

AN ABSTRACT OF THE THESIS OF

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Title: A Replicated Study Comparing MMPI-A and MMPI-2

Scores with 18-Year-Old College Students

Abstract approved: Cooper B. Holmes

This study examined the MMPI-A and MMPI-2 profiles of 18 year old college students for the purpose of examining any differences between the tests. It is a replication of Kendall's 1995 study with the addition of the variable designed to ascertain the appropriateness of administering the MMPI-A over the MMPI-2. Fifty-five college students participated in the study. The profiles of 4 women and 3 men were discarded due to F, L, or K Scale elevations, resulting in 48 participants, 27 women and 21 men. Two repeated measures analysis of variance were used to analyze the data, one for women and one for men. The overall F test for neither group was significant, nor did the variable assessing independence reach significance. Correlation coefficients for the 10 clinical and 3 validity scales for men and women produced correlations ranging from .24 to .87. In comparison to Kendall's work, this study found the MMPI-A and MMPI-2 to be comparable tests when used with this population. Future research should use a more representative sample of 18 year olds.

A Replicated Study Comparing MMPI-A and MMPI-2  
Scores with 18-Year-Old College Students

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A Thesis

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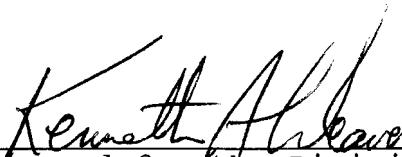
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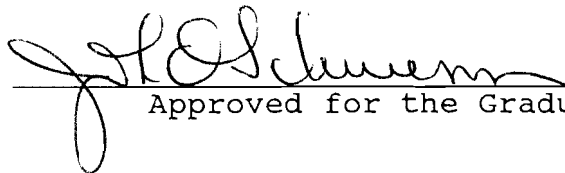
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## TABLE OF CONTENTS

	PAGE
ACKNOWLEDGEMENTS.....	iii
LIST OF TABLES.....	iv
CHAPTER 1: INTRODUCTION.....	1
Review of the Literature.....	1
CHAPTER 2: METHOD.....	12
CHAPTER 3: RESULTS.....	16
CHAPTER 4: DISCUSSION.....	21
REFERENCES.....	24

## LIST OF TABLES

	PAGE
Table 1: Mean T-Scores and Standard Deviations on MMPI-2 and MMPI-A for Women.....	17
Table 2: Mean T-Scores and Standard Deviations on MMPI-2 and MMPI-A for Men.....	18
Table 3: Correlation Coefficients Between MMPI-2 and and MMPI-A Validity and Clinical Scales.....	20

## CHAPTER 1

## INTRODUCTION

The Minnesota Multiphasic Personality Inventory (MMPI) (Hathaway & McKinley, 1951), revised as the MMPI-2 (Butcher, Dahlstrom, Graham, Tellegen & Kaemer, 1989), is among the most widely used adult psychological tests in clinical assessment and research settings (Archer & Kleinfelter, 1991; Matz, Altepeter, & Perlman, 1992; Williams, 1986). Although it was not originally intended for use with younger populations, the MMPI has been used in the assessment of adolescent psychopathology for over 40 years (Gallucci, 1993; Klinefelter, Pancoast, Archer, & Pruitt, 1990). In time, however, research specific to adolescent performance on the MMPI revealed profiles inconsistent with those of adults, thus calling into question the appropriateness of using the MMPI with this population. The MMPI-Adolescent (MMPI-A) (Butcher et al, 1992) was developed with these problems in mind (Archer, 1992) in order to glean clinically valid and reliable information from 14 to 18-year-old adolescents in light of their MMPI differences compared to adults.

