THE PREDICTIVE VALIDITY OF SUBTLE AND OBVIOUS EMPIRICALLY DERIVED PSYCHOLOGICAL TEST ITEMS UNDER FAKING CONDITIONS

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INTRODUCTION

In considering the attempts to construct valid and effective psychological tests, it is apparent that controversy has existed for many years between proponents of two differing test construction strategies. Advocates of the empirical approach emphasize the importance of the predictive utility of a given measure over and above that of internal homogeneity and the interpretability of content into some existing theoretical framework (Gough, 1968). The single most essential consideration is the empirical discrimination of the test items as the responses of subjects are compared to those of criterion groups. Additionally, scoring does not assume that a valid self-rating has been given (Meehl, 1945). A number of very popular tests, such as the Minnesota Multiphasic Personality Inventory (MMPI) and the California Psychological Inventory (CPI) were developed by way of the empirical strategy.

Contrastingly, proponents of what has been termed the intuitive-internal approach generally begin with a careful conceptual analysis of a personality construct (based on some existing theory). The procedure for item selection emphasizes intrascale, inter-item homogeneity and suppression of response style biases. Here, the empirical approach is criticized for item overlap, heterogeneity within a given scale, and a general lack of theoretical interpretability (Jackson, 1971). However,

the theoretical elegance of the intuitive-internal approach has often taken precedence over concern for empirical correlates (Gynther & Gynther, 1976).

Following from this argument over general test construction approach, another controversy, that of the relative merit of subtle versus obvious (face-valid) test items, has been debated. Inherent in the empirically derived inventories are items in which the trait or type of pathology being measured is not readily discernible by any logical or intuitive examination of the item. These test questions are a product of the very nature of the empirical derivation approach. A number of investigators have concluded that these subtle items are of little or no value and illustrate a major source of error despite their empirical derivation. Duff (1965) has reported an inverse relationship between degree of item subtlety and item discriminating power. Others conclude that only items possessing very strong face validity have held up in cross-validation studies (Goldberg & Slovic, 1967) and even that subtle items are actually indicators of healthy adjustment and are thus inappropriately scored for pathology (Wales & Seeman, 1969). On the other hand, by the very nature of their subtlety, subtle items have been considered by some to represent a major advantage of the empirical approach (Meehl, 1945). Berg (1955) states that face-valid content is wholly unimportant as a source of variance in personality scales.

A recent study was designed to assess the relative contributions of subtle and obvious item endorsement in the prediction of a relevant criterion (Gynther, Burkhart, & Hovanitz, 1979). The Minnesota Multiphasic Personality Inventory (MMPI) Pd scale was divided into subtle, obvious, and neutral subscales, and scores on these subscales

were compared with the results of a noncomformity questionnaire. Obvious items were shown to be the most powerful criterion predictor; however, the subtle subscale was demonstrated to make a smaller, yet unique, contribution to the prediction.

The above results are interesting in that not only were subtle test items shown to represent a distinct contribution in themselves, but also the relative degrees of contribution were estimated for subtle and obvious, as well as neutral, items. Given that subjects were "honest" test takers, the question arises as to the relative contribution of subtle versus obvious items under various conditions wherein subjects are faking. It has been demonstrated that subtle items are more resistant to faking than are the obvious (Burkhart, Christian, & Gynther, 1978). However, the relative contributions of subtle versus obvious items as they relate to a relevant criterion measure have yet to be conclusively investigated under faking conditions.

A previous effort attempted to make such an assessment, employing the MMPI Pd scale and a behavioral criterion (Worthington, 1983). However, relationships between the criterion and both the subtle and obvious subscales were generally insignificant under control, as well as faking conditions. Findings regarding the predictive merits of subtle versus obvious items were considered inconclusive, given that relationships between the Pd subscales and the criterion generally lacked significance under control conditions. A further, more extensive investigation is therefore indicated in the pursuit of a more clear resolution of these issues. The present study attempts to gain insight into the relative merit of subtle versus obvious test items under faking circumstances; however, it is the utility of the empirical

test construction strategy which is ultimately at issue.

Literature Review

In considering the empirical test construction approach, it is Meehl's (1945) essay which represents perhaps the earliest comprehensive paper both explaining and espousing the merits of this strategy. Written during the time in which the MMPI was being developed, the article is most critical of any more intuitive approach on the ground of susceptibility to distortion. The empirical approach is presented as the only truly scientific method of construction, with the empirical discrimination of items considered to be the sole criterion for their inclusion.

Interest in the subtle dimension of the empirical approach was also expressed during this era (Meehl & Hathaway, 1946). An early distinction made between subtle and obvious test items involved distinguishing between what were known as "X" and "O" items. First applied to the MMPI Hy scale, "O" ("zero") statements were those which were endorsed in a given direction by a majority of normals, but scored in the direction of pathology on the basis that a greater majority of the hospitalized populations so responded. Thus endorsement by a subject in the same direction (either true or false) as most "normals" would have the result of augmenting his or her score toward pathology. It can be reasoned that across a number of these items the individual consistently responding in this manner does show a pattern somewhat more indicative of the typical hospitalized patient. "X" items, on the other hand, simply discriminated patients from normals on the basis of opposite response patterns, and were considered to be more

obvious. For each of these items, the majority of normals responded in the opposite direction from the majority of psychiatric patients.

A more comprehensive attempt at designing subtle and obvious keys was first undertaken for the MMPI by Weiner (1948). It was hoped that the newly developed subtle keys would be useful in measuring the personality functioning of sophisticated or defensive subjects. All F scale items also appearing in clinical scales were labeled as "obvious," as F item endorsement was in general considered open admission of pathology. Items for which a blank (no response) was considered clinically significant were labeled as "subtle." All other scorings were based upon the combined clinical judgments of Weiner and his associates.

Weiner found that the endorsement of obvious statements was fairly uncommon among normals, while quite common among hospitalized patients. Conversely, endorsement of subtle items was distributed rather normally. Here it can be argued that perhaps the better defended "normal" population was more capable of avoiding obvious as opposed to subtle indicators of pathology. Thus as Weiner suggested, subtle items could be considered to be of great value. However, it could be asserted that subtle test statements are in fact unrelated to pathology and are thus inappropriately included (Wales & Seeman, 1969).

Following this early work centering around the development of the MMPI was a period in which the aforementioned issues appear to have remained fairly dormant. Two decades later, Gough (1968) again summarized the empirical position, stating that a test must be internally homogeneous and factorially independent if and only if it is intended

to define a unidimensional trait of personality. If, however, the purpose of a scale is to predict a person's behavior, or how he or she will be described by those who know him or her well, then these internal statistical considerations are irrelevant unless it can be shown that the predictive utility of the measure is improved by their fulfillment.

Although empirically derived inventories such as the CPI and MMPI have continued to be widely utilized and proponents espouse verbally the logic behind this type scale, recent literature has cast serious doubt upon the value of subtle items specifically and the entire empirical approach in general. One such study attempted to determine the relationship between degree of item subtlety and the ability of items to discriminate normals from hospitalized, psychiatric subjects (Duff, 1965). In this case degree of item subtlety was based upon how well experienced psychology graduate students could match the various MMPI statements with the correct scale and direction scored. Three scales were employed: the Hy, Pd, and Sc portions of the test. Here, Duff found an inverse relationship between item subtlety and discriminating power. Only forty percent of his most subtle group of statements discriminated the hospitalized patients from the normals. On the other hand, over ninety percent of obvious items were endorsed oppositely by these two groups. Duff concludes that subtle items, being poorer discriminators, are of little value and should be discarded.

A 1971 paper by Jackson issued an interesting challenge to the empirical proponents which eventually materialized into evidence in favor of a more face-valid, intuitive strategy. Conditions were

specified under which a contest of validity was proposed between empirical scales and intuitive scales constructed by total novices. A study was later designed to answer Jackson's challenge (Ashton & Goldberg, 1973). The following inventories were administered and compared to average peer ratings for each respective subject: the California Personality Inventory (CPI), the Personality Research Form, scales of Sociability, Achievement, and Dominance constructed by psychology graduate students, and similar scales constructed by total novices. Of the above, only the CPI was empirically derived, while each of the others is an example of the more intuitive approach.

