LEARNING ORIENTATIONS AND LEARNING STYLES OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS TOWARDS INSERVICE EDUCATION

by

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ABSTRACT

MICHAEL IDOWU AYENI

(Under the Supervision of Professor John F. Thompson)

The major purpose of this study was twofold: (1) to identify the learning orientations and learning styles of Wisconsin post-secondary agriculture teachers in relation to their inservice education participation; (2) to determine whether there were statistically significant variations in the teachers' learning orientations when grouped by some selected demographic variables; and the teachers' learning abilities when grouped by the learning orientations influencing them.

Data were collected by mail questionnaires from the entire population comprising 114 post-secondary agriculture teachers in the state. The instrument utilized was the revised version of Education Participation Scale (EPS) and Kolb's Learning Style Inventory.

The study utilized various statistical techniques to analyze the gathered data including the factor method, one-way analysis of variance (ANOVA), the scattergram, and the Friedman's two-way analysis of variance. The .05 level of probability was used as the rejection point.

The major findings of this study included the following:

1) Six learning orientations were obtained from factoring the 40-EPS items. Of the three factors - Professional Advancement, Cognitive Interest and External Expectations - found to influence the teachers' participation in inservice programs, the Professional Advancement was the most influential. The Social Welfare, Social Relationships and Escape/Stimulation factors had no influence on the teachers' participation.

2) Statistically significant differences and relationships were observed in the data concerned with the teachers' learning orientations and their demographic variables.

3) The teachers' learning style was identified as "Accommodator" with most emphasis on the preferred learning mode of Active Experimentation.

4) A statistically significant difference was observed in the teachers' learning abilities.

The major conclusions were:

1) That program leaders need to stress the marketing strategy, the practicality and relevance of program content. Inservice program's must be planned based on the motives, needs and interests of the participants.

2) That inservice leaders need to be conscious about providing serious, intellectual and challenging programs.

3) That leaders should endeavour to match the learning orientations of the participants with appropriate learning modes through careful program planning.

As a result of the conclusions of this study several implications for planning and implementing inservice education as well as areas for future research were suggested.

John T. Thompson
Major Professor

May 10, 1982
Date

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CHAPTER I

INTRODUCTION

Purpose of the Study

The intent of this study was twofold: (1) To investigate the motivational reasons underlying the participation of Wisconsin post-secondary agriculture teachers in organized inservice programs, and (2) to find out how the motivational reasons relate to the teachers' learning styles. It was envisaged that the findings from the study would reveal the motives (psychological, social, economic, educational and others) at the heart of the teachers' involvement in inservice education activities. It was also hoped that determining the relationship between the teachers' motives for participating in inservice education and their learning styles would help to guide in-service education leaders to institute articulated programs in design, planning and implementation to enhance the probability of effective impact on participating personnel.

Research of this type should contribute substantially to the body of knowledge regarding inservice education for the Wisconsin post-secondary agriculture teachers in particular, and the whole area of vocational agriculture in general. Hopefully, it should encourage attendance at inservice meetings and enhance professionalism at the classroom level.

Background of the Problem

In a rapidly changing world where technological advancements soon become obsolete, no nation wishing to keep up with the changes and competition can afford to neglect its educational system. The United States of America, as a technological country, has therefore continued to invest substantially in vocational education in order to keep her technology up-to-date and hence maintain a viable labor-force in her industries and businesses.

The professional growth of teachers and education administrators is acknowledged as a vital element in any formula for improving vocational education. Whereas, preservice education is regarded only as the beginning of professional training, a period to help the individual develop a rough cognitive map of the phenomena of learning, teaching, professional ethics and practices in the use of the map,[1] true professional development demands that inservice education be a vital part of a teacher's career if he/she is to keep abreast of the changing conditions, new knowledges and new techniques.[2,3] Indeed, in the United States, both secondary and post-secondary institutions have in recent years witnessed heightened interests in the ability and professional competence of the teachers to cope with the ever-changing conditions. Hamilton[4] specifically identified the post-secondary vocational and technical education teachers as a category of professionals to whom, too often too little attention had been paid to meet their inservice education requirements. He observed

that:

> ...the teachers are generally technically competent but their certification requirements are often minimal, especially with regard to pedagogical requirements. There is often a wide range of teaching competence displayed by these individuals due to the varied backgrounds they bring to the teaching setting. Some have been successful at the secondary level and have been recruited to post-secondary teaching. Others have come directly from industry to the classroom, while others have entered teaching upon completion of technical preparation programs. Many of these teachers have little preparation for planning and conducting education programs.

