected for investigating the construct validation because it has been the most widely used personality assessment instrument and the most extensively researched of all psychological tests. Its first and only revision, the MMPI-2, was published in 1989 and is now widely accepted in psychological practice. According to Newmark and McCord (1996), the unparalleled success of the MMPI is attributable primarily to three aspects of its development: the “multiphasic” nature of the test, the inclusion of formal measures of test-taking attitude, and the empirical basis for item selection.

Murray’s (2000) study investigated the construct validity of the Phase II Profile using the MMPI-2 Inventory. The goal of this research was to determine if the Phase II Profile actually measures what the test builders, Lousig-Nont & Associates, claim it measures. A two-tailed bivariate correlation matrix was generated to provide “convergent” and “divergent” evidence for construct validity of the Phase II Profile. The significant correlations of interest were those between the Phase II Profile variable construct scales Thinking, Rationalization, Bad Attitudes, Good Attitudes, and Major Admissions, with the Anti-social Practices, Family Discord and Anger variable constructs from the MMPI-2 (shown in Appendices A-1, A-2).

Further testing of the Phase II Profile provides evidence as to how the Phase II Profile overall confidence scale score is generated. A stepwise multiple regression analysis revealed that the overall Confidence scale is a function of

weighted scores coming from the Good Attitudes, Minor Admissions, Rationalization, and Thinking scales ($R^2 = .517$) shown in Appendix B. The results show a pretty clear picture as to how the Phase II Profile generates this confidence scale score. The overall Confidence scale was used as the dependent variable. Then, the following Phase II subscales were entered and formed the best model, capturing the most variance: Good Attitudes, Minor Admissions, Rationalization, and Thinking scales. The resultant R^2 value, or the total variance in the Confidence Scale accounted for by the Phase II Profile variables, is equal to .517. Appendix B shows the results of this stepwise multiple regression and includes the change in R^2 by each variable scale.

As a follow-up procedure to the multiple regression a secondary factor analysis was performed to determine which hierarchical constructs are measured by the Phase II Profile. This factor analysis was performed using the principal components method of extraction with varimax rotation (George & Mallery, 1999). Results are shown in Appendix C. This component plot in rotated space offers a good visual as to how the values of the construct scales related to each other in the previous study.

This study assessed the factorial validity of the Phase II Profile Integrity Inventory. Several statistical techniques were used to investigate the internal structure of the Phase II Profile Integrity Inventory and how this relates to the internal structure of the MMPI-2 content scales (see Table 1). One major technique is the statistical technique of structure equation modeling, a confirmatory analysis procedure used to ascertain the predictive capability of the

MMPI-2 scores for the Phase II Profile outcomes.

Table 1.

Construct Variables Studied

<u>MMPI-2 Content Scales</u>	<u>Phase II Profile Scales</u>
Anxiety Scale (ANX)	Thinking Scale
Fears Scale (FRS)	Rationalization Scale
Obsessiveness Scale (OBS)	Bad Attitudes Scale
Depression Scale (DEP)	Minor Admissions Scale
Health Concerns Scale (HEA)	Major Admissions Scale
Bizarre Mentation Scale (BIZ)	Good Attitudes Scale
Anger Scale (ANG)	Overall Confidence Scale
Cynicism Scale (CYN)	
Antisocial Practices Scale (ASP)	
Type A Scale (TPA)	
Low Self-Esteem Scale (LSE)	
Social Discomfort Scale (SOD)	
Family Problems Scale (FAM)	
Work Interference Scale (WRK)	
Negative Treatment Indicators Scale (TRT)	
Validity Scales (listed in Instruments)	Validity Scale

It was predicted, building upon the prior research described above (Murray, 2000), that a structural model would adequately describe this predictive relationship. Evidence for this was shown by the resultant goodness of fit indices after the most optimal path parameters were determined. Further, this research was designed to investigate the usefulness of the Phase II Profile for pre-employment and promotion screening purposes, determining whether it might be

able to measure inappropriate employee traits using a much shorter inventory as compared with the MMPI-2.

In addition to the structural equation modeling technique described above, a hierarchical cluster analysis was performed to determine which profiles might emerge. This type of cluster analysis of the Phase II Profile scales produced the cluster structure (profiles) for 298 participants. It was predicted that the cluster structure (profiles) would coincide with the principal components analysis performed in Murray's (2000) validity study. Additionally, it was hypothesized that gender would not play a significant role in this analysis (Baltes, et. al., 1986).

Finally, it was hypothesized that the MMPI-2 L scale would not correlate with three test items taken from the Phase II Profile that specifically ask the dollar amounts the person has stolen in the past. It is believed that the MMPI-2 L (Lie) scale is more of a measure of how much a test taker is attempting to present him or her self in a positive light rather than a measure of direct deceit (Butcher, et. al., 1990). High MMPI-2 scores indicate increased levels of the person trying to present him or herself in a positive light.

Method

Subjects

A total of 298 participants were utilized in this study. The participants were undergraduate psychology students from the University of Rhode Island. This large sample size was selected for several reasons. Firstly, structural equation modeling is based on covariances, and like correlations, are less stable when estimated from small samples. Additionally, parameter estimates and chi-square

tests of fit are very sensitive to sample size. Assuming a medium effect size, twenty-five to thirty subjects per estimated parameter should be adequate to estimate goodness of fit between the model and the data (Boomsma, 1983; Tabachnick & Fidell, 1996).

Participants representing minority groups were in this study in an effort to be a more accurate sample of the general population. There was no exclusion of participation because of race, ethnicity or socio-economic background. The students self-described as being Asian, Black, Caucasian, Hispanic, or Other.

There was no financial compensation but participants did receive class credit towards their introductory psychology course requirements.

Instruments

The Minnesota Multiphasic Personality Inventory 2nd edition (Butcher et al., 1990; Butcher et al., 1989) was used in addition to the Phase II Profile Integrity Inventory (Lousig-Nont & Associates, 1982a,b,c). Each participant also completed a coded demographics questionnaire (see Appendices E-1, E-2). The following descriptions, of the scales that are derived from each instrument, have been taken from the testing literature that accompanies their respective testing package materials.