It was found that the validity of tests constructed by average graduate students and by the most skilled novices was equal to that of the CPI. The validity of the best graduate student scales and the Personality Research Form was found to be equal, and greater than that of the CPI. Although these results are not as extreme as Jackson may have predicted, they do represent strong evidence in favor of the more face-valid approach.

Given that the discrimination between subtle and obvious items has merit, questions regarding the use of this information become relevant. Rather than discard subtle items altogether, Cronbach (1970) suggests that separate subtle and obvious keys be employed with the MMPI on those scales for which it can be shown that complimentary information is being obtained. However this subtle versus obvious distinction is to be employed, it is important that a refined, comprehensive set of keys be available.

The development of this broader set of keys was attempted by Christian, Burkhart, and Gynther (1978). A five-point distinction

was made between subtle and obvious, and all MMPI clinical scales were included. Raters read each item and attempted to judge how clearly each was indicative of a psychological problem. Unlike Duff's (1965) raters, these judges were psychologically naive college students (no formal training in psychology). This was considered to be more appropriate in that the typical client or patient likewise lacks this formal experience.

The authors found some scales to be more obvious than others. In particular it was shown that Sc scale items were considered to be most obvious while Mf and Si statements appeared to be the least obvious indicators of pathology, in general. This result is not surprising when the content of these various scales is considered. However, the formal knowledge of this phenomenon is quite useful in that for some scales (e.g., Sc) it may be unnecessary or even inappropriate to attempt to employ the subtle-obvious distinction. On the other hand, for others this may be of the greatest importance. If, for example, it can be definitively shown that subtle items are of absolutely no worth or are a major source of error, those scales containing many subtle items would be in need of drastic alteration. Also, it is quite possible that under certain circumstances or with specific populations the use of this subtle-obvious distinction may become more viable if these unusual conditions contribute differentially to the accuracy of the subtle versus the obvious.

Such a specific circumstance could be that under which the subject is faking. A study was conducted by Wales and Seeman (1969) which attempted to illustrate the effect upon subtle and obvious items of conditions wherein subjects were asked to alter test performance.

Hospitalized patients were given the MMPI in the usual fashion and again under instructions to attempt to answer in such a way as to appear as "healthy" and well-adjusted as possible. Results showed what has been referred to as the "paradoxical" faking phenomenon for subtle test items. When asked to "fake good," subjects were able to successfully manipulate the obvious test statements (the old "X" and "O" distinction was used) in the favorable direction. However, subtle items were shown to compensate in the opposite direction. Not only were these items resistant to faking, but attempts to manipulate subtle statements toward a "healthier" score resulted in these items contributing in the direction of pathology. It could be asserted that herein lies the value of the subtle portion of the test. Perhaps the MMPI has proven to be so lasting and useful at least in part because any attempt to manipulate test results (e.g., to "fake good") has been at least partially foiled as a result of this paradoxical relationship. Wales and Seeman, however, conclude that subtle items are unsuccessfully manipulated because "O" (subtle) items are probably more truly indicators of non-pathological adjustment and are presently inappropriately scored for pathology. Here it is speculated that subjects are in fact manipulating "O" items successfully but that the scoring keys for many of these subtle items are presently in error.

In a follow-up study the paradoxical relationship was again demonstrated (Wales & Seeman, 1972). The MMPI was administered and subjects (college students) were asked to respond to the test honestly. A second administration followed in which these same subjects were asked to complete the test under one of the following "faking" conditions: as if it were one year from now, as if responses

corresponded to the individual's "ideal self," or as if they were simply attempting to appear as psychologically healthy as possible. Subtle test items again were consistently shown to react paradoxically to faking, particularly under the simple "fake good" condition. Least dramatic, although still significant, was the paradoxical effect noted under the "one year from now" condition. As each faked protocol was compared to that individual's "honest" test, it was evident that at the very least the presence of subtle items does tend to negate to some extent the effects of faking.

Several methods have been identified which are fairly accurate in detecting the "fake good" response set of MMPI subjects (Wales & Seeman, 1968). These involve mathematical manipulations of "X" and "O" scores, as well as a separate validity scale developed by Cofer (1949). Given the demonstrated effectiveness of these methods, it is possible that subtle items may be useful in improving score accuracy under faking conditions as identified by these methods. Subtle items, under these circumstances, may in fact qualify as more useful than the obvious items in the detection of pathology.

An important recent study has shown that the paradoxical relationship regarding the attempted faking of subtle items is also evident under conditions employing the more sophisticated five-category subtle and obvious ratings of Burkhart, Christian, and Gynther (1978). Endorsement of obvious items was a direct function of instructional set, whereas endorsement of subtle items was inversely related to instructional set. For both fake-good and fake-bad conditions, subjects were again able to successfully manipulate obvious items, while the subtle portion of the test tended to compensate in the opposite direction.

That subtle items are apparently resistant to fake-bad as well as fake-good instructional sets, when considered along with the findings of Wales and Seeman (1972), seems to lend support to an idea that the paradoxical functioning of subtle items may represent a more general phenomenon. Perhaps any number of distorting response sets are affected. If this be the case, then this portion of the test can be considered to represent a valuable safety mechanism against distortion. However, if under normal "honest" circumstances these items merely represent a major source of error, it could be argued that the subtle dimension of the test is more often a hindrance to accurate interpretation.

A study conducted by Gynther, Burkhart, and Hovanitz (1979) was designed to assess the relative contributions of the obvious versus the subtle items as these relate to a relevant criterion measure. Faking conditions were not included. MMPI Pd scale statements were categorized as either subtle, obvious, or neutral based upon the five-point scale mentioned earlier (Christian, Burkhart, & Gynther, 1978). Scores in each of these areas were compared to scores on a behaviorally based nonconformity questionnaire. Results again showed the obvious items to be the most useful portion of the test, this time as measured in terms of the above criterion. The subtle, subscale, however, was determined to have made a unique, although much smaller, contribution to the prediction of the reported nonconforming behavior.

Subsequent studies have measured relative contributions of subtle versus obvious items to the Hypomania and Depression subscales (Hovanitz & Gynther, 1980; Burkhart, Gynther, & Fromouth, 1980).

Although evidence persists that subtle items may contribute to the accuracy of certain scales, face-valid statements continue to be reported as the most relevant predictors of criterion correlates.

Statement of the Problem

Proponents of each of the major test construction strategies continue to argue the merits of their prospective positions. In recent years, however, a growing body of experimental evidence has been supportive of the more face-valid intuitive-internal approach (e.g., Duff, 1965; Gynther, Burkhart, & Hovanitz, 1979; Burkhart, Gynther, & Fromouth, 1980). Conclusions reached by the authors of these studies have been centered around the assertion that the more subtle portions of empirically derived inventories are in fact unrelated to the traits which they were designed to assess. At best it has been considered by these experimenters that subtle items may be of some minimal value; however, even in these cases, it has been asserted that the more face-valid portions are consistently superior predictors of any relevant criterion.

The previously cited study of Gynther, Burkhart, and Hovanitz (1979) employed comprehensive, novice-rated subtle and obvious scales and found the obvious portion of the MMPI Pd scale to be a much better predictor of a criterion of admitted nonconforming behavior. It was concluded that subscales composed of items clearly related to the criterion possess more discriminative power in general than do those composed of items not obviously related. This may be accurate under standard test-taking instructions; however, under faking conditions this may not be the case.

It has been shown consistently that subtle items are inherently resistant to faking (Wales & Seeman, 1969, 1972; Burkhart, Christian & Gynther, 1978). However, the relative contribution of subtle versus obvious test statements to a relevant criterion has not been adequately assessed under faking circumstances. The present study attempts to make such an assessment.