The implication of this observation is that the post-secondary vocational teachers, including those in agriculture, are generally educationally under-prepared to function effectively the time they first enter the teaching profession, and hence will require improvement through inservice education participation.

Relating the importance of inservice education to vocational education in high schools, Jones[5] remarked that:

> To keep progams up-to-date and the training relevant, vocational educators must be on their toes. Students will need training on equipment that is not outmoded. They will need instructors who are well-versed in up-to-date techniques. High school students should not be learning on linear wrenches, pliers and screwdrivers if they are going to be using mechanical robots in the automobile industry.

In his comments on the effects of non-participation of teachers in inservice education activities, Garrison[6] stated that: "One sure way to perpetuate an increasing mediocrity in education is to permit a teaching staff to lose its sharp edge, to lapse into routine, to talk to itself and become increasingly parochial and self-satisfied."

Sorensen,[7] the State Director of the Wisconsin Board of Vocational, Technical and Adult Education in a message to the vocational directors regarding conditions for business and industrial growth in the state remarked that:

> ...A supply of trained workers can be an important factor in the decision of an industry to relocate in Wisconsin. In addition, as technology changes, and some jobs become obsolete, workers often need retraining for new jobs. This means two important things will have to occur: Wisconsin will have to be successful in attracting new business and industry in order to provide new jobs. We, as educators, will have to take responsibility for the training or retraining for those new jobs.

In this era of advanced technology and rapid changes in the social, economic and industrial spheres of life in the United States, several issues and concerns combine to make inservice education participation for vocational teachers a necessity:

1. New advances in science, such as, the development of new materials: plastics and synthetics, new power techniques, miniaturization of electronic techniques,[8] all call for new curricula, new methods of instruction and new laboratory techniques.

2. The expansion of vocational education offerings. This has and is still creating an influx of individuals not specifically prepared to teach, or to teach at the level of competency required in today's schools.

3. The rapid increase in students enrollments. In 1970, there were approximately 8.8 million students enrolled in vocational education. This number increased to 11.7 million during the 1972-73

school year.[9]

4. The students who are now enrolled in vocational education programs have brought with them many educational deficiencies.

5. Changes in the labor market and the opening of jobs to qualified individuals, regardless of sex and/or race have had an impact upon vocational teachers' needs. More women and minorities are entering the labor force. Many vocational teachers will need in-service education which will re-orient their knowledge and professional attitudes regarding learners.

6. The gap between invention (discovery) and application of scientific findings has narrowed in some cases to two years. There is need to shorten the adoption time in education. Vocational teachers need continuous updating in the technical (what to teach) aspect of teaching. Further, technological developments have also impacted on the pedagogical aspect of teaching and teachers need help in understanding the technology as well as its application to teaching and learning.

7. Emphasis on accountability and the need for evaluating the effectiveness of curricula on occupations.

8. The need to revitalize the sagging economy through an improved, efficient and competent work force.

Inservice education for vocational teachers has a significant role to play if all these goals are to be effectively realized. But too often, inservice education programs are poorly conceived and hence badly implemented. Experience with adults indicates that they

participate in continuing education because they have certain immediate goals to satisfy.[10] In like manner and as adults, the post-secondary agriculture teachers participate in inservice education activities in order to fulfill certain needs. A program of inservice education drawn, therefore, with the objectives made congruent with the goals, desires and preferred learning styles of the participants will not only lead to greater satisfaction, better attendance at meetings, but will enhance instructional delivery at the classsroom level.

Learner orientation has become an important psychological concept to explain the underlying reasons why adults participate in continuing education. In the context of inservice education for the post-secondary agriculture teachers, however, the concept of learning orientations is completely new. As of now, no specific theory has been developed to explain and predict the various factors that influence inservice education participation of the agriculture teachers, and few reliable instruments are in existence to assess these characteristics.

