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Research in the M.S.W. Curriculum: Correlates of an Effects on Student Attitudes and Knowledge

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RESEARCH IN THE M.S.W. CURRICULUM: CORRELATES OF AND EFFECTS ON STUDENT ATTITUDES AND KNOWLEDGE

by

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A B S T R A C T

To determine the effect of graduate social work research courses on student research knowledge and attitudes towards research and to find predictors of these, two groups of social work students -- one tested prior to and another tested following their social work research courses -- were measured on several antecedent variables and on a test of research knowledge, attitude and interest in research as a career. Having an undergraduate major in psychology was predictive of high research knowledge and having had prior research work experience was indicative of a positive attitude towards research. Post-research course students demonstrated greater knowledge of research and a stronger interest in research as a career than Pre-research students. Attitudes towards research were not different between groups however the Research group expressed a less favourable attitude towards research in the field placement and the introductory research course than the Pre-research students. The findings were interpreted as indicating that the research courses had an effect of increasing the research knowledge and interest in research as a career of social work students exposed to the courses in spite of some dissatisfaction with elements of the research courses.

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THE PROBLEM

INTRODUCTION

A major goal in education for social work is the acquisition of knowledge that has application in the professional practice of social work. Although social work knowledge has many and varied sources, communicable and verifiable knowledge, generated as a result of empirical research, is forming an ever-increasing and more significant portion of the knowledge base of social work- modifying, expanding and often displacing traditional "practice wisdom".

The social work practitioner with a historical tendency to regard his practice as an "art", is increasingly being called upon to add a "science" dimension to practice and become an applied social scientist, utilizing knowledge from social research. For the social work practitioner to incorporate this as a part of his role, he needs not only to have knowledge of the results of empirical research, but he must also know how this source of knowledge is derived and how to evaluate it. Schools of social work are attempting to meet these needs by introducing the results of empirical research into their practice concentrations

and by requiring research courses as part of this curriculum. The burden however appears to have been on the latter for producing social workers with a more scientific orientation.

How successful are research courses in schools of social work for the development of more empirically oriented social work practitioners?

As a member of a class of students in the introductory research course (required of all students) at the Wilfrid Laurier University Faculty of Social Work, the author had opportunity to observe and participate with other students in learning about social work research. The general objectives of this course were to "review and confirm a basic knowledge of research methodology, including the role of statistics; to orient the student to the application of research methodology, design alternatives and statistical analysis to the kinds of problems addressed in social work practice; to note the interdependence of inductive and deductive approaches to knowledge and theory building" (for complete, detailed course objectives, see Appendix A).

From observations of the students, the author became aware of the importance of both prior and developing attitudes of students towards research as an area of social work practice and the effects that these attitudes had on

their appreciation and learning of research methods. Some students appeared to develop or had developed a negative attitude towards research in social work and this seemed to dictate a minimum of effort towards achieving the objectives set for the course. Although these observations were based on a small sample, the area of attitudes towards and knowledge of research warranted further study.

STATEMENT OF PROBLEM

The problems addressed in this study concern the relationships between background variables and knowledge about and attitudes toward research, and changes in knowledge and attitude after exposure to aspects of the social work education program that dealt specifically with research.

The purposes to be served by this investigation are to confirm and extend theory and empirical knowledge about the relationships in question, and to provide data that may aid instructors responsible for the planning and teaching of the research aspects of the curriculum. For example, the results may have implications for the improvement of the quality of social work research, through the selection of students who would ultimately engage in research activities following their formal social work studies.

To solve the problems and achieve the purposes of the study, two samples of students - one from the first year class of social work students not yet exposed to the research aspects of the curriculum, the other from the second year class at the end of their studies for the Master of Social Work degree and therefore having completed and fulfilled the research requirements - were assessed by means of three instruments, a background questionnaire, a previously developed measure of attitudes and research knowledge and a semantic differential questionnaire. Statistical procedures were applied to these data to determine the nature of the relationships in question.

CHAPTER 2

REVIEW OF RELATED LITERATURE

This study is concerned with the nature of the relationship between antecedent variables and attitude towards and knowledge of social work research, and changes in the latter two variables among social work students following their curricular research courses and experiences. The review of literature will deal with empirical studies which examine (a) the impact of social work research courses on research knowledge and attitudes towards research and (b) variables associated with both prior and subsequent attitudes and competency in social work research.

Goldstein (1967) conducted the first empirical study in the area of research teaching and learning of social work research. He worked from the assumptions that most students choosing social work were service oriented rather than interested in knowledge development, and that if the profession was to expand its knowledge base and develop a practice stance more oriented towards the principles of science, then students interested in knowledge development should be identified early and that methods of maximizing the potential of this group should be developed.

To identify this group of students he devised the "Measurement of Attitudes and Research Knowledge" (hereafter known as the MARK) instrument, which he administered to students about to enroll in five different schools of social

work (N=263). Based on their scores, he divided the students into three distinct types. His first type was the "doer" who was found to have been the most knowledgeable about research prior to enrolling in a school of social work, and who had a very positive attitude towards the place of research in social work. The second type was characterized as the "supporter" type who had almost as much prior knowledge and positive attitude as the "doer" type but was different from them in that they had expressed less interest in engaging in research. They were seen as likely to encourage research by others once they were employed in the field. The third, the "reactor" type were the least prepared for research, and questioned the usefulness of research for the social work profession.

These students were retested following the completion of an introductory social work research course. It was found that the doer group learned the least, or had the smallest gain score in research knowledge when compared with the other two groups. Goldstein hypothesized that the learning needs of the doer group were not being met due to methods of teaching used and this hypothesis formed the basis for a further study, (1972), which is discussed later on in this chapter.

In 1968, Goldstein reported, after a further analysis of the data from his previous study, that there had been a decrease in students' confidence in science as a problem solver (the attitude factor measured by the MARK) between the time

of entry into a school of social work and the termination of their social work education. The greatest change was found to be among the "supporter" type who changed their orientation to that of the "reactors" and therefore questioned the usefulness of social work research. Goldstein speculated that there may be some aspects of the climate in schools of social work that are likely to discourage student interest in knowledge development and therefore preclude movement to the "doer" group type of thinking among students.

In a larger study, using more students and schools (N=571, # of schools = 8), Goldstein (1972) confirmed his earlier findings regarding student gains in research knowledge following the introductory research course and he also found that knowledge of research was retained at least until graduation. He also discovered that attitude towards research did not change significantly among these students in their two years of social work education.

Linn and Greenwald (1974) conducted a study of the impact of an innovative social work research course on student learning of research, and on student attitude towards research in social work. Using the method of group discussion and workshops, with a minimum of didactic instruction, students (N=32) covered the topics of scientific method, hypothesis development and testing, measurement, computer techniques of data processing,

research design, concepts of variance and correlation, reliability and validity. Measures on the dependent variables were taken before and after the course. Knowledge was measured on a ten-item multiple choice test (no validity or reliability data provided) and attitudes were determined using the semantic differential technique which measures attitudinal reactions towards concepts. The concepts were "social worker", "research social worker", "social caseworker", "social group worker", "me-as-a-student" and "field placement".

They found that there was a significant increase in knowledge of research as measured and that the attitude towards the concept of "research social worker", which was viewed most negatively prior to the course, changed and was among the social work roles viewed most favourably at the end of the course.

Concurrent with their studies of change in research knowledge and attitudes towards research, Goldstein, and Linn and Greenwald examined antecedent variables and their relationships with student knowledge of research and attitudes toward research (both pre-curricular and post-curricular). These attempts have met with a uniform lack of success in finding indicator or predictor variables. Goldstein (1967) found no significant relationships between student background characteristics of family income, father's occupation and education,

mother's education, size of home town, or type of university from which a student received his degree and pre-curricular scores on research knowledge and attitude towards research, as he measured them. In his 1973 study, Goldstein measured, (using some previously developed instruments of other authors), student social work values, their orientation to knowledge (open system versus closed system learners) and their ability to relate to clients. These measures which had at least reasonable face validity and reliability, were found to be unrelated to either pre-curricular or post-curricular scores of research knowledge or attitude towards research.

Linn and Greenwald similarly collected data on students' age, sex, marital status, number of children, amount and kind of job experience, job preference in the area of social work, number of undergraduate research courses, undergraduate majors and grade-point averages and found no significant correlations of these with their measures of research knowledge and attitude toward research either prior to or following their introductory research course.

The above-mentioned studies deal with research conducted among social work students. Other empirical studies have been reported which examine the utilization, consumption and production of research by social workers employed in the field. These variables are studied with reference to social work curriculum

variables and therefore have relevance to the current study.

Casselman (1972) surveyed the social work graduates of the Class of 1968 at Smith College (N=44) in order to determine how committed these practitioners were to social work research. She found that although there was a strong verbal commitment to research, their effective utilization of research in practice was minimal. She also discovered that practitioners tended to separate research from practice and this finding was linked to the fact that the results from research were rarely integrated into the teaching of practice skills. This separation was reinforced by the practitioners' attribution of characteristics to researchers that were contrary to the ideals of casework. The survey also revealed that those practitioners who had social work experience prior to their enrolment in a school of social work and who had no exposure to research in their fieldwork experiences were the least likely to produce research. She concludes that the active commitment of the profession to research is weak and that attitudes developed through the social work curriculum are at least partially responsible for this.

Kirk, Osmalov and Fischer (1976) examined social workers' involvement in research by surveying a representative sample (N=470) of employed social workers who were members of the American based National Association of Social Workers. Involvement in research was measured along three dimensions -

production of research, use of research and consumption of research. They also constructed a six-item Attitude Index purporting to measure favourable attitudes to social work research. Data on employment and scholastic variables were also collected.

They found that less than 1/3 of respondents, who as a group had spent a median of seven years in social work practice, had conducted a formal research project since leaving school. Only 5.1% had conducted more than four research projects. The majority (56.1%) did not consult research material when confronted with difficult practice situations. Respondents' consumption of social work research articles was also modest. The median number of articles read monthly was four and the majority of these did not have a major focus on reporting, reviewing or analyzing research.

A positive attitude to research, as measured, was related to a higher production, utilization and consumption of research. The latter variables were also correlated with respondents' total number of courses in research and statistics. The relationship between the Attitude Index score and the number of research and statistics courses completed was positive but weak. ($r=16$, p .001). Partial correlation of these variables indicated that the Attitude Index and the total number of research courses were independently related to involvement

in research.

Most of the variation in the respondents' involvement in research was not accounted for and the authors speculate that knowledge of research methodology was likely an important factor. Those social workers with greater competence in research may be more likely to produce and consume social work research. Another factor that could influence patterns of utilization was that schools of social work and the manner in which they teach research and statistics vary greatly and therefore some graduates may be better equipped with the skills necessary for research-based practice.