A previous effort in this regard attempted to determine the predictive utility of subtle versus obvious MMPI Pd subscales under faking conditions (Worthington, 1983). Subtle and obvious scores were compared for differential correlation with a 30-item nonconformity questionnaire under "honest," fake-good, and fake-bad conditions. It was predicted that while the obvious items would represent the better behavioral predictor under control conditions, the subtle items would in fact correlate more strongly with the criterion under both fake-good and fake-bad circumstances. However, relationships found between noncomformity and both the subtle and obvious subscales were generally insignificant under control, as well as faking conditions. Findings with regard to the predictive strengths of subtle versus obvious items were thus considered inconclusive. Given that relationships between the nonconformity measure and Pd subscales generally lacked significance under control conditions, correlations with regard to faking circumstances would not be expected to lend definitive conclusions.

In considering the difficulties encountered in this previous experiment, several plausible changes for future studies become apparent. Most basically, in considering the utility of subtle versus obvious empirically derived items, a recently substantiated

relationship between an empirically derived scale and some criterion is deemed critical. Thus, in the present study, a current item analysis was done on the MMPI in order to develop a new scale which definitely discriminates among individuals in relation to a criterion of nonconformity. Employment of a newly derived inventory should have served to eliminate the possible misleading influence of any outdated subtle items. Many older items presently rated as subtle may in fact represent statements which are merely outdated, thus seriously confounding the so labeled "subtle" cateogry. It should be noted that the aforementioned new scale is not intended to be a substitute for the original Pd scale; rather, it was developed solely for purposes of addressing theoretical questions surrounding the relative merits of subtle and obvious items.

Following the empirical derivation of this new "Pd" scale, subtle and obvious ratings were updated for each item, according to perceived relationship to pathology. In addition, subjective improvements were made in the previously employed nonconformity criterion in an effort to increase its relevance to adult "deviance."

The changes and additional procedures outlined above were made in preparation for further attempts to determine the utility of subtle versus obvious items. The differential contribution of each of these item types to the prediction of a behaviorally based criterion was again assessed under "honest," as well as faking conditions. Based upon the literature reviewed, the following was hypothesized:

1. Under standard control conditions, the obvious items will be correlated significantly and positively with the criterion, and will be more highly correlated in a positive

direction with the criterion than will the subtle items.

2. Under fake-good conditions the subtle items will be correlated significantly and positively with the criterion, and will be more highly correlated in a positive direction with the criterion than will the obvious items.
3. Under fake-bad conditions the subtle items will be correlated significantly and positively with the criterion, and will be more highly correlated in a positive direction with the criterion than will the obvious items.

In approaching these issues, it is the relative merit of empirical versus intuitive test construction strategies which is in question. Should hypotheses (2) and (3) be demonstrated, a substantially stronger case should exist regarding the value of the subtle portions of empirically derived inventories.

CHAPTER II

METHOD

Subjects

Serving as subjects were a total of 234 university students enrolled in undergraduate psychology courses. All data were collected anonymously from groups of approximately 25 subjects. It has been shown that males report significantly more deviant behavior than do females (Gynther, Burkhart, & Hovanitz, 1979); therefore, only male subjects were employed. Appropriate extra credit was awarded, and all participation was strictly voluntary.

Instruments

Both the MMPI (Hathaway & McKinley, 1967) and a nonconformity scale were administered in the empirical derivation of a new MMPI subscale of "psychopathic deviance," hereafter referred to as "PdX." The nonconformity scale is that which was used in its entirety by Gynther, Burkhart, and Hovanitz (1979). It is a face-valid behavioral questionnaire designed to assess the individual's tendency to break existing societal norms, laws, and regulations. Eight of the scale's original 30 items consist of the abbreviated form of Nye's (1958) scale used by Elion and Megargee (1975), while the remaining items were added by Gynther, Burkhart, and Hovanitz. Reliability indices have been computed (coefficient alpha = .83, test-retest for

a 2-week interval = .94) (Gynther, Burkhart, & Hovanitz, 1979), and a wide range of deviant behaviors is represented. Included are such minor offenses as those reflected in questions asking the subject whether he or she, since grade school, has ever "driven at speeds significantly above the legal limits" or "cut or torn out pages of library books or journals?" Also present are questions regarding more serious nonconformity, such as those asking whether he or she has ever "carried a concealed weapon" or "sold narcotic drugs?" For purposes of this study, one item (have you ever "brought liquor into Oklahoma from out of state?") was eliminated. In addition, instructions calling upon subjects to report behaviors occurring "since beginning grade school" were altered in order to include only nonconformity taking place "since beginning high school." This latter change was made in an effort to present subjects with a criterion more synchronous in time frame to the MMPI.

Upon derivation, PdX was also administered separately, as was its original MMPI counterpart, Pd ("psychopathic deviance"). In its original form, Pd reflects a "primary dimension ranging from constricted conformity to the antisocial acting out of impulses" (Lachar, 1974). Specifics with regard to the derivation of PdX will be detailed in the following section.

Procedure

The initial phase of the experiment involved the empirical construction of the aforementioned new scale. One hundred subjects were first presented with the nonconformity questionnaire. Complete anonymity was assured, and the voluntary nature of subject

participation was emphasized. While total honesty was encouraged, subjects were also made aware that at any time it was perfectly acceptable to terminate the testing, and that extra credit would still be awarded. Options were presented wherein the participant may have chosen to retain his answer sheet upon leaving, or simply to have returned his incomplete materials anonymously. (See Appendix A for complete subject instructions.) The nonconformity questionnaire asked subjects to anonymously rate the number of times they had engaged in each of the various nonconforming behaviors represented. As in previous studies (Gynther, Burkhart, & Hovanitz, 1979; Worthington, 1983) a score was obtained by assigning a value of 0 to items rated never, 1 to items rated once or twice, 2 to items rated several times, and 3 to items rated very often. The score for each subject was the sum of these values.

Subjects were then asked to complete the MMPI, under standard instructions. Form R was utilized, and the test was administered in its entirety (566 items).

Following the completion of the above inventories, an analysis was done on each of the 566 MMPI items to determine which of these significantly correlated with the nonconformity scale ($p<.05$). (See Appendix B, Table V.) The resulting 101 items were retained for possible inclusion in the new scale, PdX. From this group, six items were eliminated for which the frequency of endorsement was less than ten percent; these rarely occurring responses were considered to be of doubtful value to the new scale (Hathaway & McKinley, 1942).

The second phase of the experiment involved the determination of subtle and obvious ratings for prospective PdX items, and subjects

also updated such ratings for the original MMPI scale, Pd. In accordance with the previous study of Christian, Burkhart, & Gynther (1978), 36 additional subjects were instructed to read each item carefully and to decide how clearly each was indicative of a psychological problem. They were further instructed that very obvious items were to be assigned a rating of 5; obvious, a rating of 4; neither obvious nor subtle, a rating of 3; subtle, a rating of 2; and very subtle, a rating of 1. Mean ratings and standard deviations were then determined for each of the rated items. (See Appendix B, Table VI.)

It was determined that each of the 21 prospective PdX items with mean ratings greater than 3.0 would be included in PdX, and that these would serve as the "obvious" portion of the test. Items with more "subtle" ratings (<3.0) were more numerous; thus, 21 were selected which had received mean ratings of less than 1.8, and for which standard deviations had been determined to be less than 1.0. These items served as the other half and subtle portion of PdX. With regard to the original Pd scale, 36 items were determined to be subtle (mean ratings <3.0), while 14 were considered obvious indicators of pathology (mean ratings >3.0).

The final group of 98 subjects were employed once again to determine the relative merits of subtle versus obvious items. Again, a relevant, behaviorally based criterion was employed in the form of the nonconformity questionnaire (Gynther et al., 1979; Worthington, 1983). As in the first portion of this experiment, subjects were initially presented with the nonconformity scale, and complete anonymity was emphasized. Subjects were asked to rate the number of times

they had engaged in each of the various behaviors since beginning high school. Once again, a score was obtained by assigning a value of 0 to items rated never, 1 to items rated once or twice, 2 to items rated several times, and 3 to items rated very often. The score for each subject was the sum of these values.