The conceptual frameworks identified by Houle[12] and expanded by many other investigators will be examined to form the basis for identifying and describing the learning orientations of the Wisconsin post-secondary agriculture teachers with regard to their inservice education involvements.

Another area of concern for educators including adult educators

is how to make learning as effective as possible. In what he broadly termed 'management education' Kolb[13] said that "if managers and administrators had a model about how individuals and organizations learn, they would better be able to enhance their own and their organization's ability to learn." James Keefe[14] expressed an explicit belief in instructions organized around the individual's learning style. He wrote:

> ...learning style is much more than just another innovation. It is a fundamental new tool with which to work. It is a new way of looking at learning and instruction, a deeper and more profound view of the learner than known previously. It is a basic framework upon which a theory and practice of instruction can be built. It makes obsolete any single framework for teaching all students. All recent innovations, whether staff utilization, modular scheduling, independent study, or fundamental education, must be rethought in the light of learning style. It is nothing less than revolutionary to base instructional planning on an analysis of each student's traits.

The learning styles of Wisconsin post-secondary agriculture teachers will be examined using the experiential learning model developed by Kolb.[15] The investigation will be carried a stage further by determining if any relationships exist between the identified learning modes and the teachers' learning orientations.

Statement of the Problem

Adults are known to possess various motives for participating in continuing education.[16,17] Motives are described as a state or set of the individuals which disposes him/her for certain behaviors and for selecting certain goals.[18] Experience indicates, however,

that adults vary in their levels of motivation to participate in continuing education; in certain cases, for one reason or the other, some are just not motivated at all. The assumption therefore that some professionals will voluntarily participate in continuing education activities because they fear obsolescence or that they necessarily want to improve their level of competence may, afterall not be entirely accurate.[19,20] By implication, therefore, some vocational teachers might choose not to get involved in any form of professional growth but for the mandated reason of accreditation.

Even though the American Vocational Association (AVA) (with its local ancillary organizations) has fully accepted the need for its members to update their knowledge and pedagogical skills through participation in continuing education activities as instituted at local, state and national levels, the chances are such that some teachers will voluntarily choose not to participate. This accounts for one of the main reasons why inservice education is in the process of being made mandatory for the public school teachers in at least 28 states. In Wisconsin, for example, participation of secondary teachers in inservice education is mandatory for relicensure effective 1983. From then on, new licenses issued are liable for renewal on a five-yearly period based on required programs of inservice education. This regulation is certainly no coincidence but an expression of the concerns of the people for quality education which is only possible through inservice education participation by the teachers. However, from all indications, mandatory inservice education does not appear

to have a very strong influence on the teachers' underlying participating motives; if anything at all, reactions of teachers to mandatory participation have been generally luke-warm, if not negative. On the whole it would seem that what a participant derives from inservice education program and how the experience is utilized to improve instruction will largely depend on the satisfaction he/she derives from the exercise. Other things being equal, voluntary participation is likely to yield a more pleasant experience to the teacher and hence yield a more fruitful product in the end.

Adult educators agree that to be successful continuing education should be based on the learner's needs,[21,22] and learning theorists agree that the learner motivation is an essential precondition for learning. While the learner's motive to participate in continuing education (inservice education) may well be to satisfy a legal requirement and other psychological elements, several studies demonstrated that participation is not exclusively related to the learner's needs per se, but to a broad array of motivational (orientational) factors.[23,24]

Tyler[25] observed that teachers have certain motives for participating in inservice education programs. He wrote:

> ...Inservice education is still viewed by many teachers as a means of increasing communication and reducing the sense of loneliness and isolation that is prevalent in an occupation which contact with other adults is limited.

The post-secondary agriculture teachers, therefore, are likely to participate in organized inservice education to the extent that their

motivational orientations can be satisfied.

In Wisconsin, no research has been conducted to determine the learning orientations of the post-secondary agriculture teachers in inservice education activities; existing researches have been limited only to identifying such psychological variables as perceptions, attitudes and needs, etc. as are related to inservice planning and organization.[25,26]

This investigation will be undertaken to discover the learning orientations of Wisconsin post-secondary agriculture teachers in inservice education activities; it will also identify and describe the dimensions underlying these orientations in relation to some selected personal variables. An attempt will be made to establish and describe the relationship between the teachers' learning orientations and their learning modes.