## Review of the Literature

Research regarding the wide use of the original MMPI with adolescents has provided insight into its usefulness and the problems concerning this practice. Adolescent MMPI profiles are noted for their utility when integrated into

therapy sessions. According to Williams (1986), the MMPI can aid in the development and rationale of treatment techniques and rapport building. Furthermore, through retesting, progress can be monitored. Archer (1989) noted the relevance of the MMPI in forensic settings, stating adolescent profiles provide insight into various psychiatric symptoms, attitudes, and behaviors including substance abuse and delinquency. More generally, the MMPI has been used to monitor changes in the characteristics of college students (Fowler & Coyle, 1969). Regardless of Hathaway and Monachesi's (1963) warnings against it, the MMPI has become the most widely used personality inventory with adolescents (Archer, 1992; Archer & Klinefelter, 1991). The research to support this use, however, is inconsistent. Using adult norms with adolescents, classifying adolescents by using critical items to indicate pathology, detecting response sets, and using adult code types and descriptors are among the problems which lead researchers to call into question the use of the MMPI with adolescent respondents (Archer, 1987, 1989; Colligan & Offord, 1992; Williams, 1986).

#### Adolescent Responses to Adult and Adolescent Norms

For over a decade, Hathaway and Monachesi discouraged the development of adolescent norms stating the practice would "obscure significant adolescent psychopathology" (Pancoast & Archer, 1988, p. 692). Therefore, testing with



adolescents incorporated adult norms which consistently exaggerated psychopathological symptoms in adolescent profiles, that is, the particular pattern of scores on the MMPI (Archer, 1987, 1989; Ehrenworth & Archer, 1985; Williams, 1986). The average adolescent profile utilizing adult norms results in significant scale elevations on scales F (Infrequency), 4 (Psychopathic Deviate), and 8 (Schizophrenia) (Archer, 1984, 1987; Ehrenworth & Archer, 1985; Williams, 1986). In addition to the above, Pancoast and Archer (1988) found elevations on scales 6 (Paranoia), and 9 (Mania). Archer (1989) reported elevations in scale 7 (Psychasthenia) as well. Adolescents' elevated scale scores may be directly related to issues indigenous to that age such as gaining individualization from family, identity formation, and the development of physical and psychological concepts of self (Archer, 1989). Therefore, literal acceptance of these exaggerated profiles had potentially dangerous ramifications including unnecessary, perhaps even harmful, psychological treatment (Archer, 1987; Ehrenworth & Archer, 1985).

Adolescents norms have been developed by several researchers, each set carrying with it important consequences regarding profile elevation. The original Marks and Briggs norms, developed in 1974, were once considered "impressively accurate" but no longer provide

useful information with contemporary adolescents (Archer & Pancoast, 1988). Archer and Pancoast (1988) suggested a revision of these original norms. Since then, Klinefelter, Pancoast, Archer, and Pruitt (1990) stated that "The Colligan and Offord norms more accurately represent contemporary normal adolescents than do either Marks and Briggs or Gottesman et al. norms" (p. 386). Although Colligan and Offord norms produce profiles that are low for psychiatric samples, those collected from Marks et al. and Gottesman et al. produce scores that are high for normal adolescents. Currently, the preferred adolescent norms are those developed by Marks, Seeman, and Haller (1974), although their use with Blacks and other minorities is questionable (Archer, 1989). Furthermore, these norms do not employ the K-correction, lending them vulnerable to error if plotted on adult profiles which require K-corrected T-score conversion (Archer, 1989).

Another problem discussed by Ehrenworth and Archer (1985) is the perceived normality of profiles rendered from adolescents with demonstrated psychopathology. To correct this error (most commonly found among psychiatric patients), the authors suggest lowering T-score cut-off levels for adolescents from 70 to 65. Whereas the development of adolescent norms are beneficial, Williams (1986) suggested plotting both adolescent and adult norms for comparative purposes.

Regarding the development of the MMPI-2, Butcher, Graham, Dahlstrom, and Bowman (1990) found college students produced MMPI-2 profiles similar to the original normative sample suggesting its use with 18 year olds is appropriate. Individuals below the age of 18, on the other hand, were not included in the sample.

#### Classifying Adolescents With Critical Items

Another possible problem with the MMPI is the utilization of critical items used to assess adolescents. According to Archer and Jacobson (1993), "the term critical item refers to the concept that a specific item endorsement may indicate the presence of a particular psychological concern or behavior problem, that is, that the endorsement of certain items is a critical indicator of the presence of psychopathology" (p. 547). Although several critical item lists have been developed for adults, their use with adolescents has not been established (Archer & Jacobson, 1993). Specifically, the concern over critical items and adolescents is based on the different items endorsed by this population in relation to adults (Archer, 1989).