The Phase II Profile Integrity Inventory

The Phase II Profile Integrity Inventory is a pre-employment and promotion-screening device, used by many corporations. According to Lousig-Nont & Associates, (1994), the results of the Phase II Profile should never be used as the sole criteria for accepting or rejecting an applicant for employment. In fact, they

stipulate that the employer should never use any one criterion to make an employment decision, whether it is the employment application, the interview, the background check, the person's skills, or their "gut instinct". The Phase II is meant to be an additional measure of a person's suitability for employment/placement.

The Phase II is comprised of 117 items that are answered either True or False, and a maximum time of 25 minutes is allowed to complete this inventory. Adverse impact studies have given results that clearly indicate that the Phase II Profile does not have an adverse impact against any protected group. The Phase II Profile exceeds the Equal Employment Opportunity Commission's 80% rule, as established in 1966 (29 CFR 1607.4D (1978) (amended 1981)) (Lousig-Nont & Associates, 1994).

Scales found on the Phase II Profile are:

Validity Scale- There are 10 validity points on the inventory. If a person gets 8 correct, this would indicate that 80% of the time he was trying to answer the questions truthfully. If a person has a very low percentile, and a validity score of 6 or lower, it might indicate that they are not a good reader and they did not really understand the test. If this were the case, the Profile would be invalid.

Thinking Scale- Thinks about doing something dishonest. Higher scores indicate increased preponderance of committing dishonest acts.

Rationalization Scale- Rationalizes acts of dishonesty. Higher scores indicate more rationalization of dishonest acts.

Bad Attitudes Scale- Bad attitudes usually associated with dishonest individuals.

Increasing scores on this scale indicate higher levels of bad attitudes.

Minor Admissions Scale- Minor admissions of dishonesty. This scale reflects admissions that are relatively insignificant.

Major Admissions Scale- Major admissions of dishonesty. These are noteworthy admissions of dishonesty.

Good Attitudes Scale- These are attitudes generally associated with honest people. There are items in the Phase II that include 48 possible “good attitude” responses.

Confidence Scale- The confidence level indicates how confident the Inventory developer is that a person will be an honest employee. A confidence level of 26% is very low. There are times a person may be in a high overall percentile for integrity, for example the 92nd percentile, which is normally good, however they may have a low confidence score of a 26%. This could be an indication that the person tried to fool the Phase II Profile and may not have answered truthfully.

Caution should be exercised when a person has a low confidence score.

The MMPI-2

The MMPI and the MMPI-2 have been used in both clinical and work settings for assessing/screening test-takers. The Federal Government has used the MMPI and now the MMPI-2 extensively for screening employees who are eligible for working in sensitive environments. Conditions that tend to generate deviant patterns of self-report include several test-taking strategies that invalidate the MMPI-2. These patterns are described in the scales for Validity below. The following MMPI-2 Content scales are described in the form of ‘themes’ and have

become widely used as a valid and useful way of approaching patient problems within the clinical setting (Wiggins, 1966, 1969; Butcher, et. al, 1990). Please note that these descriptions and ‘themes’ are interpretations of the MMPI and the MMPI-2 inventory originators (Butcher, et. al, 1990).

MMPI-2 Validity Scales

Cannot Say (?) – The instructions to the MMPI-2 encourage the test taker to respond to all of the items. The great majority of the items in the inventory are written in such a way that either a true or false response to the item would be appropriate and relevant to anyone. When items are not endorsed (or both true and false are marked), particularly a large number of them, the scores on the test will likely be attenuated and result in an inadequate assessment. Some test takers who are insufficiently motivated to be evaluated may simply answer the items without attending to the content by simply marking answers in a particular pattern. For example, a test taker could mark the items on his answer sheet in the shape of his initials. For this reason it is good to examine the answer sheet before it is scored.

Variable Response Inconsistency Scale (VRIN) - The best way to obtain an appraisal of inconsistent responding is to determine whether the test taker has endorsed similar items in a consistent manner. Inconsistent responding to personality questionnaire items is relatively easy to detect if the inventory is long enough and has enough items of similar or opposite meaning. The MMPI-2 provides two scales for detecting inconsistent responding to the items. These are the VRIN and the TRIN scales. The VRIN is a good measure of random

responding on the MMPI-2 because it is made up of 67 pairs of items for which one or two out of four possible configurations represents inconsistent responses. For example, answering true to “I wake up fresh and rested most mornings” and true to “My sleep is fitful and disturbed” represents semantically inconsistent responding.

True Response Inconsistency Scale (TRIN) – This was developed to appraise the tendency that some people have to respond in an inconsistent manner to items that should be endorsed, to be consistent, in a particular way. TRIN is made up of 23 pairs of items to which the same response is semantically inconsistent. For example, answering the items “Most of the time I feel blue” and “I am happy most of the time” both true or both false is inconsistent.

Lie Scale (L) – Some people have difficulty disclosing personal information and tend to present themselves in an overly favorable light on personality scales. This scale is designed to detect an invalidating pattern where clients tend to exaggerate their virtues and lay claim to unrealistically higher moral standards than other people.

Defensiveness Scale (K) – Another, somewhat related aspect of presenting a good front on personality inventory items involves problem denial. In this response pattern, the test taker simply checked positive adjustment options and denied his or her problems. The test taker does not exaggerate virtues, but only denies his or her problems.

Superlative Self-Presentation Scale (S) – This is another measure of defensiveness. People who score high on this scale endorse few minor faults and

problems- considerably fewer than those who took the test in the MMPI-2 Restandardization Study. (High S responders are also associated with extreme endorsement of “self-control” in test takers by people who know them.

Infrequency Scale (F) – This invalidating condition has been referred to as faking, exaggerating, or malingering. This response pattern is commonly found in situations in which the test taker feels it is to his or her advantage to appear psychologically disturbed on the test. These test takers exaggerate their complaint pattern and tend to respond to too many of these extreme items in a pathological direction.

Infrequency-Back Scale (F(B)) – This scale uses similar items as found in the infrequency scale, but these are placed in the latter part of the test.