A knowledge to explain the learning orientations and preferred learning styles of Wisconsin post-secondary agriculture teachers through their inservice education participation will doubtlessly facilitate the growth of theory and models in teachers' continuing education; it will at the same time throw more light on other conceptual areas which undergird inservice program planning and implementation. If inservice is to have the desired effect, it is incumbent on the program leaders to have an indepth knowledge into the various parameters which impact on the decisions of teachers to participate. Some authors, for example, believe that knowing the

preferred learning styles of learners could suggest to the programmer the most appropriate instructional approaches.[28,29] This type of indepth knowledge considered along with the learning orientations of the post-secondary agriculture teachers may well be a rational base for an intelligent planning and implementation of inservice education activities.

It was the intent of this investigation to focus enquiries on the learning orientations and preferred modes of learning of Wisconsin post-secondary agriculture teachers and to determine and describe those variables critical to inservice education programming in the state.

In the study, answers were sought to the following questions:

1. What are the factors motivating the post-secondary agriculture teachers to participate in inservice education programs?
2. What is the degree of importance placed by the respondents on the factors motivating them to participate in inservice education programs?
3. Are the post-secondary agriculture teachers significantly different in the factors motivating their participation in inservice education when grouped and compared by the independent variables of:
    a) age
    b) level of education
    c) length of teaching experience
    d) marital status

e) level of income

4. Do the post-secondary agriculture teachers in Wisconsin have a preference for certain learning styles?
5. Is their a relationship between the learning abilities of the post-secondary agriculture teachers and their learning orientations?

Objectives of the Study

The following objectives were formulated for the study:

1. To have a background knowledge of the personal variables of the Wisconsin post-secondary agriculture teachers with regards to their:
   a) Age
   b) Marital Status
   c) Educational background
   d) Length of teaching experience
   e) Income
2. To identify the orientations to learning (and determine their relative degree of importance) motivating the post-secondary agriculture teachers toward participation in inservice education.
3. To determine if the learning orientations influencing the post-secondary agriculture teachers to participate in inservice education programs exhibit any significant variation when individuals are classified into groupings within each of the demographic variables of:

a) Age

b) Marital status

c) Level of education

d) Length of teaching experience

e) Level of income

Hypotheses

The following null hypotheses were advanced for the study:

1. There is no significant difference in the learning orientations of the post-secondary agriculture teachers as measured by the following independent variables:

   a) Age

   b) Marital status

   c) Educational background

   d) Length of teaching experience

   e) Level of income

2. There is no significant relationship between the post-secondary agriculture teachers' personal variables of age, marital status, educational level, teaching experience, level of income and the learning orientations of Social Relationships, Professional Advancement, External Expectations, Escape/Stimulation, Cognitive Interest, and Social Welfare

3. There is no significant difference between the learning abilities of post-secondary agriculture teachers whose learning orientations

are characterized by:

a) Social Relationships

b) External Expectations

c) Social Welfare

d) Professional Advancement

e) Escape Stimulation

f) Cognitive Interest

Assumptions of the Study

1. For a teacher (including post-secondary agriculture teacher) to maintain professional currency, he/she requires constant renewal through participation in inservice education activities.
2. Adults participate in continuing education because they have certain goals to satisfy. Therefore, an educational enterprise planned and implemented based on the identified interests and goals of the participants will enhance the quality of participation.
3. Inservice education is an educational enterprise which requires rational and complex instructional techniques in order to adequately reach every participant.
4. It is possible to identify the learning orientations and preferred learning styles of inservice education participants by employing appropriate instruments to gather data and applying various statistical techniques to analyze the data.

5. The analysis of gathered data should point the way to many of the psychological and other variables pertinent to, and motivating the post-secondary agriculture teachers to participate in inservice education programs.
6. The post-secondary agriculture teachers are likely to gain competence and improve their professional practice at the classroom level if inservice education gave them a pleasant, satisfying and rewarding experience.