Adolescents, according to Archer (1989), endorse items from scales F, 4, 6, 8, and 9, more frequently than adults. Critical items from these scales are sometimes used as markers for psychopathology. This finding appears almost rational in the context of adolescence, often referred to as a "turbulent" period of development

characterized by rebellion, problems with impulse control, social isolation, and family conflict (Archer, 1984). Others claim adolescents' struggle for individualization and identity development explain their tendency to endorse unusual items (Archer, 1989; Archer & Jacobson, 1993). Research by Archer and Jacobson (1993) found both normal teenagers and those diagnosed with psychological disorders answer critical items in the abnormal direction more frequently than adults. This is particularly true with scales F, 4, and 8. Williams (1986) found adolescent profiles were often characteristic of sociopathic or psychotic types as indicated by elevations on scales 4, 8, and 9. As a result, assessing adolescent psychopathology with critical items may be unacceptable and should not be part of the interpretation process (Archer & Jacobson, 1993).

#### Adolescent Profiles and Adult Empirical Descriptors

Interpreting adolescent profiles has yet another problem in that code-type classification, a pattern of significant elevations on two or more clinical scales, has yet to be validated with adolescents (Gallucci, 1993). Therefore, authors recommend caution when using this approach (Butcher & Williams, 1992; Gallucci, 1993; Williams & Butcher, 1989a, 1989b). Code types are often used to determine empirical descriptors (or patterns of scale elevations thought to describe various behaviors or

personality characteristics such as drug use, for example). Empirical descriptors specifically for adolescents have not been established. Consequently, adolescent profiles are interpreted using adult interpretative descriptors (Williams & Butcher, 1989a). This practice does not necessarily pose a problem, according to Williams and Butcher's (1989a) study revealing that adolescents' clinical scales yielded descriptors similar to adult descriptors with the exception of scale 5 (Masculinity-Femininity). In other words, with few exceptions, utilizing adult descriptors when interpreting adolescent profiles is acceptable. Gallucci (1993) urges caution with this procedure when K (Defensiveness) scales are elevated. Among the five interpretive strategies for adolescent profiles listed by Butcher and Williams (1992), the scale descriptor interpretative approach, which relies on scale descriptors rather than code types, is recommended by those authors.

#### Identifying Adolescent Response Sets

Another notable problem with the MMPI is that adolescent response sets and random responses, "faking-good" and "faking-bad" are often different from the patterns produced by adults, making them less easily recognized (Archer, Gordon, & Kirchner, 1987). Research on the subject claims adolescents may produce "all-true," "all-false," and "fake-bad" profiles similar to adults (Archer, 1984; Archer, Gordon, & Kirchner, 1987). Random response sets and "fake-

good" profiles, on the other hand, are not comparable to adult profiles. Both Archer (1989) and Archer, Gordon, and Kirchner (1987) reported traditional validity scales may not detect adolescents' (primarily in inpatient settings) attempts at "faking-good" (effectively simulating normalcy when serious psychopathology exists). Furthermore, random response set profiles scored on adolescent norms are elevated substantially less than adult scored counterparts (Archer, 1989). In this case, although adolescent and adult elevations are similar, profiles plotted using adolescent norms yield different configurations relative to those plotted with adult norms.

#### The Development of the MMPI-Adolescent

Once the restandardization project of the MMPI (i.e., development of the MMPI-2) was underway, careful consideration was given to the development of an adolescent inventory in light of frequent complaints by clinicians and researchers regarding the problems associated with using the original MMPI with adolescents (Archer & Krishnamurthy, 1994). In 1989, a restandardization committee was developed to ascertain whether or not a separate form of the MMPI specifically for use with adolescents should be developed given problems with adolescents may not subside with the development of the MMPI-2 (Butcher & Williams, 1992). The MMPI-Adolescent (MMPI-A) was released in August, 1992. This new form was developed with the following goals in mind:

(a) develop a representative normative sample, (b) shorten the inventory, (c) secure continuity from the MMPI to the MMPI-A, (d) address items relevant to contemporary adolescents, and (e) help standardize adolescent assessment (Archer, 1992).