The authors recommended that since the number of research and statistics courses was positively related to involvement in research that schools of social work could increase the involvement of future practitioners in research by offering and encouraging students to take additional courses in research and statistics.

Implications of Past Research for the Current Study

From the research studies cited above, two aspects can be examined that have relevance to the current study - (a) methodology, specifically instrumentation and measurement and (b) prediction from these studies for the purpose of hypothesis development.

The problem of measurement was handled in different ways by these researchers. To determine the student's

knowledge of research, Goldstein relied on the MARK knowledge subtest, and Linn and Greenwald utilized a ten-item multiple-choice test. To measure attitude towards research, Goldstein depended on the MARK attitude subtest, and Linn and Greenwald made use of the semantic differential technique. Kirk, Osmalov and Fischer developed an Attitude Index. Each of these measures can be examined in more detail, with special reference to their validity and reliability. Comment follows on each of these instruments.

The ten-item test of research knowledge, developed by Linn and Greenwald, has no reported validity or reliability data and therefore has limited usefulness for the purpose of the current study.

The research knowledge content of the MARK was based on questions about statistics, steps in the scientific method, conceptualization, sampling, research design, questionnaire development, reliability, validity, and the meaning of various research terms. The MARK "attitude towards research" items dealt with the value and usefulness of social work research, the influence of research on practice and feelings about the introductory research course and social work research. Goldstein did not provide reliability and validity data for the two MARK subtests. Instead, he used the total MARK score (knowledge plus attitude subscores). He found a split-half reliability coefficient of .80 for a large sample of social

work students. The validity of the instrument was tested by using the MARK to predict final course grades in the introductory social work research course, and he found a correlation of only .40 between grades and MARK scores. The use of the total MARK score to validate the knowledge and the attitude items was questionable since the attitude items could not presumably be validated using grades as a criterion. The low predictive validity of the MARK could be due to this procedure of combining the scores or may indicate that the criterion of grades is itself not valid, reliable, or free from contamination or bias. If the former is the case, the two subtests could better have been validated separately, with grades as the criterion for the knowledge subtest and, lacking a criterion for the attitude items, validation by means of criterion groups. If the latter is the case, then the validity of the MARK knowledge may be higher than indicated. Therefore, as far as criterion-related validity is concerned, this author concludes that the MARK knowledge and attitude subtests are unproven.

Lacking criterion-related validity, the face validity of the subtests can be considered. The knowledge subtest of the MARK appears to be relevant to the purpose of the test. The instrument has varied content about many different aspects of research and seems to measure wide levels of knowledge. While some schools may teach material not

measured by the MARK, it appears unlikely, in view of the breadth of knowledge tested by these items, that this would be a substantial portion of their course content. It therefore seems probable that if students learn any of the usual content of research courses, they would score higher after the course than before on the knowledge items. The knowledge subtest therefore appears to have face validity.

The face validity of the MARK attitude subtest poses somewhat more of a problem. The test purports to measure student attitudes towards social work research and while most of the items appear relevant to that task, other items dealing with preference for various research topics and feelings about the introductory research course may not be relevant. For example, a negative response to "the research course" is tallied as an anti-research attitude, however, some students could presumably look favourably on research in social work but be dissatisfied with the course because their expectations were not met. With the exception of these two items, the subtest appears to possess reasonable face validity but must still be regarded as an experimental instrument to measure attitude towards research.

In order to measure student attitudes, Linn and Greenwald utilized the semantic differential technique. The use of the semantic differential technique as a measure of attitude was advocated by Osgood, Tannenbaum and Suci (1957).

In their studies, it was found that attitudes can be ascribed to some basic bipolar continum with a neutral or zero reference point, implying that they have both direction and intensity and providing a basis for the quantitative indexing of attitudes.

The semantic differential (SD) measures peoples' reactions to stimulus words and concepts in terms of ratings on bipolar scales defined with contrasting adjectives at each end. An example of an SD scale is:

GOOD ___ ___ ___ ___ ___ ___ ___ BAD
3 2 1 0 1 2 3

The position marked 0 is labelled "neutral", the 1's are labelled "slightly", the 2's as "quite" and the 3's as "extremely". A scale such as this one measures directionality of a reaction (e.g., good versus bad) and also intensity (slight through extreme). Typically, a person is presented with some concept of interest, e.g. CASEWORK, and asked to rate it on a number of such scales. Ratings are combined in various ways to describe and analyze the person's feelings.

In SD methodology, there are a number of basic considerations. Heise (1970), in a critical review of the SD technique concluded the following:

(1) Bipolar adjective scales are a simple, economical means for obtaining data on people's reactions.

(2) Ratings on bipolar adjective scales tend to be correlated, and three basic dimensions of response account for most of the covariation in ratings. The three dimensions, which have been labelled Evaluation, Potency, and Activity (EPA) have been verified and replicated in a number of studies.

(3) Some adjective scales are almost pure measures of the EPA dimensions. Using a few pure scales of this sort, one can obtain reliable measures of a person's overall response to various stimuli.

(4) EPA measurements are appropriate when one is interested in affective responses. It is applicable to any concept or stimulus and thus it permits comparisions of affective reactions on widely disparate concepts.

(5) The SD has been used as a measure of attitude in a wide variety of projects and the findings, when correlated with other measures of attitude, support the validity of the SD as a technique of attitude measurement.

Although most studies applying this technique to measure attitude rely on the Evaluative dimension scores, Heise recommends that since the responses to the evaluative

scales are occasionally affected by social desirability, the three combined scales should be used since the other two scales are essentially free of social desirability contamination.

As a measure of attitude, the SD is both reliable and valid. The reliability of the SD is well documented. Heise (1970) found that although single scale scores do vary between six and eight points on test-retest, the group mean scores were highly reliable and stable even when samples of subjects were as small as thirty. The SD also displays reasonable face validity and Heise found that most studies of the SD's validity provided confirmation of its utility.

The MARK instrument also contains a section designed to collect data on some student interest in research as a career or as an integral part of future practice. Students were to select one of five possible responses and these were ordered from "never considered it" at the low end of the scale to "eagerly seeking a full-time career as a social work researcher" at the high end of the scale. Interest could therefore be ranked on a scale of one to five. Goldstein does not utilize this variable as a dependent variable and only refers to it as an indicator of interest in research as a career among students before they begin their research courses in social work. He does not report on any change in this variable following the research courses.

The author feels that this variable does have importance as a dependent variable and one of considerable interest to social work educators who teach social work research. The measure appears to have reasonable face validity and could very well be influenced by the independent variable of the combined research courses and experiences.

In order to measure attitude toward research, Kirk, Osmalov and Fischer constructed the "Attitude Index" which purported to measure favourable attitudes towards social work research. The Attitude Index consisted of five statements of attitude that required a response on a six-point scale ranging from strongly agree to strongly disagree. The responses to the ordinal scale were transformed to interval measures of 1 to 6. The respondents' score on the Attitude Index was to the total of their scores on the five items and ranged from 5 to 30. The authors examined the internal validity by correlating each item in the index with the total score. (r= 56; p .001). Neither external validity nor reliability were reported, and the authors admit that the instrument is likely only a crude measure of attitude.

From the discussion of the instruments used to measure both research knowledge and attitude towards research, it would appear that the MARK subtests and the semantic differential are the most useful for the purposes of the study.

The MARK requires more research to confirm its validity and reliability, but it is the best test available that can be adapted for this study. The semantic differential technique has been proven in repeated studies of attitude measurement and would seem to be applicable for the current research.

The previous research in this area has indicated that social work students show a significant gain in research knowledge following the introductory research course (Goldstein, 1967, 1972) and this finding has been demonstrated with students from schools with differing admission requirements regarding undergraduate research courses, different introductory research courses and differing teaching methods in these courses. Based on these findings, it is predicted that in this study, social work students, following their curricular research courses and experiences, will demonstrate greater knowledge of research than similar students prior to their curricular research courses and experiences.

Past research has also found that attitude towards research among social work students, following social work research courses either decreases (Goldstein, 1968), shows no change (Goldstein, 1972) or increases (Linn and Greenwald, 1974). Due to the contradictory nature of these findings, the direction of difference cannot be predicted. It is therefore hypothesized that the attitude of social work students toward research, following their curricular research

courses and experiences, will be different from similar social work students measured prior to their social work research courses. It is similarly hypothesized that social work students will be different in their degree of interest in research as a career following their research courses than students prior to their research courses. (Without specifying direction of difference).

Previous research has failed to discover antecedent variables related to student knowledge of research or student attitudes toward research (Goldstein, 1967; 1972, Linn and Greenwald, 1974). For the purpose of confirming and/or expanding the knowledge in this area, variations in sex, age, marital status, undergraduate major, number of undergraduate research courses and research work experiences of social work students will be investigated regarding their relationships with the variables of knowledge of research and attitude toward research. The relationships in question will be examined among students prior to their curricular research courses and also among students following their research courses.

The variables selected for possible relationships with the variables of knowledge of research and attitude towards research were chosen for the following reasons. Sex was found to be a factor in separating potential researchers from other students in a Swedish study of university students.

(Nordbeck and Nordbeck, 1970). (Details of this study were not available because only an abstract could be located). There is also extensive research reported on sex differences in student abilities in mathematics, science, and problem solving which suggest that males, either through differential conditioning or reinforcement, have better performance, or are more likely to choose courses in these area. (Janis, Mahl, Kagan, and Holt, 1969). Sex was therefore seen as a possible factor influencing student attitude and knowledge in the area of research.

Age and marital status were selected for study because Linn and Greenwald found that these two variables correlated more frequently, though not at the .05 level of significance, with their measures of outcome - research knowledge and attitude towards research, than any other variables that they studied.

Undergraduate major was thought to have an influence on the variables of knowledge and attitudes since some fields such as psychology have a stronger empirical research tradition and emphasis on research studies and findings than other fields of study. The variable was therefore dichotomized around psychology-non-psychology undergraduate majors.

Research courses at the undergraduate level and research work experience were also selected. Since the admission requirements of the Faculty of Social Work at Wilfrid Laurier

University included having completed a research course prior to enrollment, it was thought that students possessing more than the minimum requirement would be more competent and have better attitudes towards research than those having the minimum. Research work experience was also seen as having a possible effect on these variables since students would have more exposure and practice in research methods, above and beyond what they learned in the research courses.

The concepts chosen for attitude measurement by means of the SD technique were partly based on those used by Linn and Greenwald in order to confirm their findings and included some new concepts in order to expand the knowledge regarding student attitudes towards certain aspects of research and particular elements or courses of the social work curriculum.

One possibly important and relevant group of variables not included in this study were research teacher characteristics such as age, education, and teaching and research experience. Goldstein (1967) studied the possible effects of these variables and concluded that they had little or no effect on the dependent variables of student attitudes towards research on their research learning. Student - related antecedent variables were therefore chosen for this study.