MMPI-2 Content Scales

Anxiety Scale (ANX) – This scale is comprised of items that center on feelings of tension and anxiety. High scorers on this general anxiety scale ($T > 65$) acknowledge that they experience symptoms of anxiety, including tension, somatic problems, sleep difficulties, worries, and poor concentration. High-scoring patients report a fear of losing their mind and having difficulties making decisions. They acknowledge that life is very difficult for them, and they find life a strain. They also seem to have insight into their problems; they are aware of the symptoms and problems they are experiencing and are willing to discuss them with others.

Fears Scale (FRS) – This scale contains items that focus on specific fears. A high score on FRS is obtained when the patient acknowledges many specific fears.

These specific fears can include such themes as blood, high places, money, snakes, mice, spiders, leaving home, fire, storms and natural disasters, water, the dark, being indoors, and dirt. A high score reflects an unrealistic number of fears or phobias.

Obsessiveness Scale (OBS) – This scale contains items that deal with indecisiveness and a preoccupation with obsessive thoughts. Patients who score high on the OBS have great difficulty making decisions. They are likely to ruminate excessively about unimportant things. They also are impatient with others. They have difficulty making changes in their behavior. They also acknowledge having some compulsive behaviors, such as counting or saving unimportant things. They tend to worry excessively to the point of feeling overwhelmed by their own thoughts.

Depression Scale (DEP) – This scale is comprised of item content reflecting depressed mood and suicidal ideation. Significant depressive thoughts, hopelessness, and suicidal thinking characterize patients who score high on DEP. They report feeling uncertain about their future and are uninterested in their lives. They are likely to brood, be unhappy, cry easily, and feel hopeless and empty. Very high scorers acknowledge suicide or wish that they were dead. They acknowledge that they feel as though they are condemned or may have committed unpardonable sins. They tend to feel that other people do not provide them with enough emotional support.

Health Concerns Scale (HEA) – The HEA contains items that deal with somatic complaints and health concerns. Individuals with high scores on the HWA scale

acknowledge many physical symptoms concerning several bodily systems, including gastro-intestinal symptoms (e.g., constipation, nausea and vomiting, stomach trouble), neurological problems (e.g., convulsions, dizziness and fainting spells, paralysis), sensory problems (e.g., poor hearing or eyesight), cardiovascular symptoms (e.g., heart or chest pains), skin problems, pain (e.g. headaches, neck pains), and respiratory troubles (e.g., coughs, hay fever or asthma). Patients who score high on HEA worry about their health and indicate that they feel sick a lot.

Bizarre Mentation Scale (BIZ) – The item content on this scale involves extreme psychotic symptoms. All of the items are symptoms of severe mental disorder. Psychotic thinking characterizes people who score high on this scale. These items suggest auditory, visual, or olfactory hallucinations. People who score high on this scale appear to be aware that their thoughts are strange and peculiar. Paranoid ideation (e.g., the belief that they are being plotted against or that someone is trying to poison them) is reported. People who score high on this set of items appear to feel that they have a special mission or power in life.

Anger Scale (ANG) – This scale contains items that reflect anger control problems. They center on loss of emotional control and hotheadedness. People who score high on this scale acknowledge anger control problems. They report being irritable, grouchy, impatient, hotheaded, annoyed, and stubborn; they acknowledge that they sometimes feel like swearing or smashing things. They tend to lose self-control and report personal incidences of physical abuse toward other people and objects.

Cynicism Scale (CYN) – The items on the CYN scale involve cynical beliefs and attitudes toward other people. People who score high on this scale endorse misanthropic beliefs about other people. They seem to expect that other people have hidden, negative motives behind what they do (e.g., they believe that most people are honest simply through fear of being caught). They think other people should not be trusted. They hold the view that other people use each other and are only friendly for selfish reasons. High scorers hold negative attitudes about people who are close to them, including fellow workers, family, and friends.

Antisocial Practices Scale (ASP) – The items on this scale are blatant antisocial attitudes and behaviors. High scorers on this scale hold similar misanthropic attitudes as high scorers on CYN, but in addition, they acknowledge problem behaviors during their school years and other antisocial practices, such as being in trouble with the law, stealing, or shoplifting. High scorers indicate that they sometimes enjoy the antics of criminals and like to see “clever crooks” get away with crimes. They tend to believe that it is appropriate to get around the law as long as it is not broken.

Type A Scale (TPA) – This scale is comprised of items to assess the pattern of behavior that includes hostility, driven behavior, and compulsive schedule orientation. People who score high on this scale tend to be hard driving, fast-moving, and work-oriented individuals, who frequently become impatient, irritable, and annoyed. It bothers them to have to wait or be interrupted at a task. There is never enough time in a day for them to complete the tasks they have planned. They tend to be very direct in interpersonal situations and are likely to

be overbearing in their relationships with others.

Low Self-Esteem Scale (LSE) – This scale is made up of items that reflect negative self-views and strong feelings of inadequacy. People who score high on LSE present themselves as having low opinions of their self. They are not well liked by others and feel unimportant. They hold many negative attitudes about themselves, including perceptions that they are unattractive, awkward, clumsy, and useless. They often feel as though they are a burden to others and lack self-confidence. They find it hard to accept compliments from others and, at times, feel overwhelmed by all the faults they see in themselves.

Social Discomfort Scale (SOD) – This scale was designed to assess personality characteristics related to the experience of social discomfort and distress. People who score high on this scale are very uneasy around others. They prefer to be by themselves; when they are in social situations, they are likely to sit alone and avoid joining in a group. They tend to see themselves as shy and dislike parties and social events.

Family Problems Scale (FAM) – The items on this scale focus on family and relationship problems. Those who score high on this scale report substantial family discord. Their families are described as lacking in love, quarrelsome, and unpleasant to be around. Some items on this scale reflect hatred for other family members. High scorers on FAM tend to portray their childhood as having been abusive and their marriages as being unhappy and lacking in affection.