Significance of the Study

In Wisconsin, inservice education is in the process of being made mandatory for all secondary teachers and maybe including the post-secondary agriculture teachers as well in future, so that every teacher will be "forced", as it were, to keep abreast of developments in his/her professions and so avoid obsolescence. But the idea of compulsory inservice education has met with much disfavour in most professional quarters where it is being practiced, including teaching,[30, 31,32] Most teachers see it as an affront, an attempt on the part of the authorities to deprive them of their inalienable professional rights and freedom. If anything at all, mandatory inservice education is detested by a large majority of teachers and remains a subject of debate and controversy. Not many teachers regard their participation in inservice eddcation as being significantly influenced by its mandatory nature; rather, they feel that they participate for motivational reasons. This study is significant because:

a) It will lead to determining the overriding motivational reasons why the post-secondary agriculture teachers engage in inservice education activities. Such information in addition to the identitifed interests and needs of teachers could form a rational base for program planning and implementation.

b) The study should reflect a more rational basis for evaluating inservice education, at least, as far as it relates to the participation of individual teachers during inservice meetings and thereafter.

c) Planning inservice education programs around the motivational reasons of the participants may very well be a positive step toward making participation voluntary rather than mandatory; and hopefully, a more conducive atmosphere will result between the authorities and the post-secondary agriculture teachers for good inservice programs to flourish.

d) Appropriate instructional techniques to help the teacher-participants meet their individual (or group) goals through participation in inservice education activities have been an uphill task for the program leaders. Knowles[33] among others, has written that "understanding how a person learns, and helping people understand how to learn is a major requisite for a successful program." This observation can be of particular importance in inservice education programming - since participants may have different goals than those in more conventional learning situations. In a recent article, Smith and Haverkamp[34] stated that "educators should seek

to match learners with learning situations that are commensurate with their learning styles." This observation is of particular importance for the post-secondary agriculture teachers, the learners, and the Wisconsin Board of Vocational, Adult and Technical Education leaders designing and coordinating inservice programs for the teachers.

This study should be valuable in providing a variety of in-service education strategies to enhance the probability of effective impact on participating personnel. This will allow for difference in interests, in personalities, goals, or ways in which personnel may be able to cope with their responsibilities and roles. It will also help to emphasize the need for each individual to accept the major share or responsibility for his or her own professional growth. Experience has shown that the psychology of individual differences simply does not support the arbitrary development of a program with the assumption that it is suitable to all personnel working in common areas of responsibility. Learning style has potential educational use in counselling, program planning and implementing, and administrative strategies to effect a good program.

e) The identification of motivational reasons underlying the teachers' decision to participate in inservice education should advance the theory and models in an area of teacher education so vital to professional growth.

f) Overall, the effects of improved inservice education will most probably lead to more voluntary participation of the post-secondary agriculture teachers and yield significant gains in their professional competence.

Limitations of the Study

The limitations are related to the nature of the population for the study, the limitations of the questionnaire as a data gathering instrument, and the reliance on the theoretical concepts of learner orientations and learning styles.

This study was limited to the post-secondary agriculture teachers in Wisconsin, employed and actively engaged in teaching at time the study was conducted. The target was the total population of the teachers, but this was later found to be an ideal rather than a reality due to a segment of the population, who for one reason or another, failed to respond. The study specifically analyzed the learning orientations and preferred learning styles of the respondents (post secondary agriculture teachers). It is open to question whether or not the results obtained could be given a wider generalization beyond Wisconsin State.

The use of a questionnaire as the sole means of gathering data limits the information obtained to written responses to pre-arranged questions. The Education Participation Scale (EPS) instrument has been widely utilized to gather data related to adult continuing education; so also has the Learning Style Inventory (LSI)

to gather data relating to the preferred learning styles of learners. In both cases, the possibility remains of variation in the interpretation of questions by the respondents.

The statistical technique applied to gathered data to arrive at the major factors, otherwise referred to as learning orientations, has been criticized as subjective and inexact. The theoretical concept of learning orientations in itself is subject to a variety of interpretations. As a psychological concept to explain learning modes, learning style is still an object of hot debate among scholars. All these were recognized as a limitation in the treatment of gathered data and interpretations of the findings of the study.

Definition of Terms

The following definitions are meant to provide a common understanding for certain terms used in this study:

1. Orientation --- A sense of one's position with relation to an environment or some particular person, place or thing. In the context of the study, Learning Orientation is used to denote the major principle, or motive, which gives meaning or direction to any actual or potential continuing learning act or process undertaken by the post-secondary agriculture teacher.