CHAPTER 3

METHODOLOGY

In this chapter the research methodology of the study is delineated in the following areas: research design, variables, selection of subjects, instrumentation, procedures, data processing and analysis, research hypotheses, methodological assumptions and limitations.

Research Design

To test for relationships among antecedent variables and independent variables, a correlational design was utilized, i.e., investigating the extent to which variations in one or more factors correspond to variations in other factors based on correlation coefficients. In this study, variations among the MARK knowledge, MARK attitude scores, and the antecedent variable measures were compared.

The hypotheses concerning differences between the two groups on the dependent variables of MARK knowledge, MARK attitude scores, degree of interest in research as a career, and the semantic differential ratings were tested in a static-group comparison design. (Campbell and Stanley, 1963). In this design, a group which has experienced a treatment or condition of the independent variable is compared with one which has not, for the purpose of establishing the effect of the independent variable. In this investigation, the second year class of social work students, who have completed the curricular research courses and experiences, was compared

with the first year class of social work students prior to their exposure to their research courses and experiences, in order to establish the effects of these courses on knowledge about and attitudes towards research in social work.

Although in using this design, the author had no control over the independent variable, and could not randomly assign subjects to different "treatments", the properties of the "true" experimental design can be simulated. Rival interpretations, however, must be carefully accounted for and if possible ruled out.

The ideal experiement, through random assignment, controls for threats to internal validity arising from history, maturation, testing, instrumentation, regression, selection, mortality, and interaction of the above factors, which might be mistaken for the effect of the independent variable. In this study, although random assignment was not possible, some of the dangers to drawing an invalid conclusion are controlled or avoided.

The static-group comparison design adequately controls for the effects of history, testing, instrumentation, and regression. A more common source of invalidity in this design is that selection is not controlled for - i.e., persons making up the two groups may have been differentially recruited or chosen to experience the effects of the independent variable and therefore would have different "before" measures. In this

setting, the Wilfrid Laurier Faculty of Social Work, the exposure to the independent variable was arbitrary, since the research courses and experiences were required. Self-selection is thereby ruled out. That the two groups would have been different on a "before" measure remains a possibility, although there appears to be no reason to suspect this. A partial check on this possibility is discussed in Chapter 4 under the comparison of the two groups on the antecedent variables.

Another possible confounding variable may be mortality - that the differences between the two groups may have been due to differential "drop-out" of persons from the groups. Students doing poorly in the introductory research course, might be required to withdraw from the school and would not be represented in the first year class. A large difference due to mortality is considered unlikely in this study since only two students failed the research course in 1974, (2.85%) and were required to withdraw from the school.

In the acquisition of research knowledge or attitudes towards research, the rival hypothesis of maturation producing the differences between the two groups is considered highly unlikely. Biological or psychological processes which systematically vary with the passage of time, independent of specific external events (such as the research curriculum), are not likely to be substantially different between the two

groups of students compared in this study.

Interaction effects between the aforementioned variables, which can be mistaken for effects on the independent variable, are not major threats since the main effects of these variables are controlled for or can be ruled out.

The external validity of this type of design can be affected due to the interaction of the effects of selection and the independent variable (Campbell and Stanley, 1963) however, since selection was arbitrary, the external validity of the design is not threatened.

In conclusion, although this design is not a true experiment, it does contain elements of the quasi-experimental design (Campbell and Stanley, 1963) that can control for major rival hypotheses and allow a reasonably valid conclusion.

Variables

For the purposes of this study, the independent variables are the required research courses and experiences. The Wilfrid Laurier University Faculty of Social Work curriculum contained the following research elements: (1974-1975)

a) in the first block field placement, which took place in the second semester (January - April), students were required to spend a fraction of their time either in observing or participating

in ongoing research in their placement setting.

b) in the third semester (April - May), students were required to complete an introductory social work research course (30 hours over a 5 week period) with objectives as outlined in Appendix A. (The timing and content of this course was amended, beginning in the Fall of 1975).

c) in the fourth semester, and concurrent with the second block field placement, students were required to complete a research course which examined empirical research in the area of a student's concentration (these concentrations included Individuals, Families and Groups; Community Organization, Community Development and Social Planning; Social Administration; Social Policy; Research).

d) during the fourth and fifth semesters, students were required to complete a research project that involved either designing a research study in the form of a research proposal or carrying out a research study. The project could either be an individual or a group effort.

The independent variable is therefore the total of the research elements of the curriculum.

The dependent variables are the attitudes to research, as measured by the MARK and the semantic differential, the degree of interest in research as a career, and research knowledge as

measured by the MARK.

The antecedent variables studied included the following: sex, age, marital status, undergraduate major, number of undergraduate research courses and prior research work experience.

Selection of Subjects

The subjects were full-time students from the Wilfrid Laurier University Faculty of Social Work. Thirty students from each of the Class of 1975 (hereafter known as the Research group) and the Class of 1976 (hereafter known as the Pre-research group) were selected by entering a table of random numbers. The population of each class or group was approximately 70 students.

Instrumentation

All the measures used in this study were combined into a single instrument made up of three sections. (Appendix B)

The first section consisted of a one-page questionnaire on which respondents were asked to provide information on antecedent variables.

The second section was the semantic differential instrument. Instructions and examples on how to use the scales made up the first page and pages 2 - 11 were designated for each of the ten concepts. Each of the ten concepts was centered at the top of the page, and below were each of the SD scales.

Scaling redundancy was avoided by randomly assigning the order of the bipolar dimensions both horizontally and vertically for each concept, thus preventing a patterning or similarity in profiles.

The scales were chosen from a set of over fifty polar adjectives which have been selected and subjected to repeated factor analyses in SD experiments. Nine scales were chosen from previous studies that almost purely tapped one of the three major dimensions.

The bipolar scales were:

(1) Evaluation dimension

good - bad

positive - negative

valuable - worthless

(2) Potency dimension

strong - weak

powerful - powerless

hard - soft

(3) Activity dimension

active - passive

sharp - dull

complex - simple

Intensity was rated on a scale of neutral, slightly, quite, and extremely for each bipolar adjective. Based on

reported previous uses of the SD technique, (Heise, 1970) responses were scored as follows: toward the favourable pole "slightly" was rated as 50; "quite" as 60, and "extremely" as 70; toward the negative or unfavourable pole "slightly" scored 30, "quite" as 20 and "extremely" as 10. Neutral was given a score of 40. For each individual, the scores on the three scales for each dimension of each of the ten concepts were averaged to arrive at a single score. Therefore for each concept examined, a group mean score was calculated for each of the three dimensions - Evaluative, Potency and Activity.

The third section of the instrument was the MARK. The test contained 54 items; the attitude items were multiple-choice (17 items); the knowledge items were a combination of 17 multiple-choice items and 20 definition matching questions.

The scoring of the MARK was done as follows: the attitude score was derived from the responses to the 17 items - responses which indicated a favourable attitude towards research were scored as 1 and others as 0; the knowledge score was determined from the responses to 37 items, which were scored as either 1 for a correct answer, or 0 for an incorrect one. The range of scores were therefore 0 - 17 for the attitude subtest, and 0 - 37 for the knowledge subtest.

Procedure

The instrument, excluding the MARK, was pretested on a group of five Research group students in order to determine if the questionnaire items were suitable and unambiguous, and to find out if the SD scale bioplar adjectives were relevant to the concepts being judged. Some changes were incorporated into the questionnaire, but few difficulties were found with the SD scales, and they were left intact. The MARK was excluded from the pretest since it had been used with numerous groups of students in other studies. Also, a representative sample of the Research group was sought. Therefore, the five pretested students were part of the population from which the final sample was drawn and the author wanted to avoid possible contamination of the MARK text results. (Two of these five students were part of the sample of the research group.)

The instrument was administered on different occasions to the two class samples. The Pre-Research sample was tested in December, 1974. The Research sample was tested in April, 1975.

The sampled students were contacted by the author and asked for their co-operation in a study of student attitudes towards and knowledge of research. They were informed of what was required of them and that their participation was voluntary and the results confidential. Subjects were not

aware that they were to be compared with the other class of students in the school or what the expectations of the study findings would be.

In order to avoid contamination of the test results, students were supervised while they completed the test. For approximately one-third of the students however this was not possible, and these individuals were asked to fill out the instrument on their own time, and, in order to protect the reliability and validity of the instruments, were asked to complete it without the aid of outside help. Scores on the dependent variables for each of the groups were compared (supervised vs. unsupervised) and are discussed in the findings.

Data Processing and Analysis

The data obtained was coded and scored by hand. The measures on the antecedent variables and the dependent variables for each subject were transferred to computer cards and processed by means of the SPSS program package at the Wilfrid Laurier University Computing Centre.

The statistics computed were the non-parametric type since the assumptions necessary for parametric statistics were not met. To test for relationships between antecedent variables and the dependent variables two correlation coefficients were used. The Glass rank-biserial correlation coefficient RB (Glass, 1966) was used where one set of data was dichotomous

(sex, marital status, undergraduate major, number of undergraduate research courses, research work experience) and the other was ordinal (MARK Attitude, MARK Knowledge scores). Glass (1966) and Cureton (1956) have shown that the significance of the coefficient obtained may be tested by the Mann-Whitney extension of the Wilcoxin test. Where both sets of data were at least ordinal, (age X MARK Attitude, MARK Knowledge scores) Kendall's tau was utilized.

To test for the equivalence of the two groups on the antecedent variables, either the Chi Square test (nominal data) or the Median Test (ordinal data) was used. (Ferguson, 1966).

To test for differences on the dependent variables between the two groups, two statistics were computed. Differences on the MARK Attitude sub-test, the MARK Knowledge subtest and the semantic differential scores were tested using the Mann-Whitney U statistic. (Siegel, 1956). This statistic is used to test whether two independent groups have been drawn from the same population and is a useful alternative to the t-test. Siegel (1956) states that this test approaches 95.5 per cent - efficiency of the t-test which requires more restrictive assumptions. Differences in degree of interest in research as a career were tested by the Median Test.

Two-tailed tests of significance were used to test all hypotheses except for the predicted difference in research

knowledge which was assessed using a one-tailed test.

Hypotheses - Null and Alternative

The following hypotheses are stated in the operational form with both the null and alternative hypotheses shown.

Hypotheses - Antecedent Variables

1) H_0: there is no association between sex of Pre-research group students and MARK knowledge (hereafter known as MK) and MARK attitude (hereafter known as MA scores), i.e. $r_{RB} = 0$.

   H_1: Sex of the Pre-research group is related to MA and MK scores, i.e. $r_{RB} \neq 0$.