Work Interference Scale (WRK) – The items on this scale focus on negative attitudes toward being able to work effectively. Those scoring high on the WRK

endorse behaviors or attitudes that are likely to contribute to poor work performance. Some of the problems relate to low self-confidence, concentration difficulties, obsessiveness, tension and pressure, and decision-making problems. Others suggest lack of family support for their career choice, personal questioning of their career choice, and negative attitudes toward co-workers.

Negative Treatment Indicators Scale (TRT) – The items on the TRT are focused on negative views toward being able to change one's behavior and attitudes toward mental health treatment. Persons who score high on TRT have negative attitudes toward doctors and mental health treatment. They tend to believe that no one can understand their problems or help them; they have problems that they are not comfortable discussing with anyone. They may not want to change anything in their lives, nor do they feel that change is even possible. They acknowledge that they would rather give up than face a crisis or difficulty.

Procedures

The subjects volunteered for participation by signing up for the experiment on posted schedules. IRB ID No. H9900-062 action report indicates the approval for the original study for the protection of human subjects. In this study each participant in every group was handed an informed consent sheet (see Appendix F) upon sitting at a desk. After hearing the informed consent sheet read aloud each participant signed the informed consent form. Signing the consent form indicated the participants' willingness to participate in this study. Thereafter the investigator collected all signed informed consent forms and explained to the participants that the signed consent forms are kept separate from all other

materials, ensuring complete anonymity.

The participants then completed the coded demographics questionnaire and upon completing this task, completed the two tests, having a break of three to seven minutes between tests. Test presentation order was counter-balanced to avoid order effects (see Table 2), although sample size and power concerns precluded the possibility of analyzing the data for any possible order effects. No such effects were expected. However, it was felt that counterbalancing the order of the measures provided a reasonable precaution. Approximate time to complete all measures, questionnaire, and reading and signing the informed consent sheet was two hours. This included the time for a break between tests. Upon completion of all tests the debriefing was read aloud. Each participant was then given a debriefing sheet, which describes the nature of this study and gives a phone number to call for final study results, if so desired (see Appendix G). To ensure that all participants received credit for participating, each person was given a copy of the informed consent sheet with the investigator's signature. All trials took place in a University of Rhode Island Social Sciences classroom.

Table 2.

Presentation Order of Instruments

Presentation Order 1	Presentation Order 2
Demographic Questionnaire	Demographic Questionnaire
Phase II Profile MMPI-2	MMPI-2 Phase II Profile

Informed Consent

Informed consent was obtained before any subject participated in the study. Upon the start of a testing session, each participant was given a consent form (see Appendix F). A participant's signature on the consent form indicates the person's willingness to participate in the study. All consent forms were collected and will remain separate from the testing measures to ensure confidentiality and anonymity. No consent forms were coded.

Data Analysis

Each test was scored using scoring software (Phase II Profile), and by using a scoring template (MMPI-2). A preliminary measurement model analysis was conducted to assess the adequacy of the proposed model. The procedure for using a preliminary measurement model is simple. Once the correlations between all of the scales are determined, the researcher selects the variables that are both most significantly related that adhere to a theoretical construct. This measurement model is a tool whereby the researcher can assess the relationships between all the variables of interest within a context. These variables are the Anti-social Practices, the Cynicism, the Work Interference, the Family Discord, and the Negative Treatment Indicator scales from the MMPI-2. The variables from the Phase II Profile Integrity Inventory are the Good Attitudes, Minor Admissions, Rationalization, and Thinking scales. The preliminary model is shown in Figure 1 below.

EQS (Multivariate Software, Inc., 1995) for the personal computer was

utilized in the Confirmatory Factory Analysis portion of the data analyses. Then a structural model, as shown in Figure 2, was used to examine the hypothesized relationships among the constructs under study. The MMPI-2 scales include the Cynicism, Work Interference, Family Discord and Negative Treatment Indicator

Figure 1. Preliminary Measurement Model

Legend:

- 1 Anti-social practices Scale
- 2 Cynicism Scale
- 3 Work Interference Scale
- 4 Family Discord Scale
- 5 Negative Treatment Indicator Scale
- 6 Good Attitudes Scale
- 7 Minor Admissions Scale
- 8 Rationalization Scale
- 9 Thinking Scale

Scales. The Phase II Profile Integrity Inventory scales include the Good Attitudes, Minor Admissions, Rationalization, Thinking, and Confidence scales. These scales were selected for this present study because of the resulting

Figure 2. The Structural Model

Legend:

- 1 Anti-social practices Scale
- 2 Cynicism Scale
- 3 Work Interference Scale
- 4 Family Discord Scale
- 5 Negative Treatment Indicator Scale
- 6 Good Attitudes Scale
- 7 Minor Admissions Scale
- 8 Rationalization Scale
- 9 Thinking Scale
- 10 Confidence Scale

significant correlations originally found between MMPI-2 scales and Phase II Profile scales (Murray, 2000) (Appendices A-1, A-2), together with the results of the of the principal components analysis of the Phase II Profile scales (Appendix C). Please note that the Phase II Profile Bad Attitudes scales was not included in this present study. This is due in part to the fact that the Bad Attitudes scale was significantly correlated with many of the content scales on the MMPI-2. It was decided to leave this variable out of the model due to its overlapping variance with many other variables, since the resulting multicollinearity would result in statistical difficulties and a poorly specified model (Tabachnick & Fidell, 1996).

The results of the confirmatory factor analysis were used to determine the factor loadings and measurement errors. The estimation of this model using the results of this study included the analysis of the goodness of fit. Model fit was assessed with a variety of indices selected to represent different conceptual approaches, including χ^2 (Chi-square), χ^2/df (the normalized Chi-square or the Chi-square divided by the degrees of freedom), the Comparative Fit Index (CFI), and the Root Mean Square Error of Approximation (RMSEA). All of these indicators have been shown to be accurate, robust, and reasonably unbiased estimators of model fit under a variety of circumstances except for χ^2 (Anderson & Gerbing, 1984; Bentler, 1990; Steiger, 1990). χ^2 was reported since it frequently serves as the basis for computing many other goodness-of-fit indices. Reporting a wide range of fit indices protects against the possibility of sampling error and model misspecification (Marsh, Balla, & McDonald, 1988).