Subjects were then presented with MMPI scale Pd, and the newly derived PdX. Scales Pd and PdX were presented as one scale (though they were scored separately) and items appeared in the order in which they occur in the MMPI. There were no duplicate items between Pd and PdX. Subjects completed Pd and PdX under each of three conditions, using a within-subjects design. Standard, fake-good, and fake-bad instructional sets were employed (see Appendix A), and presentation order for the faking sets was randomized. (The "honest" condition was always presented first in order to avoid any distorting influences brought about by faking.) The fake-good instructional set asked the subject to respond "in such a way as to create the best possible impression; for example, an impression you would like to make in applying for a very desirable job" (Burkhart, Christian, & Gynther, 1978). The fake-bad instructional set required the subject to respond "in such a way as to make a very bad impression; for example, an impression you would like to make in order to be considered very maladjusted." Sample responses were provided for each of the faking response sets.

CHAPTER III

RESULTS

In order to control for overall error rate, a multivariate analysis of variance (MANOVA) was performed with regard to PdX and Pd. Number of items endorsed (subtle and obvious) were dependent variables, while experimental condition (control, fake-good, or fake-bad) was the independent variable. The multivariate test indicates that, overall, PdX and Pd item endorsement is affected by response set, $F(8, 382) = 215.95$, $p<.0001$. In fact, as reported in Table I, one-way analyses confirm that number of subtle and number of obvious items endorsed were each affected by response set. For both scales the strongest effect was demonstrated with the obvious items, although the levels of significance for the subtle variables were also quite high.

Since statistical significance was obtained in these analyses, the Newman-Keuls method for pairwise comparison of means was employed. Means are presented in Table II, while Figure 1 presents these same results graphically. For the PdX scale, the mean number of obvious items endorsed was significantly greater for fake-bad as opposed to control conditions. Similarly, the control mean was significantly greater than the mean for the fake-good group. With regard to the subtle portion, the highest mean was found for the fake-good group, while the lowest was obtained under fake-bad conditions. Significant differences were found for each of the possible pairwise comparisons.

TABLE I

ANALYSES OF VARIANCE

Dependent Variable	Source	df	SS	F	Pr>F
PdX Obvious	C(Condition)	2	18606.17	2248.98	.0001
	SS(Subjects)	97	331.64		
	SS*C	194	802.50		
	Total	293	19740.30		
PdX Subtle	C	2	2473.55	133.56	.0001
	SS	97	778.33		
	SS*C	194	1796.45		
	Total	293	5048.33		
Pd Obvious	C	2	6957.23	1159.34	.0001
	SS	97	197.80		
	SS*C	194	582.10		
	Total	293	7737.13		
Pd Subtle	C	2	9648.46	502.93	.0001
	SS	97	756.94		
	SS*C	194	1860.88		
	Total	293	12266.27		

MANOVA test for hypothesis of no overall group effect
(Wilks' criterion): F(8,382) = 215.95 PROB>F = .0001

TABLE II

MEAN SCORES AND STANDARD DEVIATIONS
FOR PDX AND PD SUBSCALES

Subscale	Condition	$\bar{X}$	S
PdX Obvious*	Control	5.12	2.59
	Fake-good	1.17	1.41
	Fake-bad	19.67	1.72
PdX Subtle*	Control	13.16	2.87
	Fake-good	14.16	2.47
	Fake-bad	7.57	3.49
Pd Obvious*	Control	3.35	2.10
	Fake-good	1.32	1.31
	Fake-bad	12.50	1.39
Pd Subtle*	Control	14.78	3.61
	Fake-good	10.40	2.31
	Fake-bad	24.13	2.93

*All possible pairwise comparisons significant ($p<.05$)

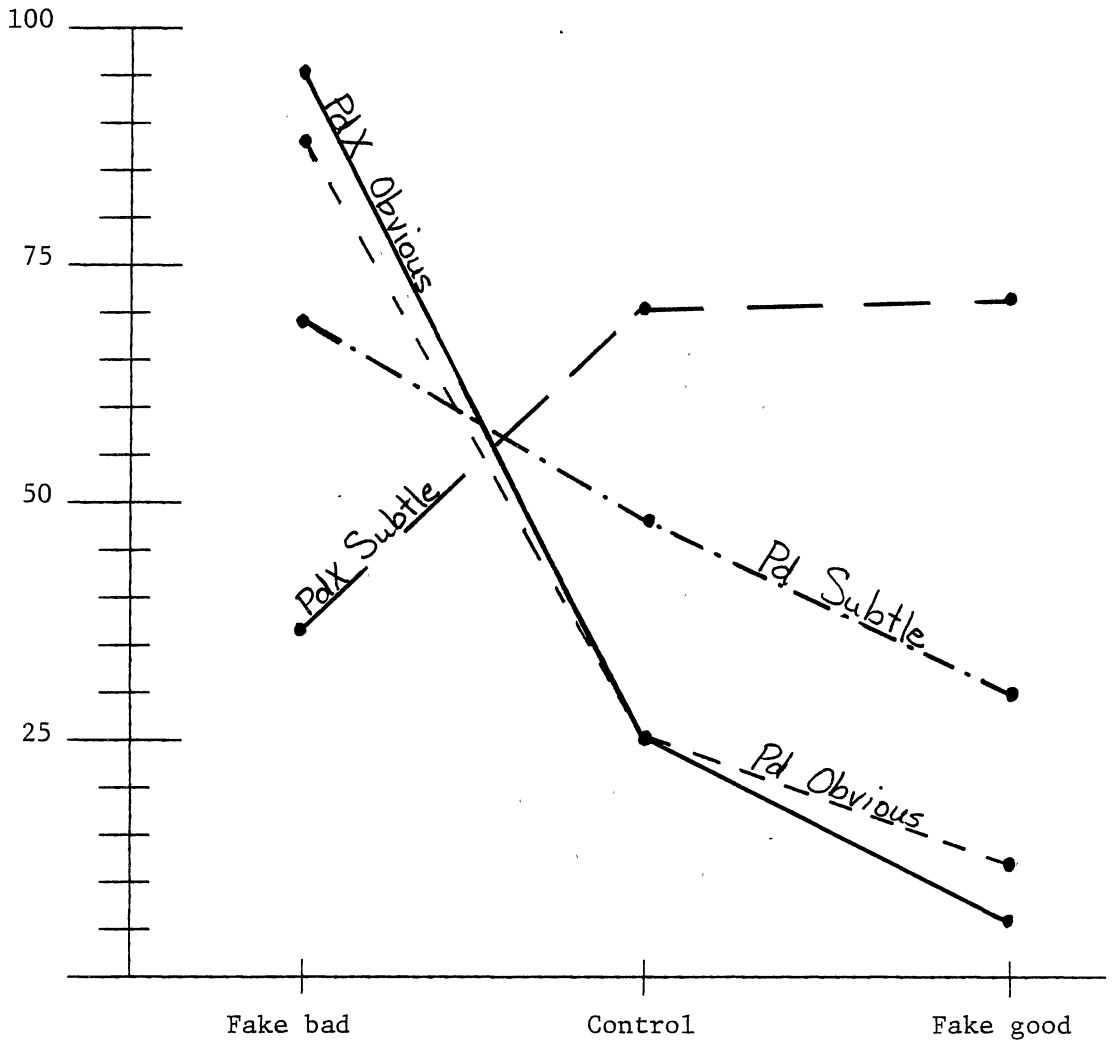

Figure 1. Percentage of PdX and Pd Subscale Items Endorsed

The pattern presented with respect to Pd obvious items is similar to that which was presented with respect to the PdX obvious group. The greatest number of items were endorsed under fake-bad conditions. This number was significantly greater than that found for the control group. Likewise, the control mean was significantly greater than the mean for fake-good.