2) H_0: there is no association between age of Pre-research group students and MK and MA scores, i.e. tau = 0.

   H_1: age of the Pre-research group students is related to MK and MA scores, i.e. tau $\neq$ 0.

3) H_0: there is no association between marital status of the Pre-research group students and MK and MA scores, i.e. $r_{RB} = 0$.

   H_1: marital status of the Pre-research group students is related to MA and MK scores, i.e., $r_{RB} \neq 0$.

4) H_0: there is no association between Pre-research group students having an undergraduate major

in psychology and MA and MK scores, i.e. $r_{RB} = 0$.

H_1: having an undergraduate major in psychology is related to MA and MK scores, i.e. $r_{RB} \neq 0$.

5) H_0: there is no association between Pre-research group students having two or more undergraduate courses in research and their MA and MK scores, i.e. $r_{RB} = 0$.

H_1: having two or more undergraduate courses in research is related to their MA and MK scores, i.e. $r_{RB} \neq 0$.

6) H_0: there is no association between Pre-research group students with prior research work experience and MA and MK scores, i.e. $r_{RB} = 0$.

H_1: having prior research work experience is related to MA and MK scores among Pre-research group students, i.e. $r_{RB} \neq 0$.

Hypothese 7 - 12, are similar to above except that they were tested on the research group. These are summarized as follows:

H_0: Among the Research group, there is no association between sex, age, marital status, having an undergraduate major in psychology, having two or more undergraduate research courses and having research work experience, and their MA and MK scores.
i.e., correlation coefficient = 0.

H_1: Among the Research group, sex, age, marital status, having an undergraduate major in psychology, having two or more undergraduate research courses, and having research work experience is related to MA or MK scores. i.e. the correlation coefficients $\neq 0$.

Hypotheses: Differences between Pre-Research and Research Group

13) H_0: there is no difference in MA scores between the Pre-research and Research groups of students.

H_1: Research group students have significantly different MA scores than Pre-research group students.

14) H_0: there is no difference in MK scores between the Pre-research and the Research group of students.

H_1: Research group students score significantly higher on the MK subtest than Pre-research group students.

15) H_0: there is no difference in Semantic Differential SD scores on concepts of "Social Work Researcher", "Introductory Social Work Research Course", "Research Component of the Field Placement", and "Statistics".

H_1: Research group students have significantly different SD scores on these concepts than Pre-research group students.

16) H_0: there is no difference in interest in research as a career between the Pre-research and Research groups of students.

H_1: Research group students have significantly different degrees of interest in research as a career than the Pre-research group of students.

Methodological Assumptions and Limitations

The random sampling procedure supports the assumption that the students selected will be representative of the population of the Pre-research students (the first year class prior to their exposure to the research elements of the M.S.W. curriculum) and of the population of the Research students (the second year class following their exposure to the research elements of the M.S.W. curriculum) at the Wilfrid Laurier University Faculty of Social Work.

It is also assumed that due to the recurrent curriculum cycle, the Pre-research group is similar to the Research group, and that the scores obtained from the Pre-research group are a close approximation of the scores of the Research group if they could have been tested prior to their research courses and experiences. Therefore any differences observed on the measures approximate changes that have occurred among the Research group as a result of the research elements of the curriculum.

The author is aware that a one-group pretest-posttest design could have been used instead of the static-group comparison design however it was concluded that there existed more threats to internal validity from the effects of history, maturation, testing, instrumentation, regression, and interaction of these factors in the former design than in the latter. There were also more threats to external validity from the interaction of testing and selection with the independent variable in the one-group design (Campbell and Stanley, 1963). It was preferable therefore to utilize the static-group design since selection was not a factor, mortality was minor and the other threats to drawing an invalid conclusion more easily accounted for. Combining the two designs by also collecting post-course data on the Pre-research group might have been the best solution in spite of problems with interpretatio however this was not concluded until after the study was terminated.

Due to the size of the two samples, first-order correlations only could be calculated. It is therefore possible that strong correlations may not indicate a direct relationship between the two variables but rather a relationship to a third variable. Some relationships may therefore be spurious.

CHAPTER 4

PRESENTATION AND ANALYSIS OF DATA

In this chapter, the equivalence of the two groups is examined and the findings are presented and discussed both in relation to the hypotheses and with reference to the results of other investigators.

EQUIVALENCE OF PRE-RESEARCH AND RESEARCH GROUP

The data on the background variables for the two groups is presented in Table 1. The two groups were similar on every variable except for age. It is to be expected that the two groups would be different in age since they entered as students in the Faculty of Social Work one year apart. This would account for a one year difference in the median age but not for a two year difference as exists between these two groups. It is considered unlikely however that a slight difference in age would have an appreciable effect on the measures of the dependent variables of research knowledge, attitude towards research, and interest in research as a career.

Further evidence of the similarity of the two groups was found by consulting the head of student admissions for the Faculty of Social Work. (Wickham, 1975). The students from each group were not assessed according to ability or attitude toward research in either group of

TABLE 1: COMPARISON OF RESEARCH AND PRE-RESEARCH GROUPS ON BACKGROUND VARIABLES

		RESEARCH (N=25)	PRE-RESEARCH (N=28)	TEST OF EQUIVALENCE
SEX	MALE	44.0% (11)	46.4% (13)	CHI SQUARE = .03
	FEMALE	56.0% (14)	53.6% (15)	N.S. at .05 level
MARITAL STATUS	SINGLE	28.0% (7)	42.9% (12)	CHI SQUARE = 2.015
	MARRIED	68.0% (17)	53.5% (15)	N.S. at .05 level
	DIVORCED OR SEPARATED	4.0% (1)	3.6% (1)	
AGE	MEDIAN	26.02	24.72	MEDIAN TEST CHI SQUARE = 4.23 Significant at .05 level
UNDER GRADUATE MAJOR	SOCIAL SCIENCES	76.0% (19)	85.7% (24)	CHI SQUARE = .814 N.S. at .05 level
	OTHER	24.0% (6)	14.3% (4)	
INTER-SCHOLASTIC TIME	MEDIAN	2	2	MEDIAN TEST CHI SQUARE = .533 N.S. at .05 level

SOCIAL WORK EXPERIENCE	NONE	0.0% (0)	7.1% (2)	CHI SQUARE = 2.79 N.S. at .05 level for df = 4
	VOLUNTEER	12.0% (3)	17.9% (5)	
	SUMMER	20.5% (1)	14.3% (4)	
	PART-TIME	4.0% (1)	3.6%	
	FULL-TIME	64.0% (16)	57.1% (16)	
SOCIAL WORK EXPERIENCE	6 mos.	28.0% (1)	17.9% (5)	CHI SQUARE - 1.001 N.S. at .05 level for df = 2.
	7-24 mos.	36.0% (9)	39.3% (11)	
	25 mos.	36.0% (9)	42.9% (12)	
PREVIOUS RESEARCH COURSES	NONE	4.0% (1)	0.0% (0)	CHI SQUARE = 1.6 N.S. at .05 level for df = 2
	RESEARCH METHODS	36.0% (9)	42.9% (12)	
	STATISTICS	12.0% (3)	7.1% (2)	
	BOTH OF THE ABOVE	48.9% (12)	50.0% (14)	
RESEARCH WORK EXPERIENCE	NONE	52.0% (13)	67.9% (19)	CHI SQUARE = 1.38 N.S. at .05 level
	RESEARCH ASSISTANT	48.0% (12)	32.1% (9)	
FIRST SEMESTER CONCENTRATION	1FG	92.0% (23)	89.3% (25)	CHI SQUARE = .113 N.S. at .05 level
	CO & CD/SP	8.0% (2)	10.7% (3)	

TABLE 1: CONTINUED

FOURTH SEMESTER CONCENTRATION	1FG [a]	88.0% (22)	67.9% (19)	CHI SQUARE = 3.05
	CO & CD/SP [b]	8.0% (2)	7.1% (2)	N.S. at .05 level for df = 3
	ADMIN [c]	4.0% (1)	3.1% (6)	
	UNDECIDED	0.0% (0)	21.4% (6)	

a Individuals, Families and Groups Concentration

b Community Organization and Community Development / Social Planning Concentration

c Administration Concentration

students. The only requirement pertaining to research was that students had to have completed an undergraduate level course in research prior to being accepted as a student. There were minor differences in admissions criteria between the Research and the Pre-research groups of students however these were not related to research background. Differences in acceptable personal qualifications and previous social work-related experiences were the major criteria in decision-making for admissions.

From the above discussion, it appears that the Research and Pre-research groups are very similar on the background variables except for a difference in age which is considered to be an unlikely factor in affecting the measures of the dependent variables.

FINDINGS

From the two samples of 30 chosen from each population, data was available for 28 students in the Pre-research group and for 25 students in the Research group. The sample loss was due, not to refusal to participate, but to students either being unavailable or not returning the completed instrument. The two Pre-research group students could not be contacted in spite of repeated efforts to locate them following lectures. Of the five research students,

two had left the area, one had begun employment and could not be contacted, and two claimed to be too busy to complete the instrument. The latter two students may have had some bias against research however there was no evidence to suggest this and it can only be assumed that if the missing data were available, it would not substantially alter the findings.

Ten subjects from the two groups were unsupervised during completion of the instrument. Of these, eight were from the Research group and two were from the Pre-Research group. The eight unsupervised students' mean scores were compared with the seventeen supervised mean scores and, using the Mann-Whitney U and Median Test, no difference was found between the two sub-groups on the measures of research knowledge, attitudes towards research, degree of interest in research as a career and semantic differential ratings of research concepts. The two unsupervised Pre-research student scores were within one standard deviation from the means of the other 26 students on the measures of the dependent variable. It would appear therefore that lack of supervision had no effect on the dependent variable measures or the measures on the antecedent variables.

FINDINGS - ANTECEDENT VARIABLES

Among the Pre-research group, (See Table 2) the only variable associated with MA scores was research work experience.

TABLE 2: CORRELATION COEFFICIENTS AMONG ANTECEDENT VARIABLES AND MARK SCORES OF THE PRE-RESEARCH GROUP (N = 28)

Antecedent Variables	Correlation With MARK Attitude Scores	Correlation With MARK Knowledge Scores
SEX (MALE)	$r_{RB} = -.22$ N.S.	$r_{RB} = .40$ $p < .05$
AGE	tau = -.06 N.S.	tau = .13 N.S.
MARITAL STATUS (Married)	$r_{RB} = .21$ N.S.	$r_{RB} = .61$ $p < .01$
UNDER GRADUATE MAJOR (PSYCHOLOGY)	$r_{RB} = .23$ N.S.	$r_{RB} = .29$ $p < .05$
UNDER GRADUATE RESEARCH COURSES	$r_{RB} = .16$ N.S.	$r_{RB} = .20$ N.S.
RESEARCH WORK EXPERIENCE	$r_{RB} = .45$ $p < .05$	$r_{RB} = -.23$ N.S.