The MMPI-A normative sample included 805 boys and 815 girls from various states, ranging in age from 14 to 18 years old. However, only 87 of 1,620 participants were age 18. This obvious underrepresentation has spawned questions regarding the inventory's validity with this age group. Samples were balanced for various ethnic groups and diverse backgrounds (Butcher & Pope, 1992). The MMPI-A contains 478 items, four new validity scales, 15 new content scales, and 3 new supplementary scales (Archer & Krishnamurthy, 1994). The MMPI-A validity and clinical scales remained virtually the same as the MMPI-2 with the exception of Scales 5 (Masculinity-Femininity) and 0 (Social Introversion) which were reduced in length (Butcher & Pope, 1992). Would such substantial changes in the MMPI-A affect the ability to generalize research from the original MMPI to the new form? Changes did not affect such generalizability (Archer & Gordon, 1994).

Whereas the research base for the MMPI-2 and MMPI-A continue to grow, there remains a conspicuous absence in the literature regarding the most appropriate inventory to be

used with 18 year olds, the only age at which either inventory may be used. The only relevant study, conducted by Kendall (1995), found the MMPI-2 produced consistently higher mean scores than the MMPI-A for both sexes among 18-year-old participants. This may indicate that either the MMPI-2 exaggerates profiles in the psychopathological direction or psychopathology is underestimated by the MMPI-A.

Although vague guidelines such as financial independence, work experience, residential status (lives with relatives), and school attendance allude to conditions under which each inventory might be chosen with this population, clinicians may benefit from research which examines any differences in 18-year-old's MMPI-A and MMPI-2 profiles. This information can be used to improve diagnostic accuracy and aid in the development of treatment plans resulting in better clinical prognosis and outcome among this age group. Practitioners may also benefit from understanding the differences and similarities of the tests.

The purpose of the present study was to compare MMPI-2 and MMPI-A profiles of 18-year-olds to examine any differences in their scores; it is a replication of Kendall's (1995) work. This replication is to be conducted in light of the potential significance any results may have relative to clinical assessment and psychology in general. In addition, demographic questions regarding financial and



residential status were included to ascertain each participants' level of independence. This information was chosen in light of the guidelines provided by test authors by which to choose the correct inventory.

The results of this study are to be consistent with Kendall's (1985). Specifically:

1. Significant differences on several scales between the MMPI-A and MMPI-2 for both men and women.
2. Unacceptably low correlation coefficients between the MMPI-A and MMPI-2 clinical and validity scales.

## CHAPTER 2

## METHOD

Participants

Fifty-five 18-year-old college students from Emporia State University initially participated in the study; 31 females, and 24 males. Seven inventories were discarded due to L, F, or K Scale elevations resulting in 48 participants included for analysis (27 women, 21 men). Students enrolled in either Introductory Psychology, Developmental Psychology, or Psychology Lab voluntarily signed up to participate in order to fulfill class requirements. Participants were informed from both the sign up sheet and by phone that participation would require attendance at two separate test sessions lasting approximately 45 minutes to one hour each. Students were awarded two points toward class requirements for participating.

Design

The between subjects independent variable was the MMPI with two levels (MMPI-2 or MMPI-A) and the within subjects independent variable was the 13 scales. Thus, the study had a 2 (Test) X 13 (Scales) mixed factor design. The dependent variable in the study was the T-scores for each of the 13 MMPI scales (the 3 validity scales and 10 clinical scales).

Procedure

The researcher first submitted an application for

approval to the human subjects committee. A stamped sign up sheet, specifically requesting 18-year-old students, was posted allowing them to volunteer and indicating their phone number. Each student was contacted by phone to confirm scheduled appointments one day prior to meeting. The order of testing (MMPI-A first or MMPI-2 first) was pre-determined and counterbalanced across subjects.

Due to the length of time required to complete the MMPI-A and the MMPI-2, only the first 350 items on the MMPI-A and the first 370 items on the MMPI-2 were completed by participants. The 10 clinical and 3 validity scales were included in these items. The remaining items for supplementary scales, those not used for standard MMPI analysis, were not completed. Answer sheets were prepared prior to each session; a red line was drawn after item 370 on the MMPI-2 and after item 350 on the MMPI-A signaling participants to stop at that point.