Results

Demographic information was collected for all participants and is shown in table 3 along with the sample population descriptive statistics.

Table 3.

Sample Demographics					
Variables		N	Mean	SD	Range
Age (years)		298	19.4	3.6	18–49
Time in mangement (months)		49	20.0	20.1	
Variables		N	%		
Gender	Females	219	73.5		
	Males	79	26.5		
Ethnicity	Asian	8	2.6		
	Black	10	3.3		
	Caucasian	266	87.8		
	Hispanic	8	2.6		
	Other	6	2.0		

Structural Equation Modeling using EQS

This study assessed the factorial validity of the Phase II Profile Integrity Inventory. Initially, using a subset of the participants' scores (N= 198), a model

was built that would describe the MMPI-2's ability to predict outcomes on the Phase II Profile subscales. Confirmatory factor analysis was then used ($N = 298$) to evaluate the 2-factor model that was derived from the exploratory factor analysis of the Phase II Profile subscale totals. Descriptive statistics of the scales scores used in the structural model (Figure 2), using the entire dataset is shown in Table 4.

Table 4.

Construct Variables: Descriptive Statistics

Scale	Min	Max	Mean	SD	Skewness*	Kurtosis**
1	33	85	57.37	10.50	0.395	-.211
2	32	80	55.15	9.33	0.416	-.537
3	31	88	55.36	11.39	0.438	-.011
4	32	85	52.87	11.12	0.364	-.535
5	35	97	54.37	12.10	0.727	.461
6	8	41	23.13	7.10	-.009	-.779
7	0	4	.75	0.89	1.062	.621
8	0	14	6.36	2.46	0.116	-.069
9	0	10	2.43	2.39	0.847	-.212
10	1	86	25.88	13.76	1.257	2.051

Notes:

N=298, *Std. Error = .141, **Std. Error = .281

Legend:

MMPI-2 Scales

- 1 Anti-social Practices Scale
- 2 Cynicism Scale
- 3 Work Interference Scale
- 4 Family Discord Scale
- 5 Negative Treatment Indicator Scale

PIIP Inventory Scales

- 6 Good Attitudes Scale
- 7 Minor Admissions Scale
- 8 Rationalization Scale
- 9 Thinking Scale
- 10 Confidence Scale

As a result of the measurement development and model fitting procedures, not all of the subscales were retained in the final structural equation model. It was found that the MMPI-2's Family Discord and Negative Treatment Indicator Scales, as well as the PIIP Good Attitudes and Minor Admissions Scales did not statistically contribute to the final model. The PIIP Confidence Scale is actually a composite of several of the PIIP subscales so it was taken out of the model as a separate construct so as to avoid singularity problems (Tabachnik & Fidell, 1996). A better 2-factor model fitting these data was derived and is depicted in the EQS results diagram shown in Figure 3. Table 5 depicts the standardized covariance matrix (from a subset of the data) used in deriving the structural model to be tested (N=198).

Table 5.

PIIP and MMPI-2 Covariance Matrix *						
MMPI-2 & PIIP Scales	1	2	3	4	5	6
1. ASP	1.					
2. CYN	.679	1.				
3. WRK	.420	.477	1.			
4. Major Admissions	.568	.279	.255	1.		
5. Rational- ization	.322	.296	.203	.407	1.	
6. Thinking	.532	.330	.293	.726	.402	1.

N=198

*used to build structural model

Table 6 depicts the standardized covariance matrix used in calculating the factor loadings for the entire data set (N=298). Within the modeling paradigm, an initial subset of the entire data was used to derive the structural model. Subsequent to this analysis the entire data set was analyzed and then tested, which provides the goodness of fit indices that describe the accuracy of the structural model derived in the first place.

Table 6.

PIIP and MMPI-2 Covariance Matrix *

MMPI-2 &
PIIP Scales

	1	2	3	4	5	6
1. ASP	1.					
2. CYN	.680	1.				
3. WRK	.476	.546	1.			
4. Major Admissions	.567	.283	.269	1.		
5. Rational- ization	.364	.318	.243	.430	1.	
6. Thinking	.527	.321	.300	.749	.431	1.

N=298

*used to run Confirmatory Factor Analysis on EQS

As shown in the model (Figure 3), the Anti-Social Practices, Cynicism, and Work Interference scales loaded highly on the MMPI-2 latent variable and the Major Admissions, Rationalization, and Thinking scales loaded highly on the Phase II Profile latent variable. The error terms associated with each scale for both constructs are found in the circles. The figure further indicates that the MMPI-2 construct significantly predicts the Phase II Profile construct, $\beta = 0.42$, $p < .05$. The proportion of variance accounted for in the Phase II Profile latent variable was substantial ($R^2 = .40$). The EQS results with factor loadings is shown in Figure 3, below.

Figure 3. EQS results with factor loadings.

* $p < .05$

Legend:

V1 Anti-Social Practices
V2 Cynicism
V3 Work Interference

V4 Major Admissions
V5 Rationalization
V6 Thinking

Goodness of Fit Indices

The confirmatory factor analysis provides support for the validity of the 3

MMPI-2 scales as predictors of performance on the Phase II Profile Inventory. These are the Anti-social Practices, Cynicism, and Work Interference Scales. Goodness of fit measures that were used to assess the fit of the model to the entire dataset included Chi-square $\chi^2(8) = 3.17$ ($p = .92$), Chi-square divided by the degrees of freedom ($\chi^2/df = 0.396$), Comparative Fit Index (CFI = .99), and Root Mean Square Error of Approximation (RMSEA < .01). The Chi-square value is relative to 8 degrees of freedom and indicates that the observed and estimated data matrices do not differ. The Comparative Fit Index measures the improvement in the model's noncentrality parameter when the proposed model is fit to the data. An excellent improvement in the model's noncentrality parameter is depicted by a CFI value that is .90 or greater. Finally, the Root Mean Square Error of Approximation indicates a good model fit, having a value less than .05.