Those students who had previous research work experience tended to have a better attitude toward research, as measured by the MA, than students lacking research work experience. The variables associated with high MK scores were marital status, sex and under-graduate major in psychology. Students who were male, married, and had an undergraduate major in psychology tended to have more knowledge of research as measured by the MK than students who were female, single and having an undergraduate major other than psychology.

Among the Research group of students, (see Table 3) number of undergraduate research courses and prior research work experience was correlated with MA scores. Students with two or more undergraduate courses in research and having research work experience tended to have higher MA scores than those students with less than two undergraduate courses in research and lacking experience in research work. The only antecedent variable related with a high MK score was having had a major in psychology at the undergraduate level.

Findings: Dependent Variables

Differences between the Pre-Research group and the Research group on MA, MK and interest in research as a career are presented in Table 4. There was no evidence for rejecting the null hypothesis concerning a difference in MA scores between the two groups. The null hypothesis was rejected in favour of the alternate hypothesis because of a

significant difference in MK scores. The Research group had a significantly higher mean than the Pre-Research group on the MK subtest, the measure of research knowledge. The Research group also had a significantly greater interest in research as a career than the Pre-research group.

The differences regarding the Semantic Differential scores are presented in Table 5. The only two concepts rated differently between the two groups were "Introductory Social Work Research Course" and "Research Component of the Field Placement". The Research group means were significantly different from the Pre-research group means. These concepts were rated less favourable on both the Evaluative dimension and the combined Evaluative, Potency and Activity Dimensions. It will be recalled that Heise (1970) recommends combining the three dimensions to avoid contamination from social desirability.

TABLE 3: CORRELATION COEFFICIENTS AMONG ANTECEDENT VARIABLES AND MARK SCORES OF THE RESEARCH GROUP (N=25)

ANTECEDENT VARIABLES	CORRELATION WITH MARK ATTITUDE SCORES	CORRELATION WITH MARK KNOWLEDGE SCORES
Sex (Male)	$r_{RB} = .14$ N.S.	$r_{RB} = .17$ N.S.
Age	tau = .03 N.S.	tau = .02 N.S.
Marital Status (Married)	$r_{RB} = .05$ N.S.	$r_{RB} = .21$ N.S.
Undergraduate Major (Psychology)	$r_{RB} = -.14$ N.S.	$r_{RB} = .79$ $p < .001$
Undergraduate Research Courses (2 courses)	$r_{RB} = .37$ $p < .03$	$r_{RB} = .03$ N.S.
Research Work Experience	$r_{RB} = .68$ $p < .01$	$r_{RB} = .20$ N.S.

TABLE 4: DIFFERENCES BETWEEN PRE-RESEARCH GROUP AND RESEARCH GROUP ON MARK SCORES AND DEGREE OF INTEREST IN RESEARCH AS A CAREER

	Pre-Research Group (N = 28)	Research Group (N = 25)	
MARK KNOWLEDGE			
(a) Range of Scores	6 -26	14 -32	
(b) Mean	17.57	20.80	$\bar{z}$ = 1.88
(c) Standard Deviation	5.34	4.52	p < .03
(d) Median	17.83	20.87	
MARK ATTITUDE			
(a) Range of Scores	3 - 14	5 - 12	
(b) Mean	7.50	8.32	$\bar{z}$ = 1.06
(c) Standard Deviation	2.25	2.10	N.S.
(d) Median	7.68	7.91	
Degree of Interest in Research as a Career			
(a) Never considered it	53.60% (15)	20.0% (5)	
(b) Would be interested if knew more	17.90% (5)	20.0% (5)	
(c) Some interest but not full-time	25.0% (7)	56.0% (14)	
(d) Some interest as full-time job	0.0% (0)	4.0% (1)	
(e) Eagerly seeking full-time career	3.6% (1)	0.0% (0)	
	Median Test:	Chi Square = 5.31	
		p < .05	

TABLE 5: DIFFERENCES BETWEEN PRE-RESEARCH AND RESEARCH GROUP ON MEAN SEMANTIC DIFFERENTIAL SCORES OF SOCIAL WORK RESEARCH CONCEPTS

CONCEPT	PRE-RESEARCH GROUP (N = 28)	RESEARCH GROUP (N = 25)	DIFFERENCE
"SOCIAL WORK RESEARCHER"			
EVALUATIVE	56.92	56.92	$\bar{z}$ = 0.47, N.S.
EPA[a]	54.68	54.17	$\bar{z}$ = 0.15, N.S.
"INTRODUCTORY SOCIAL WORK RESEARCH COURSE"			
EVALUATIVE	52.14	40.28	$\bar{z}$ = 2.87, $p < .002$
EPA[a]	49.44	36.57	$\bar{z}$ = 3.43, $p < .0003$
"RESEARCH COMPONENT OF FIELD PLACEMENT"			
EVALUATIVE	55.29	38.56	$\bar{z}$ = 4.00, $p < .0003$
EPA[a]	50.76	34.61	$\bar{z}$ = 4.59, $p < .0003$
"STATISTICS"			
EVALUATIVE	49.18	50.96	$\bar{z}$ = 0.61, N.S.
EPA[a]	47.72	50.26	$\bar{z}$ = -1.112, N.S.

[a] Mean of Combined Evaluative, Potency and Activity Scale Scores.

DISCUSSION OF FINDINGS

Relationships with MARK Attitude Scale

Among the Pre-research students, the only variable that was correlated with a positive attitude toward research as measured by the MARK was the prior research work experience of the students. Although these experiences were not specified, it is suspected that the majority of them were experienced during undergraduate training outside the realm of social work and may indicate that attitudes developed as a result of this type of experience are generalized to social work research. Perhaps students of this type have more time and opportunity to examine their feelings regarding research and develop a preference for the scientific or empirical mode of looking at human behaviour. This assumes however that research experiences lead to positive attitudes. One could speculate that a favourable attitude towards research motivated them to seek out opportunities for doing research. However this finding is interpreted, it would appear that prior research work experience is an indicator of a positive attitude toward research.

The positive relationship between prior research work experience and the MA scores was also found among the Research group of students. Prior research work experience is therefore also an indicator of positive attitude towards research among

students at the end of their social work studies.

Among the Research group students, number of undergraduate research courses was positively related to MA scores. Students who had had at least two prior courses in research methods and statistics tended to score higher on the MARK attitude subtest. The relationship however was relatively weak and was not found among the Pre-research group of students.

Relationships with MARK Knowledge Scale

Among the Pre-research students a higher score on the MK subtest was associated with students who were male, married, and had had an undergraduate major in psychology. The relationship of higher knowledge scores with students who majored in psychology was expected since psychology has a strong empirical orientation even in courses where research methods and statistics are not the major focus of study. Research studies are probably referred to more in psychology than any other discipline and students may gain greater knowledge of research through having the extra contact with research of an empirical nature over and above what they learn in their undergraduate research courses.

A similar positive correlation was also found among the Research students and the relationship was much stronger (r_{RB}= .79, $p < .001$). It may be that students with a background in psychology are better able to integrate their past learning in research with what they are learning in social work research. However interpreted, the factor of undergraduate major in psychology accounts for almost 64% of

the variance in research knowledge, as measured by the MARK among the Research group. This factor would appear to be a good predictor of the research knowledge of social work students at the end of their studies.

Higher scores on the MK were also associated with the sex of the Pre-research students. Although the correlation was moderate, males tended to have more knowledge of research, as measured by the MARK. Perhaps males are "benefiting" from earlier conditioning and reinforcement from parents and teachers for pursuing studies in science and mathematics and female students have been discouraged from such studies and therefore avoid them unless necessary. What is not known is how many students took research courses only because they were an admission requirement of the Faculty of Social Work and what proportion of these students were female and whether this was significant.

Married students were also more likely to score higher on the MARK test of research knowledge than single students, among the Pre-Research students. Marital status was a better predictor of knowledge of research (.61, $p < .01$) than either of sex or having had an undergraduate major in psychology. Lacking theoretical explanations, one can only speculate as to why this might be found. It may be that single students that intend to study social work are less "serious" regarding

research courses than married students who are less willing to risk doing poorly in research and therefore study more and learn more about research than their single counterparts.

The above-mentioned findings can be compared with the results of the Linn and Greenwald study (1974). They found no relationships that were significant between sex, age, marital status or past research courses, and their before or after measures of research knowledge or attitude. There is a discrepancy therefore between the findings of their study and this one on the relationships between sex and marital status with research knowledge. One possible reason for this is that the Linn and Greenwald measure of research knowledge, a ten-item multiple-choice test, allowed too little variance in scores to discriminate adequately on the background variables and that with a longer test such as the MK subtest with 37 items, results might have been found similar to those of this study.

Differences in MARK Attitude Measures

This investigation uncovered a lack of difference in attitude towards research, as measured by the MA subtest. The range of scores was wider among the Pre-Research group than the Research group, however there was no difference in their mean scores. Goldstein (1968) found a decrease in students' attitude towards research between pre-research

and post-research scores which he felt indicated a loss in students' confidence in science to solve problems. He did not find the same results in 1972, and in fact there were slight increases in his "after" measures of attitude. The latter finding and the lack of difference found in this study may reflect a change in research courses since the earlier finding, and an increased emphasis on the importance of research to the profession by social work faculty. Students also may be changing and more aware of issues such as accountability and are therefore more willing to view their practice of social work from a more empirical stance.

Differences in MARK Knowledge Measures

The prediction that Research group students would score higher on the MK subtest was confirmed. Research group students had a mean score approximately three points higher than the Pre-Research group ($Z = 1.875$, $p < .03$). If the assumption is accepted that in this study, the Research group represents a sample that would be similar to the Pre-Research group if they could have been tested before being exposed to the research elements of the curriculum, then it would appear that the Research students not only had greater knowledge of research as a result of their research courses and experiences, but that they retained this knowledge at least until the end of their social work study program. This finding is similar to

those of Goldstein (1967, 1973) and Linn and Greenwald (1974).

The difference in knowledge between the two groups can be examined in further detail with reference to the relationships of sex, marital status and undergraduate major in psychology with MK scores.

It will be recalled that among the Pre-research group, males tended to score higher on the MARK than females, however this was not found among the Research group. If the mean MK scores by the male students from each group are examined separately, Research group males have a mean score of 21.81 and Pre-research group males - 20.15. To determine if these means are different, the Mann-Whitney U statistic can be calculated. The finding is that U = 56 which is not significant (Auble, 1953). If the female MK mean scores are similarly examined, and the Mann-Whitney U calculated, the means of the Research group females (20.00) and of the Pre-research females (15.33) are significantly different (U = 40.6, $p < .02$, two tailed test). These findings appear to indicate that the research knowledge of the females increased but not of the males. This conclusion however is only tenable if it is assumed that Pre-research scores are a close approximation of Research group scores if they could have been tested prior to their research courses and experiences.