For the Pd subtle items, the highest mean was found for the fake-bad group, while the lowest was obtained for fake-good conditions. Significant differences were again shown for each of the possible pairwise comparisons. These items were apparently manipulated very differently from those in the PdX subtle group. While the so-called "paradoxical effect" of Wales and Seeman (1969) was again demonstrated for PdX, this was not the case with regard to Pd.

For the nonconformity measure, the overall mean score obtained was 21.22 (SD = 9.33), as compared to means of 20.23 (SD = 8.62) and 15.49 (SD = 8.46) reported in the Worthington (1983) and Gynther et al., (1979) studies, respectively.

As shown in Table III, under control conditions the correlation between PdX obvious items and the criterion was significant and positive. Likewise, that between PdX subtle items and the nonconformity scale was significant and positive. Hypothesis (1), however, which predicted that obvious items would be correlated more significantly with the criterion than would the subtle, was not statistically supported $t(95) = .99$, ns. For the Pd scale, subtle items correlated significantly and positively with the criterion, though the correlation between Pd obvious and nonconformity was not significant. Hypothesis (1) was not supported for Pd in that subtle items were shown to

TABLE III

ZERO-ORDER CORRELATIONS OF PDX AND PD SUBSCORES WITH NONCONFORMITY SCORES

Condition	Subscale			
	PdX-Obvious	PdX-Subtle	Pd-Obvious	Pd-Subtle
Control	.33***	.21*	.14	.34***
Fake-good	.05	.12	-.07	.02
Fake-bad	-.08	.00	.03	-.09

*$p<.05$

***$p<.001$

represent the more positively correlated criterion predictor when compared to the obvious, $t(95) = 1.69$, ($p<.05$).

Surprisingly, under fake-good as well as fake-bad conditions, neither the obvious nor the subtle items correlated significantly with the nonconformity measure. This was true for both PdX and Pd. Clearly, hypeseses (2) and (3), which predicted that subtle items would be significantly and more positively correlated with the criterion, were not supported.

In order to determine the relative contributions of subtle and obvious scores to the nonconformity score, semipartial and multiple correlations were computed using the SAS RSQUARE technique. These results are presented in Table IV. As reported previously, PdX obvious items represented a significant criterion predictor under control conditions. Controlling for the influence of the subtle portion resulted in a slightly smaller, yet still significant value, and the subtle and obvious multiple correlation was shown to be highly significant. Subtle items, on the other hand, did not retain their significance as criterion predictors when obvious influences were partitioned out.

With regard to Pd, subtle items were significant predictors under control conditions, with or without the influence of the obvious portion. Likewise, the subtle and obvious multiple correlation was significantly related to nonconformity. Obvious items, on the other hand, were not shown to be significant criterion predictors.

There were no significant relationships found between PdX subscores and the nonconformity scale under faking conditions. Similarly, there were no such correlations present with respect to Pd.

TABLE IV

MULTIPLE AND SEMIPARTIAL CORRELATIONS OF PDX AND PD SUBSCORES WITH NONCONFORMITY SCORES

Condition:		Control		Fake good		Fake bad	
Scale	Predictor	R-Square	F	R-Square	F	R-Square	F
PdX	O(Obvious)	.111	11.84**	.003	.30	.006	.60
	S(Subtle)	.043	4.41*	.014	1.40	.000	.00
	O/S[a]	.098	10.89**	.003	.30	.006	.60
	S/O	.030	3.33	.014	1.40	.000	.00
	OS	.141	7.80**	.017	.82	.006	.29
Pd	O	.018	1.66	.005	.47	.001	.09
	S	.118	12.56**	.001	.09	.008	.78
	O/S	.006	.67	.006	.60	.002	.20
	S/O	.106	11.78**	.002	.20	.009	.90
	OS	.124	6.72**	.007	.33	.010	.48

[a] O/S refers to the obvious portion of the scale with the effects of the subtle portion controlled

*$p<.05$

**$p<.01$

CHAPTER IV

DISCUSSION

Results suggest, as expected, that MMPI item endorsement is in fact affected by response set. A given subject's response pattern will vary significantly depending upon the nature of the clinical impression he wishes to promote. Additionally, this phenomenon appears to exist with respect to both subtle and obvious portions of the test.

Obvious items, not surprisingly, tend to create the most pathological impression under circumstances wherein the subject is attempting to appear maladjusted. Likewise, these same items can be manipulated to create a favorable impression at will.

Subtle items, on the other hand, though consistently affected by response set, were not necessarily manipulated by subjects in the desired direction. While Pd subtle scores were affected by faking in much the same manner as were the Pd and PdX obvious, PdX subtle scores proved to be resistant to faking. While still very much dependent upon response set, these scores tended to be higher under fake-good conditions and relatively lower upon attempts to fake-bad.

This so-called "paradoxical effect" (Wales & Seeman, 1969) has been demonstrated in the past, and it has been generally accepted that subtle items are inherently resistant to faking (Wales & Seeman, 1972; Burkhart, Christian, & Gynther, 1978). What is perhaps more surprising is the inconsistency in the scores of Pd versus PdX subtle

subscales, and the apparent ease with which the Pd subtle items were manipulated. It would appear from these results that the PdX subtle items may represent a subjectively more subtle subscale than do the Pd subtle items.

Examination of the respective inclusion criteria for these subscales shows this to be the case. Items from the original Pd scale were classified as "subtle" simply upon the basis of receiving mean ratings of <3.0. The more numerous prospective PdX subtle items, on the other hand, were further narrowed so as to include only relatively very subtle items (mean ratings <1.8) in the final subscale. (Only seven of 36 Pd subtle items had mean ratings of <1.8.) Thus, the finding that PdX subtle items are relatively more resistant to faking when compared to the Pd subtle can be easily explained. The fact that Pd subtle items were successfully manipulated in the same manner as were the obvious items seems to indicate that generally the Pd subtle subscale is not subtle; rather, it may be considered to be merely "less obvious" than the two obvious subscales. At any rate, subjects were able to successfully judge the level of pathology associated with Pd subtle items, while they were not able to do so with respect to PdX.

While in the case of each subscale, item endorsement patterns were affected by response set, individual prediction of the behavioral criterion was not possible under faking conditions. It is of little value that subtle items are "resistant to faking" if all discrimination between individuals is lost under such circumstances. In this case it appears, for example, that while PdX subtle scores were higher when subjects attempted to fake-good, these scores did not differ significantly for high versus low nonconformers. It was predicted that

high nonconformers would be detected by the subtle items as they attempted to fake-good, due to scores which would be significantly higher than those of the low nonconformers. Apparently, though these items were difficult to manipulate, they were of no discriminatory value under either faking condition.

Similar conclusions can be reached with respect to the subscales which were successfully manipulated by subjects. Both obvious subscale scores were consistently and successfully affected by faking attempts, as were the Pd subtle scores. However, in each instance, scores did not differ significantly for high versus low nonconformers. It appears, in general, that faking ability was not related to level of "pathology." A given subject could create either a positive or negative impression at will, and this ability was not related to reported behavior as measured by the criterion.

Under more "honest" conditions, on the other hand, individual behavior could be predicted much more accurately. Hypothesis (1), which proposed that obvious items would represent the more significant criterion predictor, was not supported for PdX. This, however, was due to the fact that both subtle and obvious subscales were shown to predict nonconforming behavior, and differences between their respective correlations with the nonconformity scale were not statistically significant.

For Pd, hypothesis (1) was similarly not supported, though in this case only the subtle portion predicted nonconformity. In both cases (Pd and PdX) evidence is undoubtably present to suggest that the subtle portions are of at least some predictive value. This is clouded somewhat by the nonsignificant correlation between the PdX

subtle subscale and nonconformity when all obvious effects are controlled. However, semipartial correlations with respect to Pd serve to confirm the predictive merits of the subtle items, with or without any obvious influences.