2. Continuing Education --- For the purpose of this study, continuing education is considered a process through which adults engage in planned activities with the conscious intention of bringing

about changes in information, knowledge, understanding, skills, appreciation and attitudes; or to identify and solve personal or community problems.

3. Inservice Education --- Inservice education in the context of this study is regarded a form of continuing education for the post-secondary agriculture teachers. It is conceived as efforts directed at improving the teachers' professional competence.

4. Learning Style --- This is the aggregate learner's opinion about the way he/she learns. In this study, learning styles for the post-secondary agriculture teachers is conceptualized in four abilities: reflective observation, concrete experience, active experimentation, and abstract conceptualization.

5. Post-Secondary Agriculture Teacher --- This is a person employed by the Wisconsin Board of Vocational, Technical and Adult Education (WAVTAE) to give instruction in agriculture at the post-secondary school level. He or she prepares his or her students, among other things, for employment in production agriculture and related agribusiness.

6. Mandanory Inservice Education - A legislated state requirement that all practicing secondary teachers submit proof of participation in inservice education activities as a condition for relicensure.

7. Motives -- Motives determine why people behave as they do; they are genotypes of behavior and the "springs" of action. They "move" or "drive" or "induce" a person towards or away from certain

behaviors. The terms 'drives', 'motivations' or 'motives' as well as 'desires' are used interchangeably with 'reasons' and 'goals' in this study.

8. Program Leaders --- The staff employed by the Wisconsin Board of Vocational, Technical and Adult Education, charged with the sole responsibility of administering the program of vocational agriculture at the post-secondary level in the state. Officially, they are designated as 'Vocational Education Consultants'.

FOOTNOTES

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CHAPTER II

THEORETICAL FRAMEWORK AND REVIEW OF LITERATURE

Introduction

One mark of the professional is his participation in continuing learning. Adult educators agree that to be successful, adult education should be learner oriented. Andragogy stresses the importance of developing programs that are compatible with the needs, motives and interests of the participant.[1] Since the many different continuing education programs seem to serve different types of learners in different ways and with varying degrees of success, it is critical for successful program development to have a thorough understanding of the characteristics which influence adult participation. A well-reasoned program approach, therefore, will necessarily begin first by clarifying the larger motives behind the professional's investments on time, money and energy in continuing education.[2] Boshier[3] pointed at participants' needs as central to their motives in continuing education participation. The post-secondary agriculture teachers form a group of professionals, hence it is reasonable to assume that they have certain purposes, needs, motives and interests for participating in continuing education activities.

Although the area of adult education is by now replete with studies on the reasons adults participate in life-long learning, most of the studies, rather than viewing participation as a motivated behavior, have been conducted as an end in themselves. This study was focused on the Wisconsin post-secondary agriculture teachers with a view to investigating first, their learning orientations or the motivational behaviors undergirding their decisions to participate in in-service education activities, and second, to relate these behaviors to the teachers' preferred learning styles.

The guiding philosophical principle for this study is one that recognizes the behavior of the adult learner (his motives, needs and interests) as a central issue in continuing education program planning and implementation. The concept of motivation being so central to this investigation was employed to explain many behaviors adults in a learning situation exhibit.

Motivation is a term used and perhaps most abused in adult education. One dictionary definition is "that which tends to move a person to a course of action". Kidd[4] defines it as "a general term used to designate the active kinds of relationship that an organism has with its environment. Marx[5] defines it in behavioral terms when the wrote that it is made up of three specific elements; motive, purpose, and intention. Motivation as a concept has lent itself to different definitions and interpretations depending on the psychological and orientations involved.

Some motivational theories, conceptual models and typologies were drawn upon to guide this study and to explain the behaviors of adults in continuing learning situation with particular reference to the post-secondary agriculture teachers participating in inservice programs in Wisconsin. Additionally, an attempt was made to relate the orientations to learning of the teachers to their preferred modes of learning.