Marital status was also correlated with MK scores among the Pre-research group but not among the Research group. Similar to above, if married students' MK scores from each group are compared (Pre-research mean score = 20.46, Research group mean score = 21.56) no difference is found between the means (U = 111, N.S.). Among single students however the means scores (Pre-research = 14.50, Research = 19.88) are significantly different (U = 15, $p < .002$, two tailed test). If the same assumption as above is accepted, then the research elements of the curriculum had an effect on single students, but not on the married students.

Students with undergraduate majors in psychology tended to have higher scores in both the Pre-research and Research groups of students. Comparing the group means of former psychology majors from each group (Pre-research mean = 18.46, Research group mean = 23.61) a significant difference is found (U = 31, $p < .002$, two-tailed test). The group means for non-psychology majors are found to be similar (Pre-research mean = 16.8, Research mean = 17.75, U = 60, N.S.) and not significantly different. It could therefore be concluded that the research courses and experiences have a significant effect on the knowledge of research, as measured by the MARK, of the former psychology majors and not on students who had non-psychology majors.

These findings can be compared with those of Goldstein in his 1967 study. He found that his "doer" type, who was identified in the before test as being the most knowledgeable about research, made the least gain in research knowledge when measured after the course was completed. He concluded that the learning needs of this type of student were not being met. In the present study, possible "doer" types could be seen as those students who were either male, married or had an undergraduate major in psychology. The male students and the married students showed no "change" as a result of the research courses and experiences and female and single students "increased" their scores on research knowledge to the level of the male and married students. These students, the potential "doers" of research, did not seem to have their learning needs met by the research courses and experiences, and it could be concluded that the research elements of the curriculum "smoothed" out the differences between "doers" and "non-doers" of research. In contrast, the other potential "doer" group identified was the former psychology majors and these students showed the largest gain in research knowledge following the research courses and experiences. It would appear that these students were better able to learn about research and take advantage of the curriculum research elements when compared with former non-psychology majors.

These findings would seem to indicate that research students should be streamed at their different levels of knowledge in order to realize the potential of the varying types of students. While the courses have had an effect on the class as a whole, certain types of students appear to have made no "change" on the variable of research knowledge, and the knowledge gap widened between them and other types of students.

Differences in Degree of Interest in Research as a Career

One would predict that since there was no difference between the Research and Pre-Research groups in attitude towards research, as measured by the MA subtest, there would be little difference in stated interest in research as a career between the two groups. However, the Research group showed a significantly greater interest in research as a career than the Pre-research group. (Median Test: Chi Square - 5.31, $p < .05$). This finding would seem to indicate that those students are willing to incorporate the role of researcher into their role concept of social workers, and that research activity would be at least a part of their career. As these students progress in their careers as social workers, this variable would warrant follow-up to determine if they realize their goal of integrating research and practice.

Differences in Semantic Differential Measures of Attitude

It will be recalled that there was no difference in the ratings of "Social Work Researcher" and "Statistics" between the two groups. There were however large differences in the ratings of the concepts of "Introductory Social Work Research Course" and the "Research Component of the Field Placement". The Research group scored the latter two concepts much less favourably than the Pre-research group, and appeared to be more dissatisfied with these particular elements of the research curriculum. In view of the number of students in the Research group that expressed some interest in research as an integral part of their social work careers, this finding may indicate that social work students want better preparation in research in order to realize this goal. Further investigation disclosed a negative correlation (tau - .39, $p < .003$) between a stronger interest in research as a career and a more favourable rating of the "research component of the field placement". Perhaps social work students become aware of, or believe that the quality and/or quantity of research in the field placement agencies is poor, and combined with the effect of other research elements in the curriculum, develop a stronger interest in research as a career.

In contrast, there was no difference in the ratings of the concepts of "social work researcher" or "statistics" indicating that the negative views towards the aforementioned

research elements in the curriculum did not generalize to attitudes towards researchers or to an important element of research - statistics. In general, the semantic differential technique would seem to have potential for locating possible "problem" areas in the research curriculum and would be of considerable help to social work educators.

Summary:

The two groups were compared for equivalence and were found to be essentially similar on most background variables except for a slight difference in age which was considered unlikely to effect the measures of the dependent variables.

Among the Pre-research group, the antecedent variable that was correlated with the MARK measure of attitude towards research was prior research work experience. The antecedent variables that were associated with the MARK attitude measure were number of undergraduate research courses and prior research work experience.

Higher MARK scores on knowledge of research among the Pre-research group was positively correlated with being male, married and having had an undergraduate major in psychology. In the Research group, only the latter variable was associated with high MARK knowledge scores.

The Research group had significantly more knowledge of research, as measured by the MARK, than the Pre-research

group, however their attitudes toward research, as measured by the MARK were similar.

Degree of interest in research as a career was greater among the Research group than the Pre-Research group.

The semantic differential scale scores indicated that Research group students had much less favourable responses to the concepts of "Introductory Social Work Research Course" and "Research Component of the Field Placement", than students in the Pre-Research group.

CHAPTER 5

SUMMARY, CONCLUSIONS, RECOMMENDATIONS

This investigation is in the general area of the learning of research knowledge and attitudes towards research of social work students. The focus was on finding antecedent variables related to knowledge about and attitudes towards research of those students, and changes in knowledge and attitudes as a result of graduate research courses and experience.

Using a correlational and static-group comparison design, two groups of students - one tested prior to and another tested following their social work research courses and experiences - were compared on background variables for equivalence. The antecedent variables of sex, age, marital status, undergraduate major, undergraduate research courses and research work experience were investigated for possible correlations with knowledge of research and attitude towards research as measured by the MARK, a previously developed test of research knowledge and attitude. Differences between the two groups were compared on the dependent variables of research knowledge, attitude towards research, interest in research as a career and semantic differential ratings of research - related concepts.

The findings were that the two groups were similar except for a slight difference in age which was considered unlikely to effect the measures of the dependent variables.

Among the Pre-Research group, a positive attitude towards research was correlated with students having had previous research work experience. Antecedent variables that correlated with higher MARK attitude scores among the Research group were number of undergraduate research courses and research work experience.

Correlated with a higher knowledge of research were the variables of being male, married and having had an undergraduate major in psychology, among the Pre-Research students. Only the latter variable was found to correlate with higher knowledge of research, as measured by the MARK, among the Research students.

The Research group students had significantly more knowledge of research than Pre-Research group students, however their attitudes towards research, as measured by the MARK were similar.

Degree of interest in research as a career was greater among the Research group than the Pre-Research group.

The Semantic Differential scale scores indicated that the Research group students had much less favourable responses to the concepts of "Introductory social work research course" and "research component of the field placement," than the Pre-Research group of students.

This investigation has provided further evidence to confirm that social work students do have more research knowledge as a result of their curricular research courses and experiences, and that this knowledge is retained at least until the end of their studies in social work.

This research has also discovered some important predictors of competence in research and attitude towards research. Students with an undergraduate major in psychology were more likely to be knowledgeable about research both prior to and following their curricular research courses and experiences. The best indicator of a positive attitude towards social work research before or after the research courses was whether the student had research work experience prior to enrolling in graduate school.

It was also concluded that social work students, after completing the research courses, were more willing to consider research as at least part of their practice, as

evidenced by their stated interest in research as a career and this was found in spite of the expressed dissatisfaction with some elements of the research curriculum, as indicated by the semantic differential.

On the basis of this study, the author would make the following recommendations. One, that schools of social work interested in producing more empirically oriented social workers choose otherwise qualified applicants with a strong academic background in psychology and those that have had previous research work experience. These students appear more likely to have both the ability and the motivation for research study that can be further developed in a social work research curriculum. Second, that schools of social work stream students according to their ability in research in order that the potential of all students for research be realized. Students could be assessed by pre-testing them at admission, classified according to their different levels of competence in research and offered research courses based on these different levels of ability. While students would not be required to register for the more difficult courses in research, they could be exempted from other courses

and thus have some external reinforcement for taking these courses. Rewarding students in this way would underline and emphasize the committment of the school for realizing the research potential of their students. While streaming based on pre-research course competence may appear to be an extreme type of approach, one can justify this method on the basis that for certain types of students, as identified by some of the antecedent variables in this study, the research knowledge "ceilings" may not have been sufficiently high to allow a significant increase in learning. A streaming approach and competence - related research courses can raise the research knowledge ceiling and maximize the learning and research potential of all students.

As in many research studies, one is left with more questions than answers in the area of investigation. How would the Pre-Research students change on the dependent variables compared with the Research group? A follow-up study of the former group might have enhanced the findings of this study by helping to confirm both the validity of the static-group comparison design and the conclusions of this study. The threats to invalidity would still have to be dealt with however

the study could have been better for having this data than not.

Semantic differential data on the concepts of "social work research" (and compared with the MARK measure of attitude), "researcher-practitioner", "research proposal", "M.S.W. thesis", and concentration research course" would have aided in answering questions regarding student attitudes to other aspects of the research curriculum.

Further suggestions for research in this area include the following questions: Do students who have the opportunity to do complete research studies develop a greater interest in research as a career than students who take the "research proposal" option? Do social work students, who indicate an interest in research as a career, follow up and become involved in research studies in their practice of social work? To what extent do demands of the field restrict or inhibit research in social work practice? Do students, once employed, consider their knowledge of research adequate conducting or participating in research studies? Is their knowledge base retained or expanded upon through self-study or by taking further research-oriented courses following graduate school? Answers to these and other questions will determine to a great extent

the influence of social work research as taught and learned at the M.S.W. level upon the profession of social work and its development of knowledge and empirically-based approach to practice.

REFERENCES CITED

Auble, D. "Extended tables for the Mann-Whitney statistic.", in Siegel, S., Nonparametric Statistics for the Behavioral Sciences, (New York: McGraw-Hill, 1956).

Casselman, B., "On the practitioner's orientation toward research", Smith College Studies in Social Work, 42(3), pp. 211-233, 1972.

Campbell, D. and Stanley, J., Experimental and Quasi-Experimental Designs for Research (Rand McNally: 1963).

Cureton, E., "Rank-Biserial Correlation", Psychometrika, 21, 1956, pp. 287-290.

Ferguson, G., Statistical Analysis in Psychology and Education, (Toronto, McGraw-Hill, 1966).

Glass, G., "Note on Rank-Biserial Correlation", Education Psychological Measurement, 26, pp. 623-631.

Goldstein, H.K., Identifying and Maximizing Research Learning Potential for Social Work Students, Tulane Studies in Social Welfare (New Orleans, Louisiana, 1967).