While relationships between the various subscales and the criterion are generally explainable, the nonsignificant correlation between the Pd obvious items and the nonconformity scale under control conditions is somewhat surprising. Perhaps the most plausible explanation relates to the content of the specific items in question. It may be that in comparison with the nonconformity scale the Pd obvious items appear relatively more pathological, and thus these items are less likely to covary with the criterion. Statements such as "Someone has it in for me," and, "Much of the time I feel as if I have done something wrong or evil," could appear threatening to even the most inexperienced psychology student. The less threatening Pd subtle items (e.g., "In school I was sometimes sent to the principal for cutting up") are perhaps more appropriate indicators of nonconformity in the typical college student.

In attempting to compare findings with respect to Pd versus PdX, the implications of the Pd portion of the experiment relate largely to that specific MMPI scale. Implications regarding PdX are more generic. For both scales it can be conclusively stated that neither subtle nor obvious items were accurate predictors of behavior under faking conditions. This seems to suggest that not only are Pd subtle items ineffective against faking, but also that empirically derived subtle items in general are poor predictors under these conditions. Under more "honest" circumstances results suggest that empirically

derived obvious items are significant predictors of behavior, and that subtle items are similarly predictive (though perhaps to a lesser extent.) More specifically with regard to the original MMPI Pd scale, obvious items were not predictive of nonconformity in this population. The less threatening subtle items, on the other hand, do seem to significantly predict such behavior.

Summary and Conclusions

In summary, results strongly suggest that neither subtle nor obvious empirically derived test items are useful predictors of behavior under faking circumstances. For the PdX scale, subtle items were resistant to faking in that scores could not be augmented or diminished at will; however, discrimination between high and low nonconformers was not possible under faking conditions. The Pd subtle subscale and both obvious subscales were easily manipulated under fake-good as well as fake-bad conditions.

An important implication of these findings relates to the interpretation of empirically derived inventories under conditions wherein faking is suspected; only very conservative use of the suspect data is indicated. In the case of the MMPI, possibly invalidity as indicated by scales L, F, and K should be taken most seriously. Accurate interpretation under such circumstances would likely be quite difficult, if not impossible.

The empirical construction approach can, however, be recommended to authors of future psychological tests. Obvious items, as expected, do seem to predict actual subject behavior under "normal" testing circumstances. While the predictive utility of subtle items has

proved to be poor under faking conditions, findings with respect to the "honest" group also support subtle item inclusion. In considering the Pd and PdX scales it is apparent that subtle items do contribute to some degree to behavioral prediction. Thus, it can be considered that the empirical construction approach has been supported, though it is perhaps unfortunate that no significant protection against faking can be asserted.

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APPENDIX A

SUBJECT INSTRUCTIONS

In the first phase of the experiment, subjects were read the following instructions:

"In this experiment we are attempting to compare certain behaviors with a number of different psychological test items. Each of you will be asked to complete two different tests: a short, behavioral questionnaire and a much longer, True-False type scale. Some of the questions we are asking are of a very personal nature. I want to emphasize very clearly that all questionnaires will be handled completely anonymously. No names will appear anywhere on any of the forms. Also, participation on your part is completely voluntary. If for any reason you don't wish to complete the task, please feel perfectly free to stop. You may either turn in your materials at that time and leave, or sit quietly until the others have finished. Also, you may choose to take your answer sheet with you when you leave. Regardless of whether or not you choose to take the tests, your extra credit will be awarded. However, if you do choose to participate, it is very important that you take the task seriously, and answer all questions as honestly as possible. Those of you who feel that you cannot answer all of the questions honestly, just turn in your materials unanswered. Again, full extra credit will still be awarded, and there is no way for your individual paper to be identified."

"In taking the tests it is also important that you remain quiet and do not share your reactions and responses with other subjects. In this way each person can be assured that his own responses will be private, and there will be no pressure to respond in any certain way to any of the items. If anyone has any questions at any point during the procedure, please feel perfectly free to ask them."

(Pass out nonconformity scale here.)

"Each of you now have a copy of a short, behavioral questionnaire, and a corresponding answer sheet. Instructions are included at the top of the first page. Please read the instructions and complete the questionnaire at your leisure. When you have finished, place the answer sheet in the envelope provided and wait quietly. When everyone has finished, we will proceed to the next test."

(When all subjects had completed the nonconformity scale, MMPI's were passed out.)

"Each of you now have a copy of a True-False type personality questionnaire. In a moment, you will be asked to read the instructions and proceed at your own pace. When all items have been completed, simply place your answer sheet in the envelope with your earlier test and turn it in along with your test booklet."

"Anyone interested in the results or details of this study can contact me near the end of the semester via their psychology instructor. At this point it is important that you do not discuss the experiment with anyone, in order for future subjects to remain unbiased. Your participation has been greatly appreciated." (Questions were answered at this point, and subjects were instructed to proceed.)

In the second portion of the experiment (rating Pd and Pd items for degree of subtlety) subjects received the following instructions:

"In this experiment we are dealing with psychological tests, and determining the kinds of statements which clearly seem to indicate psychological problems, as well as those which do not. You have before you a list of test items which have already been answered, either "true" or "false." Your job is to read each item carefully and to

decide how clearly each item is indicative of a psychological problem, as answered. Very obvious items are to be assigned a rating of 5; obvious, a rating of 4; neither obvious nor subtle, a rating of 3; subtle, a rating of 2; and very subtle, a rating of 1."

"I want to emphasize that participation on your part is strictly voluntary. Should you at any time wish to terminate your participation, please feel perfectly free to do so. Extra credit will still be awarded. If you do choose to complete the task, it is very important that you rate each item carefully, and take the job at hand seriously. Upon completion, just turn in your papers to me and you may leave. All ratings will be handled anonymously; so don't put your name on anything."

"Anyone interested in the results or details of this study can contact me near the end of the semester via their psychology instructor. At this point it is important that you do not discuss the experiment with anyone, in order for future subjects to remain unbiased. Your participation has been greatly appreciated." (Examples of the task were given at this point, questions were answered, and subjects were instructed to proceed.)

In the final phase of the experiment, subjects were instructed as follows:

"In this experiment we are attempting to compare certain behaviors with some different kinds of test results. Each of you will be asked to complete several short questionnaires. Some of the questions we are asking are of a very personal nature. I want to emphasize very clearly that all questionnaires will be handled completely anonymously. No names will appear anywhere on any of the forms. Also, participation on your part is completely voluntary. If for any reason you don't

wish to complete the task, please feel perfectly free to stop. You may either turn in your materials at that time and leave, or sit quietly until the others have finished. Also, you may choose to take your answer sheet with you when you leave. Regardless of whether or not you choose to take the tests, your extra credit will still be awarded. However, if you do choose to participate, it is very important that you take the task seriously, and answer all questions as honestly as possible. Those of you who feel that you cannot answer all of the questions honestly, just turn in your materials unanswered. Again, full extra credit will still be awarded, and there is no way for your individual paper to be identified."

(Pass out nonconformity scale here.)

"Each of you now have a copy of a short, behavioral questionnaire, and a corresponding answer sheet. Instructions are included at the top of the first page. Please read the instructions and complete the questionnaire at your leisure. When you have finished, place the answer sheet in the envelope provided and wait quietly. When everyone has finished, we will proceed to the next test."

When all subjects had completed the nonconformity questionnaire, scales Pd and PdX were presented as one scale. Subjects completed the items under each of the following three response sets, with response set (a) always occurring first. Response set presentation order for (b) and (c) were randomized. Each subject participated under all three response sets.

(a) "Each of you now have a copy of a True-False type personality questionnaire, which you will answer under three different conditions. Under this conditions, please

read each item carefully and answer true or false as each item generally applies to you now. Be as honest as you can in making your responses. Do not leave any blank spaces if you can avoid it. Try to make some answer to every statement."