All test sessions were conducted by the researcher. Students were tested in groups of 5 to 10. As they arrived at each session, they signed a participant confirmation sheet. All participants then read and signed an informed consent sheet. Upon completion of the latter, participants were given a test booklet, answer sheet, and a pencil. They were instructed to indicate their sex and answer the following demographic questions which were stapled to the cover of each answer sheet: (1) Are you

currently living with a parent or relative? (2) Are you financially responsible for your education? The following instructions were then read by the examiner while participants silently read along from the instructions in the test booklet:

You are here to take the MMPI-A (or the MMPI-2).

Answer each item either true or false, as it applies to you, and fill in the appropriate circle on your answer sheet. Try to answer every item. Please complete only the first 350 items of the MMPI-A (the first 370 items of the MMPI-2) to where the red line has been drawn on your answer sheet. Once you have completed the inventory, I will schedule a time for you to return and take the second inventory. Thank you for your time.

Upon completion of the inventory, participants again signed the confirmation sheet (under the "sign-out" section) as well as provided the name of their instructor. Numbers were assigned to individuals and recorded on the participation confirmation sheet and their answer sheets. This number allowed the researcher to match the participant's two inventories while maintaining confidentiality. Before the subject left, the second testing session was scheduled. Participants attended the second session within two weeks of the initial session. They were given a confirmation card serving as a reminder including their number as well as the date and time of the

second scheduled appointment. This procedure was followed with each participant. If students failed to arrive at the session, the researcher attempted to reach them by phone and reschedule.

The second testing session followed similar procedures. Participants signed a different confirmation sheet (under the "sign-in" section), received test materials, and listened to the instructions while following along. Instructions were the same as those read during session one with two exceptions: the name of the test and the number of questions to be answered. Upon completion, participants signed out and their number was written on the answer sheet. In the event that participants forgot their number, the researcher referred to the initial confirmation sheet. Participants then received a stamped receipt to be given to their instructor to ensure class credit was given.

### Data Analysis

All MMPI-A and MMPI-2 inventories were paired using the numbers assigned during the first test session. Each answer sheet was hand scored. Participants' data from both inventories were discarded as invalid if either inventory had a Cannot Say (?) Scale raw score greater than or equal to 35, an L-Scale T-score of 65 or more, a K-Scale T-score equal to or greater than 65, or an F-Scale T-score equal to or greater than 100. Additional students were tested to replace those lost because of invalid data.

## CHAPTER 3

## RESULTS

Fifty-five students participated in the study. However, the profiles of 4 women and 3 men were discarded; 3 due to K-Scale T-score elevations above 65, 3 due to T-score elevations above 65 on Scale L, and one due to a T-score elevation above 100 on Scale F. As a result, the profiles were included for analysis.

Participants' raw scores were converted to T-scores for statistical analysis. MMPI profiles for males and females utilize different norms for scoring. Two 2 (Test) X 13 (Scale) repeated measures analysis of variance were computed; one utilizing men's scores on both inventories, the other utilizing women's scores. Correlation coefficients between the validity and clinical scales of the MMPI-A and MMPI-2 were also calculated.

The overall  $F$  tests for the MMPI-2 and MMPI-A were not significant for either men,  $F(1, 21) = 1.73, p > .05$  or women,  $F(1, 27) = 1.07, p > .05$ . Consequently, proceeding with follow up paired t-test analysis. Mean T-scores and standard deviations are presented in Tables 1 and 2. Each participants' level of independence, as determined by the demographic questions, also failed to reach significance for women,  $F(1, 27) = .24, p > .05$  or men,  $F(1, 21) = 1.34, p > .05$ .