In an effort to further describe how the two measures contribute to the confidence/integrity score presented by the PIIP, a composite of the MMPI-2 scale scores and a composite of the PIIP scale scores were reduced to high/low scores and then analyzed. That is, the Anti-social practices, Cynicism, and Work Interference scales were added and then averaged for each participant to establish a mean score. These mean scores were regrouped into either high or low score groups using the median as the splitting point between groups. This same procedure was completed for the PIIP scale scores, using the Major Admissions, Rationalization, and Thinking scales. Median splits were employed to maximize the number of individuals in the groups so as to prevent low statistical power from too small sample sizes.

A 2 X 2 analysis of variance (ANOVA) was implemented using group status (high/low) on the MMPI-2 and group status (high/low) on the PIIP as the independent variables and the PIIP Confidence scale score as the dependent variable. Results of this analysis of variance are shown in Table 7.

Table 7.

Analysis of Variance For Confidence Scores					
Source	Sum of Squares	df	Mean Square	F	Sig.
MMPI-2					
Status (M)	1295.42	1	1295.42	7.89	.005
PIIP					
Status (P)	1802.73	1	1802.73	10.98	.001
M X P	636.21	1	636.21	3.88	.050
Error	48276.10	294	164.20		
Total	52010.446	297			

The results from the 2-way analysis of variance indicate that there are significant differences in the Confidence scale scores when comparing group status from the Phase II Profile Integrity Inventory with the group status from the MMPI-2. Main effects for the MMPI-2 Status and PIIP Status were found as well as an interaction between the two status group levels. The main effect for MMPI-2 status was significant, $F(1, 294) = 7.89, p < .01, \eta^2 = .025$. The mean Confidence scale score was 29.62 ($SD = 15.46$) for the low MMPI-2 group and 20.56 ($SD = 8.45$) for the high MMPI-2 group. The main effect for PIIP status

was also significant, $F(1, 294) = 10.98, p < .001, \eta^2 = .035$. The mean Confidence scale score was 27.78 ($SD = 14.81$) for the low PIIP group and 19.46 ($SD = 5.94$) for the high PIIP group. The interaction of the two main effects was also significant, $F(1, 294) = 3.88, p = .05, \eta^2 = .012$. Means for all groups, illustrating the interaction, are shown in Figure 4.

Figure 4. Phase II Profile Confidence Scores by MMPI-2 and PIIP High/Low Status

Hierarchical Cluster Analysis

This type of cluster analysis of the Phase II Profile scales produced the cluster structure (profiles) for all cases collected for the final study (N=298). It was predicted that the cluster structure (profiles) would coincide with the

** H I E R A R C H I C A L C L U S T E R A N A L Y S I S **

Dendrogram using Complete Linkage

Figure 5. The Hierarchical Cluster Analysis Depicting the Structure of the Phase II Profile Scales Across All Students ($N = 298$) principal components analysis that was previously performed (Murray, 2000) (see Appendix C). As predicted, the cluster structures do coincide with the principal components analysis groupings as can be seen in Figure 5.

Figure 5 presents the clustering structure derived from an across-samples covariance matrix. A standardization option was used that transformed the scores by variable to Z-scores before using the furthest neighbor cluster method. The

Squared Euclidean distance was calculated for determining the distance between previously evaluated scores to the new variable scores under analysis. This empirical structure (which depicts three clusters) provides strong support for the original components analysis because it is highly similar to the outcome of the principal components analysis shown in Appendix C. The Cluster of the Major Admissions, Inconsistent Attitudes, Thinking, Bad Attitudes, and Rationalization scales are visually evident in Appendix C as well as in the Figure 4 above. Next there is the cluster of the Good Attitudes, and Confidence scales, clearly shown in the Appendix C plot and above in the hierarchical cluster analysis result Figure 4. Lastly, the Minor Admissions scale is off by itself as shown in the principal components analysis plot as well as in the Figure 5, which shows the results of the hierarchical cluster analysis.

Gender Differences

The hypothesis that gender would not play a role in this study was not supported; gender differences were indeed found. A one-sample 2-tailed t-test was performed comparing overall confidence scale scores by gender, yielding significant differences $t(296) = 3.964, p < .001, \eta^2 = .050$ as shown in Tables 8 and 9 below. Confidence scale scores were lower for men than for women.

Table 8.

One-Sample Statistics by Gender				
Gender	<i>N</i>	Mean	Std. Dev.	Std. Error Mean
FEMALE	219	27.74	14.32	0.968
MALE	79	20.75	10.57	1.190

Although this difference is statistically significant this must be interpreted cautiously because the η^2 value is only .05, that is, the amount of variance in Confidence scale scores accounted for by gender alone is only 5%.

Table 9.

One-Sample 2-Tailed t-test by Gender						
Gender	<i>t</i>	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
FEMALE	28.67	218	.001	27.74	25.83	29.64
MALE	17.44	78	.001	20.75	18.38	23.16

MMPI-2 L Scale

It was hypothesized that the MMPI-2 'L' or "Lie" scale would not correlate significantly with three test items taken from the Phase II Profile that specifically

ask the dollar amounts the person has stolen in the past. This hypothesis was supported. The test items and corresponding correlation coefficients are: 1) Most expensive thing that you have taken from a store, $r = .110$, $p = .057$, $N = 298$; 2) Total dollar value of merchandise that you have stolen from work, $r = .098$, $p = .092$, $N = 298$; and 3) Total cash stolen from all workplaces, $r = .042$, $p = .469$, $N = 298$.

Discussion

The present study used structural equation modeling and hierarchical cluster analysis to examine the underlying relationships of constructs measured by the Phase II Profile Integrity Inventory and the Minnesota Multi-phasic Personality Inventory, 2nd edition. To assess the predictive power of the MMPI-2 for outcomes on the Confidence scale derived from the Phase II Profile, the structure of the collected data was modeled and tested using the EQS software package for determining data structures and model goodness of fit through statistical analyses. The structures of the patterns of scores on the Phase II Profile and the MMPI-2 were compatible with the hypothesized structure model that described the predictive nature of the MMPI-2 to predict outcomes on the Phase II. Minimal adjustment of how the individual constructs (measured by the scales) related to others was needed to derive a model having the best fit to the data.