(b) "Each of you now have another copy of the same True-False type personality questionnaire. Under this condition, you are to respond to the test in such a way as to create the best possible impression; for example, an impression you would like to make in applying for a very desirable job. Do not leave any blank spaces if you can avoid it. Try to make some answer to every statement. Remember, you are attempting to create the best possible impression; for example, an impression you would like to make in applying for a very desirable job."

(c) "Each of you now have another copy of the same True-False type personality questionnaire. Under this condition, you are to respond to the test in such a way as to create a very bad impression; for example, an impression you would like to make in order to be considered very maladjusted. Do not leave any blank spaces if you can avoid it. Try to make some answer to every statement. Remember, you are attempting to create a very bad impression; for example, an impression you would like to make in order to be considered very maladjusted."

Upon receiving the test under the final response set, subjects also received the following instructions:

"When all items have been completed, simply place your tests in the envelope provided. Upon turning in your materials, you may leave. Remember, all tests are to be handled anonymously; so don't write your name anywhere."

"Anyone interested in further details of this study may contact me later this semester via their psychology instructor. At this point it is important that you do not discuss the experiment with anyone in order for future subjects to remain unbiased. Your participation has been greatly appreciated." (Questions were answered at this point, and subjects were instructed to proceed.)

APPENDIX B

PDX SCALE CONSTRUCTION AND ITEM RATING DATA

TABLE V

CORRELATIONS OF MMPI[a] ITEMS WITH THE NONCONFORMITY SCALE

Item	r	Item	r	Item	r
1	.08	39	.05	77	.05
2	.07	40	.05	78	.07
3	-.07	41	-.03	79	.04
4	-.03	42	.05	80	.22*
5	.13	43	-.03	81	.20*
6	.14	44	.07	82	-.19
7	.10	45	.16	83	-.10
8	-.04	46	-.21*	84	.02
9	.13	47	.03	85	.04
10	.08	48	.10	86	-.07
11	-.07	49	.20*	87	.07
12	.24*	50	.12	88	-.05
13	.18	51	-.01	89	-.03
14	-.03	52	-.15	90	.00
15	.08	53	.08	91	-.02
16	.06	54	-.01	92	.03
17	.18	55	-.09	93	.04
18	-.13	56	.31**	94	-.03
19	.19	57	.26*	95	-.22*
20	-.03	58	.02	96	-.13
21	.06	59	.00	97	.35**
22	.01	60	-.06	98	-.11
23	.06	61	.10	99	.42**
24	.12	62	.19	100	.03
25	.08	63	.01	101	-.24*
26	.05	64	.01	102	-.18
27	.03	65	-.08	103	-.15
28	.28**	66	.03	104	.05
29	-.09	67	.00	105	.06
30	.24*	68	-.27**	106	.10
31	.22*	69	.06	107	.07
32	.27**	70	.11	108	.13
33	.21*	71	-.02	109	.19
34	-.09	72	.03	110	.03
35	.06	73	.02	111	-.19
36	-.03	74	.16	112	.20*
37	-.03	75	-.02	113	.00
38	.35**	76	-.01	114	.02

[a]Form R

*$p<.05$

**$p<.01$

TABLE V (Continued)

Item	r	Item	r	Item	r
115	-.06	158	.19	201	-.10
116	.26**	159	.02	202	.18
117	-.03	160	-.06	203	.09
118	.36**	161	.10	204	.07
119	-.23*	162	.09	205	.35**
120	.19	163	.06	206	-.07
121	.03	164	-.06	207	.14
122	-.02	165	.11	208	.15
123	.15	166	-.02	209	.05
124	.09	167	.22*	210	.30**
125	.10	168	.17	211	.12
126	.09	169	-.01	212	.26**
127	.01	170	-.14	213	.18
128	.00	171	-.23*	214	-.23*
129	.20*	172	-.12	215	.59**
130	-.11	173	.00	216	.19
131	-.17	174	-.15	217	.33**
132	.05	175	-.11	218	.03
133	-.23*	176	-.15	219	.32*
134	.02	177	.04	220	-.13
135	.35**	178	-.01	221	-.11
136	.10	179	-.02	222	-.07
137	.01	180	-.14	223	.27**
138	-.08	181	.11	224	.19
139	.10	182	.03	225	.20*
140	.17	183	.09	226	.03
141	.14	184	-.04	227	.09
142	.10	185	-.10	228	.08
143	.26**	186	-.14	229	.30**
144	.05	187	-.22*	230	-.05
145	.14	188	-.07	231	.24*
146	.26**	189	.09	232	-.06
147	.15	190	-.04	233	.06
148	.03	191	.04	234	.13
149	-.07	192	-.14	235	.08
150	-.03	193	-.19	236	.12
151	.21*	194	.19	237	.14
152	-.03	195	.24*	238	.04
153	-.17	196	-.05	239	.15
154	-.11	197	.15	240	-.11
155	-.25*	198	.02	241	.10
156	.19	199	-.01	242	-.01
157	.02	200	.19	243	.12

*$p < .05$
**$p < .01$

TABLE V (Continued)

Item	r	Item	r	Item	r
244	-.11	287	.06	330	.03
245	.09	288	.04	331	.08
246	.19	289	-.11	332	.08
247	.04	290	.08	333	.16
248	.03	291	.11	334	.07
249	-.05	292	-.05	335	.22*
250	.28**	293	-.05	336	.10
251	-.03	294	-.44**	337	.09
252	.10	295	-.07	338	.24*
253	.11	296	-.15	339	.13
254	.07	297	-.13	340	-.05
255	-.07	298	.14	341	.15
256	.03	299	.17	342	.04
257	.12	300	-.20*	343	.06
258	.04	301	.02	344	.01
259	-.05	302	-.10	345	.12
260	.15	303	.00	346	.15
261	-.01	304	-.08	347	-.25*
262	-.13	305	-.02	348	.14
263	.12	306	-.08	349	.13
264	.18	307	-.11	350	.09
265	.09	308	.08	351	.21*
266	.00	309	.14	352	.01
267	.11	310	.06	353	-.13
268	-.06	311	.37**	354	-.04
269	.12	312	-.02	355	.23*
270	.05	313	.05	356	.13
271	.13	314	.03	357	.01
272	-.06	315	.12	358	.20*
273	.22*	316	.03	359	.08
274	.05	317	.00	360	.12
275	.23*	318	-.04	361	-.02
276	-.10	319	-.15	362	.04
277	.33**	320	.14	363	.12
278	.26**	321	-.03	364	.16
279	.04	322	.29**	365	.25*
280	.21*	323	.24*	366	-.05
281	-.15	324	-.19	367	-.02
282	.05	325	.14	368	.19
283	.22*	326	.12	369	-.13
284	.16	327	.09	370	.15
285	.01	328	.24*	371	.13
286	-.13	329	-.07	372	.11

*$p<.05$
**$p<.01$

TABLE V (Continued)

Item	r	Item	r	Item	r
373	.09	416	-.02	459	.05
374	.17	417	.18	460	-.23*
375	-.06	418	.05	461	.07
376	.11	419	.25*	462	-.05
377	.14	420	.20*	463	-.16
378	-.10	421	.15	464	.04
379	-.05	422	.18	465	.28**
380	-.04	423	.26**	466	-.25*
381	.15	424	.07	467	.26**
382	.08	425	.16	468	-.05
383	.25*	426	.22*	469	.12
384	-.03	427	.20*	470	.07
385	-.14	428	-.07	471	.24*
386	.20*	429	-.03	472	.12
387	-.08	430	.16	473	.14
388	.18	431	.13	474	-.06
389	.00	432	.09	475	.19
390	.16	433	.12	476	.07
391	.28**	434	.26**	477	-.06
392	.11	435	.01	478	-.02
393	-.04	436	-.06	479	.03
394	.08	437	.23*	480	.05
395	.18	438	.18	481	.10
396	.12	439	.05	482	.08
397	.26**	440	.13	483	-.06
398	.08	441	-.03	484	.06
399	-.03	442	.07	485	.10
400	-.05	443	.29**	486	-.13
401	.04	444	-.05	487	.30**
402	.09	445	.15	488	-.24*
403	.08	446	-.13	489	-.07
404	.24*	447	.13	490	-.22*
405	.13	448	-.02	491	.02
406	.20*	449	.01	492	.21*
407	-.11	450	-.03	493	.01
408	-.15	451	.12	494	.11
409	.10	452	.25*	495	.20*
410	.30	453	-.05	496	-.14
411	-.18	454	.06	497	.04
412	-.06	455	.03	498	.18
413	.02	456	.20*	499	.04
414	.00	457	-.01	500	.01
415	-.01	458	.24*	501	-.02