The literature review for this study was organized in two major topical areas. They are: The Theories of Motivation, and The Learning Styles. Specifically, the review covered the following topics:

A. The Theories of Motivotion

a) The Psychoanalytic Theory

b) The Mechanistic Theory

c) The Cognitive Theory

d) The Humanistic Theory

Conceptual Model of Motivation

a) Maslow's Need Satisfaction Model

b) Havighurst's Developmental Task Model

The Typologies and Education Participation Scale

a) Houle's Typology

b) Additional Typologies

c) Education Participation Scale

B. The Learning Styles

a) The Concept of Learning Styles

b) Learning Style Inventory

c) The Experiential Learning Model

The Theories of Motivation

The concept of motivation has long been a key factor in attempts to explain or interpret human behavior. Unfortunately, there are basic disagreements among psychologists and sociologists of the psychological and sociological phenomena concerned with the theories of human behavior.[6] There is controversy among scholars, for example, whether behavior should be conceptualized as 'mechanistic' or 'cognitive'.

The Psychoanalytic Theory

Psychoanalytic theorists have concentrated on unconscious process, asserting that people's behavior is determined by a complex interaction between their unconscious drives and the environment. The term 'drive' has been used in a general way to refer to internal motivational factors, more or less directly physiological.

The instinct theory was adopted by Freud[7] and later elaborated upon by McDougall.[8] Freud postulated that man is propelled to action by instinctive stimuli "emanating within the organism and penetrating to the mind". He advanced one of the most influential theories of human behavior in recent history. His views were greatly

influenced by Charles Darwin's. Freud's view of the human being and especially his behavior was aptly summed up by Apps:[9]

> ...he considered the human being at birth to be a bundle of instinctual drives. The struggle of the ego to bring the drives of the id, the needs of the superego, and the experience of reality into balance determines the individual's later behavior. Cultural and societal influences, to a lesser or greater extent, cause people to suppress their natural instinctual drives and display behaviors that could be described as good or moral. This suppression of instinctual drive is learned; it does not occur naturally.

In Freud's view, human behavior is a sum total of an interaction of various forces working within and without the individual.

After the rise and fall of the instinct theory in the late 1920's it became for a time fashionable to utilize the concept of 'drive' as a kind of substitute for instinct. The endless list of instincts had hastened the demise of the instinct concept as an explanatory mechanism. Bolles[10] summarized the instinct controversy and the reason for the shift to the drive construct:

> ....The only obvious immediate outcome of the Great Instinct Controversy was that the word "instinct was banished; it virtually disappeared from the psychological literature for the next 15-20 years. When it began to reappear it was purely as descriptive term designating unlearned behavior. It has been stripped of its prior connotations of emotion, biological adaptiveness, unconscious impulses, and teleology. These connotations did not perish when the word was banished, however, they merely become attached, with varying degrees of persistence, to the new word "drive".
>
> Drive was an even better compromise concept than instinct had been. It gave the mechanist just the principle of mechanical causation he wanted; and the drives promised to have the objective physiological or

> physical basis, which the instincts lacked. Drives also permitted the vitalist and the mentalist to keep at least a descriptive teleology of the kind Craig and Tolman had proposed. Drives were manifest in behavior, had physiological correlates, and gave rise to man's desires. Thus, they bridged all the inter-disciplinary gaps that instincts were supposed to bridge.

But drive as a theoretical concept of looking at motivated behavior soon led to disenchantment among psychologists.[11] It was felt that a concept that can explain everything is very close to explaining nothing. However, the drive concept persisted principally because it could be empirically investigated - drive antecedents could be manipulated systematically and their behavioral effects observed under controlled conditions. Drive was also seen as performing a function of bridging the gap between the theories of mechanism and cognition.

The Mechanistic Theory

The general theory of behaviorism was developed by John B. Watson[12] in 1913. He believed in making the study of human behavior as scientific as possible. Watson's behaviorism was a rebellion against both structuralism (the science of the content of the mind) and functionalism (functionalists stress the adaptive nature of behavior, e.g., adaptation of the organism to the environment). Watson differed significantly from other behaviorists of his time because he did not believe in introspection; rather he asserted that human behavior should be objectively and scientifically investigated.