Goldstein, H.K., The Measurement of Attitudes and Research Knowledge, Tulane Studies in Social Welfare (New Orleans, Louisiana, 1968).

Goldstein, H.K., Maximizing Research Learning for Three Types of Social Work Students, (Department of Social Work, Florida State University, Tallahassee, Florida, 1972).

Heise, D., "The semantic differential and attitude research", in Summers, G., Attitude Measurement, (Rand McNally and Co.: Chicago, 1970).

Kirk, S., Osmalov, M., and Fischer, J., "Social workers' involvement in research", Social Work, March, 1976.

Linn, M., and Greenwald, S., "Student attitudes, knowledge and skill related to research training", Journal of Education for Social Work, Winter 1974, pp. 48-54.

Nordbeck, B. and Nordbeck, M., Psychology of Teaching Researchers and Research: Studies in the Selection of Potential Researchers. Psychological Research Bulletin, Lund, U., Sweden, 1970.

Siegel, S., Nonparametric Statistics for the Behavioral Sciences, (New York: McGraw-Hill, 1956).

Wickham, F., personal communication, May, 1975.

APPENDIX A

GRADUATE SCHOOL OF SOCIAL WORK

Wilfrid Laurier University

S.W. 528
Research in Social Work
(Four Sections)

Term 3 (Spring) 1974
(Campfens, Govenlock,
Rahn, Yelaja)

Course Objectives

The general objective of this course is to review and confirm a basic knowledge of research methodology including the role of statistics in the data analysis phase of the methodology. A further general objective is to orient the student to the application of research methodology, design alternatives, and statistical analysis to the kinds of problems addressed in social work practice. The interdependence of inductive and deductive approaches to knowledge and theory building (empiricism, intuition, contemplation) is to be noted. Toward these ends, the following specific objectives are identified:

A. Review of research methodology, design alternatives and use of statistics

1. To prepare the student to distinguish between four levels of research: formulative, descriptive, associational or correlational, and experimental;

a. To prepare the student to distinguish correctly among different kinds of data: nominal, nominal dichotomous, dichotomous (with

underlying normal distribution), ordinal and metric (interval or ration);

b. To familiarize the student with the distinction between single concept description ("one-variable analysis") and the measurement of association or correlation between two or more variables;

c. To familiarize the student with the nature of dependent and independent variables and the distinction between one way association and mutual association in examining association or correlation between variables;

2. To review and establish a basic grasp of the use of descriptive statistics;

3. To familiarize the student with the basic alternatives in sampling procedure and the rationale for choice;

B. Application of research methodology and design alternatives to social work practice

4. To develop student ability to examine a completed research report and to understand it with respect to problem focus, variables utilized, sampling procedure, and choice of statistics; further, to prepare the student to read completed research in his or her concentration area with understanding and in a way which enriches the student's grasp of the significance and utility of research findings - for social work practice;

5. To introduce the student to the major alternatives for experimental and evaluative research design; to relate this knowledge of evaluative research approaches to examining the effectiveness of social work

practice in IFG, Community Practice, Social Policy analysis and Social Administration (to be emphasized in Term 4 concurrent practice course);

6. To develop the ability to translate professional concerns, issues and perceived problems into researchable questions (and hypotheses when correlational or experimental levels of research are involved); to develop appreciation of the collaborative nature of social research and the use of various specialists in the collaborative process.

March 1974

APPENDIX B

1. CODE: _____

2. SEX: Male Female

3. AGE: _____

4. MARITAL STATUS: Single Married Separated Divorced Widowed

5. UNDERGRADUATE MAJOR(S): _____

6. UNDERGRADUATE GRADUATION YEAR: _____

7. MAJOR SOCIAL WORK-RELATED EXPERIENCE:

   i) Volunteer
   ii) Summer Student Employment
   iii) Part-time Employment
   iv) Full-time Employment
   v) None

8. How long was this experience? _____

9. Did you have credits for research methods and statistics prior to applying for this school?

   i) Yes
   ii) No
   iii) Had research methods only
   iv) Had statistics only

10. Concentration choice for next term (January - May 1975):

    i) IFG ii) CO & CD

11. Concentration choice for fourth term (Sept. - Dec. 1975):

    i) IFG ii) CO & CD iii) ADMINISTRATION

    iv) RESEARCH v) SOCIAL POLICY vi) UNDECIDED

12. Job preference upon graduation; in area of:

i) IFG ii) CO & CD iii) ADMINISTRATION
iv) RESEARCH v) SOCIAL POLICY
vi) COMBINATION OF ABOVE (specify) _____
vii) NO PREFERENCE AS YET

INSTRUCTIONS FOR NEXT SECTION:

In this section we are interested in your attitudes towards certain concepts. We want to know how you feel about them NOW, as a social work student.

At the top of the page you will find the name of the concept to be judged, and below it are nine pairs of opposite adjectives.

If you feel that the concept is very closely related to one of these adjectives, place an X in the extremely category.

If you feel that the concept is quite closely related or slightly related, place an X in the appropriate category.

If you consider the concept to be equally related to both adjectives, OR if the adjectives are completely unrelated to it, place your X in the neutral space.

You should work at a fairly fast pace. Do not worry or puzzle over individual items. It's your first impression, your immediate feelings that are important.

EXAMPLE

SUPERVISION

POSITIVE						NEGATIVE
	X					
extremely	quite	slightly	neutral	slightly	quite	extremely
PASSIVE						ACTIVE
				X		

This indicates that you think that SUPERVISION is quite Positive and slightly Active.

SOCIAL WORKER

GOOD						BAD
extremely	quite	slightly	neutral	slightly	quite	extremely
STRONG						WEAK
HARD						SOFT
ACTIVE						PASSIVE
DULL						SHARP
NEGATIVE						POSITIVE
COMPLEX						SIMPLE
WORTHLESS						VALUABLE
POWERFUL						POWERLESS

CLINICAL SOCIAL WORKER

POSITIVE						NEGATIVE
extremely	quite	slightly	neutral	slightly	quite	extremely
SOFT						HARD
COMPLEX						SIMPLE
BAD						GOOD
WEAK						STRONG
SHARP						DULL
VALUABLE						WORTHLESS
PASSIVE						ACTIVE
POWERFUL						POWERLESS

SOCIAL WORK RESEARCHER

ACTIVE						PASSIVE
extremely	quite	slightly	neutral	slightly	quite	extremely
BAD						GOOD
COMPLEX						SIMPLE
SHARP						DULL
SOFT						HARD
POSITIVE						NEGATIVE
WEAK						STRONG
VALUABLE						WORTHLESS
POWERLESS						POWERFUL

INTRODUCTORY SOCIAL WORK RESEARCH COURSE

VALUABLE						WORTHLESS
extremely	quite	slightly	neutral	slightly	quite	extremely
WEAK						STRONG
ACTIVE						PASSIVE
NEGATIVE						POSITIVE
POWERFUL						POWERLESS
SHARP						DULL
BAD						GOOD
SOFT						HARD
COMPLEX						SIMPLE

RESEARCH COMPONENT OF FIELD PLACEMENT

HARD						SOFT
extremely	quite	slightly	neutral	slightly	quite	extremely
POWERLESS						POWERFUL
SIMPLE						COMPLEX
VALUABLE						WORTHLESS
PASSIVE						ACTIVE
SHARP						DULL
POSITIVE						NEGATIVE
GOOD						BAD
WEAK						STRONG

STATISTICS

DULL						SHARP
extremely	quite	slightly	neutral	slightly	quite	extremely
STRONG						WEAK
POSITIVE						NEGATIVE
ACTIVE						PASSIVE
POWERLESS						POWERFUL
VALUABLE						WORTHLESS
COMPLEX						SIMPLE
SOFT						HARD
BAD						GOOD

SOCIAL WORK KNOWLEDGE

WEAK						STRONG
extremely	quite	slightly	neutral	slightly	quite	extremely
DULL						SHARP
GOOD						BAD
SOFT						HARD
ACTIVE						PASSIVE
NEGATIVE						POSITIVE
COMPLEX						SIMPLE
POWERFUL						POWERLESS
VALUABLE						WORTHLESS

SOCIAL WORK VALUES

PASSIVE						ACTIVE
extremely	quite	slightly	neutral	slightly	quite	extremely
POSITIVE						NEGATIVE
HARD						SOFT
SIMPLE						COMPLEX
BAD						GOOD
POWERLESS						POWERFUL
SHARP						DULL
WORTHLESS						VALUABLE
STRONG						WEAK

COMMUNITY ORGANIZER

WEAK						STRONG
extremely	quite	slightly	neutral	slightly	quite	extremely
SIMPLE						COMPLEX
VALUABLE						WORTHLESS
POWERFUL						POWERLESS
NEGATIVE						POSITIVE
ACTIVE						PASSIVE
DULL						SHARP
GOOD						BAD
HARD						SOFT

"ME AS A STUDENT"

POWERFUL						POWERLESS
extremely	quite	slightly	neutral	slightly	quite	extremely
WORTHLESS						VALUABLE
COMPLEX						SIMPLE
NEGATIVE						POSITIVE
DULL						SHARP
PASSIVE						ACTIVE
HARD						SOFT
STRONG						WEAK
GOOD						BAD

The 1968 MARK

DIRECTIONS

On the answer sheet given you, write in the number before the one sentence or phrase which best completes each of the first statements or best applies to each of the first statements below. Do not make any marks on this test booklet.

1. In social work the kind of research in which knowledge is sought for its own sake, regardless of its usefulness:
   1. is sometimes wasteful of time and money and should often not be carried out at all.
   2. should be given some time and money but not as much as research to solve practical problems.
   3. should be given about equal time and money as research to solve practical problems.
   4. should have somewhat more time and money than research to solve practical problems.

2. The current output from social work research provides:
   1. fairly definitive answers that can be used to guide social workers' activities.
   2. only the most limited kind of guide for social workers' activities.
   3. answers that are useful to some extent as guides to social workers' activities but often suggest further research before they can be considered imperatives.
   4. final answers that not only guide activities of social workers but show imperatively what they must do to help people.

3. A frequency distribution in research usually refers to:
   1. the distribution of theories with regard to the frequency of their confirmation.
   2. the number of times that observations are distributed in various assigned categories.
   3. the frquency with which nomothetic laws are confirmed.
   4. the frequency with which distributions of the findings of research studies are made to social agencies.

4. The scientific method is considered self-corrective because:
   1. scientists' methods are based on scientific activity.
   2. scientists will not use a method unless it also has been accepted as correct by a stipulated number of other scientists.
   3. hypotheses of scientists are modified until confirmed by data.
   4. data are manipulated until they fit original hypotheses.