Results from this study that investigated how the MMPI-2 adequately predicts outcomes on the Phase II Profile may seem unimportant on the surface but this does indeed have strong implications. Although these data were collected on college students, further study replicating these results using employees would provide stronger evidence that the Phase II Profile is a useful screening tool. Many employers may benefit from this screening tool by utilizing its ability to capture certain applicant traits (again, as measured by both personality inventories). It may be that employers have differing screening needs and while one employer may want a full clinical picture of the applicant another may want to focus on only a partial picture of the applicant. The Phase II Profile Integrity

Inventory does just that in 117 questions.

In clinical settings testing is the unique function of the psychologist. Psychotherapy is often performed by psychiatrists, social workers, nurses, and even untrained volunteers. It is the psychologists, however, who administer and evaluate the results of psychological tests. Thus, training in psychological testing is one of the psychologist's most distinguishing hallmarks. In industrial/work settings it is, most often times, a trained psychologist who administers pre-employment tests to better match the candidate with a position within the workplace. But for those instances where a company does not have a qualified psychologist available for administering an employment test (that is primarily used for clinical purposes) it seems more appropriate for the human resource specialist to use a non-clinically oriented test. Therefore, the Phase II Profile may be a viable addition to the set of tools that a professional may choose to use while working in a human resource department.

Another finding of interest is that the MMPI-2's 'L' scale was not significantly related to the amount of money the test taker had reported to steal. This affirms the definition of what the L scale is intended to measure on the MMPI-2, that is, that the L scale is more of a measure of one's effort to appear more positively rather than being an indicator of dishonesty and theft.

The statistical nature of the original components analysis was explored in this study by comparing it with a hierarchical cluster analysis. This comparison was made in this study to better understand the relationships between the scales of the Phase II Profile Integrity Inventory. The clustering structure was built from

an across-sample covariance matrix, which is presented in Figure 4. The pattern of hierarchical clusters was then compared with the pattern of components groupings from the principal components analysis that was performed using a data subset of the inventory results from the 298 participants. These two separate statistical techniques yielded very similar grouping patterns, showing the relative salience of the relationships between constructs as measured by the Phase II Profile.

One unexpected outcome was the statistically significant gender differences found in the Phase II Profile confidence scale scores. The confidence scale score is the numerical value that most employers will go to first when evaluating the results of the inventory. As shown in Tables 5 and 6, males scored significantly lower on this scale compared to females. While this is true and the significance was detected using a large sample size of participants, the effect size was relatively small where $\eta^2 = .05$ or 5% of the variance could be attributed to gender. Also to note is the large discrepancy of sample sizes for females ($n = 219$) and males ($n = 79$).

The confidence scale reflects the test-makers' confidence in the applicants' level of integrity or honesty on the job. One may want to explain this gender difference outcome in terms of work-related roles and how generally speaking, certain work positions are traditionally held by males while others have been traditionally held by females (Thoma & Rest, 1999; Bates, et. al, 1986). Further breakdown of a statistical analysis of the profiles by gender were not obtained in this study, but would prove interesting to include in future research.

Future research may look into gender differences on employment screening inventories, particularly within this age group of college students. The Adverse Impact Studies report issued by Lousig-Nont & Associates, addressed the utility of the Phase II Profile Integrity Inventory. This report demonstrated through a statistical study the Phase II Profile complies with the Equal Employment Opportunity Commissions Guidelines on employee selection. Unfortunately, the criterion for their investigation was a cutoff age of less than 40 years and over 40 years (Lousig-Nont & Associates, 1994). Their Impact Studies did not include separately the age group represented in this current study.

Many personality inventories have been developed and used for clinical assessment purposes as well as pre-employment screening devices. Examples include the Woodworth Personal Data Sheet, the Rorschach Inkblot Test, the Thematic Apperception Test (TAT), the California Psychological Inventory (CPI), the Sixteen Personality Factor Questionnaire (16PF), and the Minnesota Multiphasic Personality Inventory (MMPI, MMPI-2) (Kaplan & Saccuzzo, 1993). One reason why pre-employment screening tests are so readily available and used today is due to the dramatic increase in businesses' internal theft. What is important to keep in mind is that as this need for measures of honesty, integrity, conscientiousness, dependability, trustworthiness, and reliability for personnel selection increases, the need for scientific studies that provide evidence of their validity will also increase.

As paper and pencil tests are being sold, utilized and validated for use in the pre-employment and human resource development arena, researchers should

continue to emphasize who should be given these screening inventories in the first place. What researchers should do is evaluate the tools that currently exist for the human resource specialist to use and attempt to increase the quality of what they are supposed to measure, whether it is a pre-disposition towards negative attitudes, or even the rationalization of low-integrity acts (theft from the workplace). The optimal path would be to research and develop testing tools that are appropriate for particular age groups targeted for working in particular work settings. These settings could include working with highly sensitive information, sensitive novel technologies as well as expensive micro-sized equipment that may be easily stolen in the work environment.

Limitations

This research was carried out in a New England state university utilizing the undergraduate introduction to psychology participant pool. One must keep in mind that the participants were included as a convenience sample population that probably does not equate to the target population for use of the Phase II Profile Integrity Inventory. This is indicative of the distribution of ethnicities that are represented. First year undergraduates, who may have limited employment experience and the maturity that comes with that experience, mainly attend this introductory psychology course. The demographics that were collected for this college sample did not include the amount of time each participant actually held employment. Regarding the participants' time in employment, the data collected represented only the time spent in a management position (See demographic questionnaire Appendices E-1, E-2), which is more appropriate for an older

applicant. The Phase II Profile Integrity Inventory asks each applicant for his or her time spent in management positions, not the total time previously employed. While the Phase II Profile requests this management history information, the scoring software does not use this data when calculating the scale values. This is definitely an area for further study as it relates to the outcomes on the Phase II Profile Integrity Inventory.

Perhaps future studies examining the Phase II Profile Integrity Inventory will use a community sample. An optimal and more appropriate population sample would include diverse age groups, a group having a much wider range of past employment history, different categories of positions held, as well as different employment settings.