The correlation coefficients between the clinical and

Table 1

Mean T-Scores on MMPI-2 and MMPI-A for Women

Scale	<u>MMPI-2</u>		<u>MMPI-A</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
L	46.18	7.85	50.81	5.89
F	52.07	11.52	42.07	3.97
K	43.47	6.57	51.55	7.54
1	50.51	11.46	47.22	12.08
2	52.55	10.51	47.81	9.17
3	50.33	12.61	45.29	10.69
4	48.00	9.31	43.18	7.05
5	54.07	9.07	48.07	7.57
6	51.55	10.37	46.48	9.71
7	54.07	10.17	45.59	5.80
8	51.48	9.91	42.48	5.51
9	52.96	8.67	45.14	5.75
0	53.96	10.74	50.88	9.52

Table 2

Mean T-Scores on MMPI-2 and MMPI-A for Men

Scale	<u>MMPI-2</u>		<u>MMPI-A</u>	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
L	49.14	7.58	50.09	6.48
F	54.95	14.19	43.61	5.32
K	46.47	9.25	49.38	9.69
1	54.04	11.04	48.00	9.52
2	52.52	10.89	49.04	7.03
3	50.04	8.88	48.23	8.40
4	56.28	12.86	49.71	10.76
5	49.28	11.78	48.23	13.03
6	54.00	11.53	49.81	7.29
7	57.28	10.54	49.38	9.94
8	58.61	11.08	46.28	9.24
9	57.57	13.90	51.14	14.46
0	53.66	12.03	45.85	11.05



validity scales of the MMPI-A and MMPI-2 are presented in Table 3. For women, all correlations were relatively high (above .65) with the exception of scales F, 5, and 9 which produced significant, moderately high correlations, and Scale 6 whose correlation was the only nonsignificant one. Regarding men, Scales L, F, and 6 produced significant, moderately high intercorrelations; the remaining scales were correlated above .60.

Table 3

Correlation Coefficients Between MMPI-2 and MMPI-A  
Validity and Clinical Scales

Scale	<u>r</u> for men	<u>r</u> for women
L	.55*	.70**
F	.53*	.47*
K	.70**	.78**
1	.71**	.82**
2	.67**	.77**
3	.63**	.84**
4	.73**	.66**
5	.84**	.44*
6	.46*	.24
7	.72**	.75**
8	.60**	.69**
9	.87**	.56**
0	.81**	.71**

\* $p < .05$

\*\* $p < .01$

## CHAPTER 4

## DISCUSSION

This study was conducted to assess the comparability of the MMPI-2 and the MMPI-A when used with 18-year-old college students. Whereas Kendall's (1995) study yielded statistical significance on 9 of 13 scales for women and 6 Scales for men, the present research failed to produce any such results. In other words, according to these findings, either instrument, the MMPI-A or the MMPI-2, is suitable for use with this population.

Regarding the correlation coefficients between the MMPI-2 and MMPI-A validity and clinical scales, the majority were moderately high to high, indicating more similarities than differences between the two inventories.

Interestingly, Kendall's (1995) study indicated women produced higher correlations overall whereas the current study found men to have a greater number of high correlations. The lowest correlation for both studies was located on Scale 6, and therefore might indicate a poor relationship between the inventories on this scale in particular. Other than the increased sample size and date, participants were drawn from the same population. Perhaps an unknown sample difference exists that offers the most likely explanation for differences between the present study and Kendall (1995).

The attempt to establish a relationship between

participants' test scores and their level of independence proved not significant. This result provides useful information in that one can assume various aspects of independence make no difference to an 18-year-old's MMPI-A or MMPI-2 scores. To say independence is not an issue, however, is not yet definitively answered as it was measured in the present study by two questions answered by self-report. Perhaps a more global measure of this variable would provide further insight into this issue.

### Conclusion

In light of the discrepancies between this and Kendall's (1995) study, there are many similarities as well. Although there is no precisely determined explanation for these differences, they are probably due to sampling differences. In addition, while statistical differences were found by Kendall (1995), the clinical significance of her results to clinicians and researchers is lacking. That is, the actual differences between means would not result in a different interpretation. In light of Kendall's study showing statistical but not clinical differences and the present results, either test may be used with 18-year-old individuals.

Further research into determining the most accurate inventory to be used with this age group is needed. Future studies could benefit from examining a more global measure of independence. Also, because the current study's sample

was limited to college students, investigating a more representative sample of individuals this age including high school students and those not attending school would be beneficial.

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Megan Beishline  
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August 2, 1996  
Date

A Replicated Study Comparing MMPI-A and  
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Students

Naug Cooper  
Signature of Graduate Office Staff  
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