5. Research methods in social work:
   1. are basically very much different from research methods in other fields, such as physical science.
   2. are basically less technical than those in other fields, such as physical science.
   3. are basically much more complex than methods in other fields, but not otherwise different.
   4. are basically very similar to research methods in other fields, such as physical science.

6. Studies done about influence on clients from casework treatment, of findings from testing theories of psychodynamics, of the extent of social problems, etc.:
   1. should be almost the entire basis for content in social work courses.
   2. should make up about one-half the content in social work courses.
   3. should make up a very small part of the content in social work courses.
   4. should be left to social workers' learning from the literature and should not be taught in any course.

7. With regard to practice based on clinical versus statistical prediction, (prediction based on judgmental decisions versus those made on objective tests and measurements):
   1. the goal of social work should be to replace clinical with statistical predictions.
   2. the goal of social work should be to use clinical predictions for cases in which statistical predictions will not be possible and to use statistical predictions elsewhere.
   3. the goal of social work should be to support statistical with clinical predictions.
   4. the goal of social work should be to support clinical predictions with statistical ones.

8. The decision about subjects appropriate for study by social work research should be made by:
   1. practitioners rather than social work researchers.
   2. social work researchers rather than practitioners.
   3. practitioner-researchers.
   4. the sources who support research.

9. The statement of scientist and researchers that knowledge is good is:
   1. a statement that they try to confirm before they do any research.
   2. a statement that they try to confirm after the research is complete.
   3. a statement that they do not try to confirm.
   4. a statement that they try to confirm, both during and after they finish their research.

10. The scientific method may be described as:
   1. the collection of procedures that leads to truthful knowledge.
   2. the collection of procedures that in themselves is truthful knowledge.
   3. the collection of procedures that guarantees truthful knowledge.
   4. the collection of procedures that helps to prevent error in obtaining truthful knowledge.

11. Possible harmful influences on social work clients from doing research with and on them:
    1. have been over-emphasized.
    2. have not been emphasized enough.

12. Research in social work that obtains data from clients by means of interciews:
    1. often may be carried out without influencing the persons being studied.
    2. is impossible to carry out without influencing the persons studied in some way.

13. The usefulness to practice of most findings from social work research (without considering the amount of research done):
    1. is very limited.
    2. is considerable.

14. Actions based on clinical judgment are:
    1. more likely to be helpful to social work clients than actions based on research findings.
    2. less likely to be helpful to social work clients than actions based on research findings.

15. "Anxiety" and "guilt"

1. can sometimes be observed directly in social work clients.
2. always must be inferred from client behavior.
3. can neither be inferred nor observed from client behavior but represent ideas alone.
4. can sometimes be observed directly, but at other times must be inferred from observation.

16. The phrases "level of significance" or "level of confidence" refer to:

1. the number of times in a hundred in which a research finding is useful.
2. the number of times in a hundred a conclusion could have occurred by random sampling or chance.
3. the amount of confidence practitioners have in a research finding as shown by the approximate number of times they use it.
4. the level of quality of a given piece of research.

17. The first decision that must be made before a research study is:

1. what is the size of the sample to be studied.
2. what questions are to be answered.
3. what data source is to be used.
4. what methods are to be followed.

18. We have a "valid" judgment of the number of clients who will come to a future group meeting when:

1. the number who will come to the group meeting is judged to be the same by a number of judges.
2. the number who will come to the group meeting is judged to be the same by several independent judgments made by one well-trained judge.
3. the number who will come to the group meeting can be predicted from the judgment or judgments, whether by one judge or many.
4. the number who come to the group meeting is the same as the number who intend to come.

19. "Pure" research is distinguised from "applied" research by:

1. the methods used in the research project.
2. the goals set for the research.
3. the source of support.
4. the scope it covers.

20. True objectivity in social work research:

1. is impossible.
2. will be possible as soon as social work can develop better methods.
3. will increase but never be perfect.
4. is being achieved now.

21. Indicate which one of the following is the most appropriate subject for research:

1. proving that confidentiality is good.
2. demonstrating a need for a new branch in a certain agency.
3. determining the predictions which can be made by a specified theory.
4. providing data to support a course of social action.

22. Select the answer below which best completes the following sentence:

With regard to human behavior, I believe:

1. human behavior is something that we <u>will</u> be able to predict with certainty in the future, when we have more knowledge.
2. human behavior is something we <u>will not</u> be able to predict in the future. Any apparent success will largely be due to chance, because our knowledge will always be limited.
3. human behavior is something we will be able to predict in terms of probabilities, as we gain knowledge.
4. human behavior will not be predicted in the future; the idea of free and individual will.

23. The best basis for knowing that a conclusion is correct is:

1. if it is generally accepted by the public.
2. if authorities say it is correct.
3. if our own analysis shows it to be correct.
4. if it has never been changed previously.

24. The best source for knowledge is:

1. that which has laways been believed.
2. that whixh is generally accepted by most people.
3. that which our own sense impressions as checked on by our thought processes provide.
4. that which is stated by competent authorities.

25. Philosophically most scientists consider reality as something:

1. that we have not been able to know perfectly through our present methods.
2. that is individualized for each person, and therefore different from every other persons's reality.
3. that we shall never be able to know perfectly.
4. that is the consensus of various persons' cognitive processes and sensory apparatus.

26. Select the phrase below which best describes a complete research study:

1. it is the development but not necessarity the testing of theories that have subjective appeal.
2. it is the testing and motidication of theories on the basis of data.

3. it is the finding of data that can confirm a particular theory, rather than modifying the theory to fit data that has been found.
4. it is the careful reporting on relations between observations made.

27. The relationship between statistics and research in social work is best expressed by the statement that:
1. statistics make up a moderate part of research activity.
2. statistics is one type of model used in research.
3. statistics from the base and backbone of research.
4. statistics and research are synonymous.

28. Social work actions to help clients are guided mostly by:
1. value judgments about what is right.
2. universal laws about human behavior that have been discovered through research.
3. statements of probable relations between ideas and between behavior, that are partly or wholly untested.
4. statements of authorities in the field who provide guidance on the basis of personal experience.

29. The goal of scientific inquiry is most frequently stated as:
1. finding evidence to support a point of view.
2. answering questions that will stimulate further questions.
3. the replacement of all value judgments by facts.
4. developing better methods of research.

30. With regard to the possible limits of human knowledge:

1. it now appears there are no limits.
2. it now appears there are definite limits.
3. we do not know if there are limits or not.

31. The best research results will be obtained when:

1. one follows closely the specific established method most suitable for the problem at hand.
2. one generally follows established methods but seeks to develop deviations from these methods if it appears that the deviations produce better knowledge.
3. one uses whatever methods that are most likely to produce the answer desired.
4. one uses the best methods previously found.

32. Do you think you will find research:

1. absorbing and engrossing?
2. stimulating and informative?
3. tedious and boring?
4. distasteful and repelling?

33. Do you think the research course will be:

1. much more interesting than other courses?
2. a little more interesting than other courses?
3. much less interesting than other courses?
4. a little less interesting than other courses?

34. Do you expect the research course to be:

1. much more helpful to you as a practitioner than any other course?
2. a little more helpful to you as a practitioner than any other course?
3. much less helpful to you as a practitioner than any other course?
4. a little less helpful to you as apractitioner than any other course?

Each of the words or phrases on the left can best be matched with one of the phrases on the right. Indicate on the answer sheet which word or phrase <u>best</u> matches each word or phrase on the right by marking under the item number for the phrase on the left the number that is before the phrase on the right. <u>Three</u> phrases on the left do not go with <u>any</u> phrase on the right. There should thus be three items left blank on your answer sheet.

35. Variable
36. Generalization
37. Teleological
38. Null hypothesis
39. Limiting frequency
40. Universe
41. Chance
42. Correlation
43. Logical validity

0) Refers to purpose, end sought, or motivation.
1) A term used in probability theory.
2) Shows a difference but not exactly how much difference.
3) Made to be refuted, if possible.
4) The presence of many influences operating in unknown directions.
5) A concept which may be measured.
6) A measure of central tendency.

44. Ordinal scale	7) Must always apply to more than what is observed
45. Median	8) A type of assumption.
46. Reification	9) Changes in one thing accompanied by
47. Value	changes in another.

Each of the words or phrases on the left can best be matched with one of the phrases on the right. Indicate on the answer sheet which word or phrase best matches each word or phrase on the right by marking under the item number for the phrase on the left the number that is before the phrase on the right. One phrase on the left does not go with any phrase on the right. There should thus be one item left blank on your answer sheet.

48. Assumption	0) A measure of central tendency.
49. Continuum	1) An activity resulting in a theorical
50. Parameter	concept being considered concrete.
51. Rationalistic	2) A belief held for a limited time.
52. Reification	3) Measure of a population.
53. Mean	4) Divisible into an infinite number of parts
54. Concrete	5) Both empirically and logically true.
55. Fact	6) Akind of verbal shorthand used in
56. Nominal definition	describing concepts.
57 Primitive term	7) The type of concept most directly
58. Reliability	perceivable to one's senses.
	8) A word not needing definition in a theory.
	9) A term used to express the degree of agreement among observers.

Identifying Data - For Study of Research Teaching

The following items are aimed at obtaining information about your college background.

The list below shows some topics related to research that may have been included in your previous college courses (undergraduate or graduate). If you had a course which covered the topic, so that either the entire course, or part of the course was about the topic, on the answer sheet, mark "1". If not, mark "2". Mark a "1" for each topic you have studied.

59. 1. Yes. 2. No. Statistics.

60. 1. Yes. 2. No. Research.

61. 1. Yes. 2. No. Scientific Method.

62. 1. Yes. 2. No. Logic.

63. 1. Yes. 2. No. Experimental Psychology.

64. 1. Yes. 2. No. Tests and Measurements.

On the following items, mark on the answer sheet the answer you select.

65. With regard to the topics above:

1. I had no course that covered any of them.
2. All I have checked were covered in one course.
3. Some I have checked were in one course and some in a second course.
4. The items I have checked were in three or more course.

66. With regard to work as a key punch operator, programmer, or research assistant, indicate which of the following best describes you:

1. I have had no work of this kind.
2. I have worked as a key punch operator but have no other research experience.
3. I have worked as a computer programmer but have no other research experience.
4. I have worked as a research assistant or research worker but have no other research experience.
5. I have worked in more than one of these capacities.

67. With regard to a possible career in social work research:

1. I have never considered it.
2. I could be interested if I knew more about it.
3. I have some interest in doing some research though not necessarily full time.
4. I have some interest in it as a full time job.
5. I am eagerly seeking a full time career as a social work researcher.

68. My college major was:

1. Psychology.
2. Sociology, Anthropology or Political Science.
3. Business, Education or Economics.
4. Biological or Physical Science, other science, Engineering or Mathematics.
5. Something other than the above.