Appendix A-1

PIIP and MMPI-2 Correlations

N=198	MMPI-2 Scales				
	K	Anx	Obs	Dep	Biz
<u>PIIP Scales</u>					
Validity					
Thinking					
Rational- ization					
Bad Attitudes	-.369**	.311**	.329**	.313**	.344**
Good Attitudes					
Major Admissions					
Minor Admissions					
Total Score	.300**				
Cautions/ Inconsistent Attitudes					
Confidence			-.323**		-.344**

** $p < .01$

Appendix A-2

PIIP and MMPI-2 Correlations

<u>N=198</u>	<u>MMPI-2</u>					
<u>Scales</u>						
	<u>Ang</u>	<u>Cyn</u>	<u>Asp</u>	<u>Fam</u>	<u>Wrk</u>	<u>Trt</u>
<u>PIIP Scales</u>						
Validity						
Thinking			.532**			
Rational- ization			.322**			
Bad Attitudes	.314**	.445**	.544**	.404**	.338**	.331**
Good Attitudes			-.517**			
Major Admissions			.568**			
Minor Admissions						
Total Score	-.307**	-.343**	-.603**	-.307**		
Cautions/ Inconsistent Attitudes		.335**	.563**	.339**		
Confidence	-.332**	-.341**	-.436**			

** $p < .01$

Appendix B

Model Summary N=198

	R	R Square	Adj. R Square	Std. Error of the Estimate	Change Statistics				
Model					R Square Change	FChange	df1	df2	Sig.F Change
1	.582	.338	.335	10.17	.338	100.184	1	196	.000
2	.674	.455	.449	9.26	.116	41.610	1	195	.000
3	.707	.500	.492	8.89	.045	17.509	1	194	.000
4	.726	.527	.517	8.67	.027	10.992	1	193	.001

a Predictors: (Constant), GOODATTI

b Predictors: (Constant), GOODATTI, MINORADM

c Predictors: (Constant), GOODATTI, MINORADM, RATIONAL

d Predictors: (Constant), GOODATTI, MINORADM, RATIONAL, THINKS

Appendix C

Appendix D

PCA Loadings

Rotated Component Matrix

	Component 1	Component 2
Inconsistent Attitudes	.980	- .044
Major Admissions	.899	- .029
Bad Attitudes	.875	.049
Good Attitudes	-.887	-.232
Thinks	.835	- .086
Rationalization	.637	.018
Minor Admissions	- .015	.992

Extraction Method: Principal Components Analysis. Rotation Method: Varimax with Kaiser Normalization.

Appendix E-1

(for Phase II presented first, then MMPI-2)

This study will investigate how two different tests are similarly constructed. This is completely anonymous, so please do not write in either handbook. For this first test, please answer the following questions, then proceed to question 1 of the blue hand book. You will answer questions 1 through 117. After you have answered all questions on the first test, please write down the time down below, then turn over your answer sheet and blue handbook. After a short break, you will then proceed to question 1 of the next handbook. Do not spend too much time on any one question. Do not change any of your answers. You are to answer every question honestly.

Thank you for participating!

Circle:

Sex: M F

Age: _____ years

management experience? _____ years

Race: White

Black

Hispanic

Asian

Other

What time is it at finishing? _____:_____

Appendix E-2

(for MMPI-2 presented first, then Phase II Profile)

This study will investigate how two different tests are similarly constructed. This is completely anonymous, so please do not write in either handbook. For this first test, please answer the following questions. After you have answered all the questions on the first test turn over your answer sheet and test booklet. After a short break, you will then proceed to question 1 of the blue handbook. You will answer questions 1 through 117. Do not spend too much time on any one question. Do not change any of your answers. You are to answer every question honestly. Please write down the time when you have finished with the second test.

Thank you for participating!

Circle:

Sex: M F

Age: _____ years

management experience? _____ years

Race: White

Black

Hispanic

Asian

Other

What time is it at finishing? _____:_____

Appendix F

The University of Rhode Island
Department of Psychology
Flagg Road, Chafee Building
Kingstown, RI 02881

CONSENT FORM TEST CONSTRUCT VALIDATION

Thank you for participating in this study of test construct validation conducted by Dr. Rossi and Lynee Murray, University of Rhode Island. You have volunteered to become a possible participant in this study in order to fulfill your required research credit hours for General Psychology. Only persons 18 years of age and older are eligible to participate, if you are not 18 years or older, you may not participate.

If you decide to participate, you will be asked to complete two inventories designed to measure personality traits. Because of the testing situation, you may feel some minor feelings of anxiety or stress. Possible benefits to you include the knowledge that you participated in a study which aims to increase the knowledge of test construction, and the partial fulfillment of the experimental participation requirement called for by your Psychology 113 course. We cannot guarantee, however, that you will receive any benefits other than research credit from this study.

All information that is obtained from this study will be coded and will have no personal information that would be capable of individually identifying you. If you give us your permission by signing this document, we plan to report the results of this study in professional psychology journals. At no time will your identity be revealed.

You will be receiving 20 points for your participation. If you have any questions regarding your rights as a human subject and participant in this study, you may contact the office of the Vice Provost for Graduate Studies, Research and Outreach, 70 Lower College Road, Suite 2, University of Rhode Island, Kingstown, Rhode Island, telephone: (401) 874-2635.

If you have any questions, please ask us. If you have any additional questions later, Dr. Rossi can be reached at (401) 874-5983, and will be happy to answer them. You will be given a copy of this form to keep.

YOU ARE MAKING A DECISION WHETHER OR NOT TO PARTICIPATE. YOUR SIGNATURE INDICATES THAT YOU HAVE DECIDED TO PARTICIPATE, HAVING READ THE INFORMATION ABOVE.

Signature & Date

Signature of Investigator

Appendix G

Debriefing

Thank you for participating in our study of Test Construct Validation. This study attempts to explain how two different tests are similarly constructed. Should you want a copy of the findings from this study you may call Dr. Rossi at (401) 874-5983.

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