*$p<.05$
**$p<.01$

TABLE V (Continued)

Item	r	Item	r	Item	r
502	-.03	524	-.05	546	.23*
503	-.06	525	.13	547	.00
504	.08	526	.11	548	-.24*
505	.10	527	-.04	549	.12
506	.12	528	.04	550	.06
507	.14	529	.27**	551	.27**
508	.07	530	-.10	552	-.08
509	.00	531	.12	553	.04
510	-.01	532	.04	554	-.13
511	.18	533	-.05	555	.08
512	.04	534	.19	556	.08
513	-.24*	535	.13	557	.08
514	.08	536	.05	558	.11
515	-.13	537	.33**	559	.09
516	.02	538	.06	560	-.04
517	.12	539	-.06	561	.03
518	.38**	540	-.06	562	.10
519	.07	541	.07	563	-.16
520	.01	542	-.21*	564	-.15
521	.24*	543	.08	565	.14
522	-.08	544	.05	566	.11
523	-.21*	545	.17		

*$p < .05$
**$p < .01$

TABLE VI

MEAN RATINGS AND STANDARD DEVIATIONS OF Pd AND PROSPECTIVE PDX SCALE ITEMS

MMPI Item	Mean	Standard Deviation	Scale	MMPI Item	Mean	Standard Deviation	Scale
8F[a]	2.50	1.08	Pd(S)	119F	1.50	.74	PdX(S)
12T	1.11	.67	PdX(S)	127T	3.33	1.12	Pd(O)
16T	3.72	.88	Pd(O)	129T	2.83	1.16	
20F	2.44	1.11	Pd(S)	133F	2.50	.97	
21T	2.64	1.36	Pd(S)	134F	2.19	1.19	Pd(S)
24T	3.36	1.29	Pd(O)	135T	2.79	1.09	
28T	3.22	1.15	PdX(O)	137F	2.72	1.23	Pd(S)
30T	1.89	1.24		141F	2.31	1.14	Pd(S)
31T	3.03	1.28	PdX(O)	143T	1.75	1.00	PdX(S)
32T	2.97	1.18	Pd(S)	146T	2.64	1.13	
33T	2.74	1.27	Pd(S)	151T	4.39	1.05	PdX(O)
35T	3.94	.92	Pd(O)	155F	1.86	1.05	Pd(S)
37F	3.14	1.15	Pd(O)	167T	3.61	1.18	PdX(O)
38T	2.44	1.11	Pd(S)	170F	2.03	1.11	Pd(S)
42T	1.86	.96	Pd(S)	171F	2.14	1.10	Pd(S)
46F	2.72	1.19		173F	2.17	1.08	Pd(S)
49T	4.03	1.25	PdX(O)	180F	1.61	1.05	Pd(S)
56T	2.47	1.13		183F	1.78	.99	Pd(S)
57T	1.61	.96	PdX(S)	187F	2.56	1.00	
61T	2.75	1.16	Pd(S)	195T	1.79	1.09	
67T	3.22	1.02	Pd(O)	201F	2.42	1.08	Pd(S)
68F	2.19	1.28		205T	4.28	1.03	PdX(O)
80T	2.50	1.23		210T	3.67	1.17	PdX(O)
81T	1.31	.79	PdX(S)	212T	3.28	1.16	PdX(O)
82F	2.06	.98	Pd(S)	214F	1.97	1.23	
84T	2.28	1.19	Pd(S)	215T	3.19	1.45	PdX(O)
91F	2.03	1.32	Pd(S)	216T	3.17	1.28	Pd(O)
94T	2.81	1.12	Pd(S)	217T	2.72	1.27	
95F	1.69	1.04		219T	1.22	.64	PdX(S)
96F	2.25	1.08	Pd(S)	223T	1.44	.81	PdX(S)
97T	3.78	1.10	PdX(O)	224T	2.03	1.00	Pd(S)
99T	1.42	.69	PdX(S)	225T	1.81	.79	
102T	2.69	1.31	Pd(S)	229T	1.44	.73	PdX(S)
106T	3.61	.93	Pd(O)	231F	1.78	.93	Pd(S)
107F	3.22	1.17	Pd(O)	231T	2.19	.98	
110T	3.89	1.17	Pd(O)	235F	2.25	1.02	Pd(S)
112T	1.42	1.00	PdX(S)	237F	2.47	1.11	Pd(S)
116T	2.86	1.17		239F	2.39	1.32	Pd(S)
118T	2.22	1.20	Pd(S)	244T	2.56	1.21	Pd(S)

[a] 8F refers to MMPI (Form R) item 8, keyed false.

TABLE VI (Continued)

MMPI Item	Mean	Standard Deviation	Scale	MMPI Item	Mean	Standard Deviation	Scale
245T	3.31	1.12	Pd(O)	410T	2.31	1.28	
248F	2.42	1.40	Pd(S)	419T	2.64	1.27	
250T	2.28	1.19		420T	2.36	1.15	
267F	1.75	.97	Pd(S)	423T	1.22	.83	PdX(S)
273T	3.25	1.40	PdX(O)	426T	2.19	1.19	
275T	4.83	.45	PdX(O)	427T	1.58	.97	PdX(S)
277T	2.72	1.34		434T	1.28	.74	PdX(S)
278T	3.08	1.23	PdX(O)	437T	2.44	1.00	
280T	2.61	1.42		443T	2.72	1.03	
283T	1.31	.89	PdX(S)	452T	3.28	1.11	PdX(O)
284T	3.72	1.14	Pd(O)	456T	3.78	1.07	PdX(O)
287F	2.94	1.24	Pd(S)	458T	2.00	1.07	
289F	3.17	1.25	Pd(O)	460F	2.58	1.20	
294F	2.28	1.23	Pd(S)	465T	2.06	1.04	
296F	2.28	1.11	Pd(S)	466F	3.06	1.35	PdX(O)
300F	2.08	1.20		467T	2.56	1.23	
302F	3.11	1.09	Pd(O)	476T	2.56	1.08	
322T	2.03	1.06		487T	1.56	.73	PdX(S)
335T	2.56	1.21		488F	1.83	1.06	
338T	2.69	1.21		490F	1.61	.96	PdX(S)
347F	3.39	1.10	PdX(O)	492T	2.14	1.50	
351T	2.97	1.25		495T	1.75	1.05	
355T	4.72	.61	PdX(O)	513F	1.42	.91	PdX(S)
358T	3.61	1.13	PdX(O)	518T	2.19	1.12	
365T	3.25	1.23	PdX(O)	521T	1.50	1.06	
383T	1.50	.91	PdX(S)	523F	1.67	.89	PdX(S)
386T	1.72	.85	PdX(S)	529T	1.61	1.10	
391T	1.75	1.11		537T	1.75	1.18	
397T	1.19	.71	PdX(S)	542F	2.25	1.13	
404T	2.06	1.12		548F	2.33	1.07	
406T	2.39	1.13		551T	3.08	1.34	PdX(O)

VITA 2

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Candidate for the Degree of

Doctor of Philosophy

Thesis: THE PREDICTIVE VALIDITY OF SUBTLE AND OBVIOUS EMPIRICALLY DERIVED PSYCHOLOGICAL TEST ITEMS UNDER FAKING CONDITIONS

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