One of the leading behaviorists today is B. F. Skinner.[13]

Gordon W. Allport[14] traces the behaviorists' roots back to the philosophy of John Locke. Locke assumed that the individual's mind was a tabula rasa (or blank slate) at birth; content and structure were acquired only through the impact of external sources. Watson[15] argued:

> ....I wish to draw the conclusion that there is no such thing as an inheritance of capacity, talent, temperament, mental constitution, and characteristics. These things again depend on training.

The mechanists are guided by the arguments of Watson and other behaviorists and neo-behaviorists.

The Hullian theory (later known as the Hull-Spence Theory) of the 1940's built on and extended the drive theory. The basic constructs of the theory are habit, drive and incentive. Hull was interested in the formation of habits and the activation (drive) of those habits.

Hull's thinking was influenced by the developments taking place in the areas of psychology and philosophy at that time. He was very much influenced by the views of Darwin, Watson, Thorndike, Paulov, Ritcher and Russel,[16] people who are very much associated with the stimulus-response (S-R) theory and are often classified as learning theorists, or more generally behavior theorists.

The conception of the behaviorists is that behavior is brought about by the onset of external or internal stimuli. The direction of behavior is then determined by mechanistic S-R bonds, or habits.

The probability of performing the behavior at some other time depends on reinforcement contingencies. Marx[17] summarized the perspective of the theory as:

> ....While they make no specific denial of important functions within the organism....the S-R theorists focus their attention upon more readily quantified and observable extraorganismic events and tend to ignore information-processing or cognitive functions.

Hull was considered the father of S-R theory. His earlier conception of the determinants of behavior specified motivation as basic and that motivation is a function of Drive X Habit. This conception was changed in 1951 as a result of the influence of Kenneth Spence who introduced the concept of 'incentive' as a factor in motivation. Hull agreed that quality and quantity of incentives affect behavior independent of their influence on habit. His new conception of behavior specified that performance is a function of Drive X Habit X Incentive. Hull also developed some psychological models one of which demonstrated the relationship between unsatisfied needs (which are pre-requisites for behavior) and the direction and magnitude of the behavior. Two classes of mechanistic theories are distinguishable: (1) those theories that attempt to explain behavior without using hypothetical constructs or intervening variables, just as a stimulus-response approach as presented by such psychologists as B. F. Skinner and Guthrie and some other associationists, and 2) those neobehaviorists, such as Hull and Spence who include many intervening constructs in their theories of behavior. It should however be pointed out that both points of view assume that stimuli

are the instigators of behavior, that habits are S-R connections, that behavior is not consciously "end-seeking", and that intervening cognitions should not be employed in the analysis of action. They believe that mechanistic principles are sufficient for the formation of the laws of motivation.

Overall, the mechanistic theory has contributed significantly to the thoughts on motivational phenomena in both animals and humans. The issues raised however are (a) whether a mechanistic conception of motivation can adequately explain the richness and complexity of human behavior and (b) whether the influence of thought upon action can be ignored in motivational theory. The mechanistic position is no longer theoretically viable nor is it supported by recent empirical data.

The behavioristic stand has implications for adult education programming. An instructional system which views the learner as a mere advanced animal or machine to be fed information certainly misses the essence of education. Adults are rational beings with a purpose behind their actions. A theory which views them as mere 'tabula rasa' is a disservice to the course of education and hence inappropriate for planning and implementing continuing learning;such should not be used as a guiding principle.

Effective adult education demands not only that the learner should form part of the planning and implementation process, but that his identified goals, needs and interests should be central to the program.

The Cognitive Theory

Cognitive psychologists believe that people decide what to do, so they have concentrated on thought process. They consider the way people make and process information and make choices about what to do. The cognitive theories conceive of an action sequence as instigated not by stimulation but by some source of information. External or internal events are received, encoded and transformed into a belief. The direction and persistence of behavior as the organism pursues its goal is a function of the intervening thought processes. This approach may be characterized as stimulus-cognition-response (S-C-R); and it indicates that a higher mental process is brought between inputs and behavioral outputs.[19]

Two types of cognitive theories are distinguishable; all of them accept the necessity of employing intervening constructs in the explanation of action. The views represented by such psychologists as Atkinson,[20] Lewin,[21] Rotter, [22] and Tolman[23] accepts 'expectancy' as a dterminant of action, that is, organisms anticipate end-states or goals. The second view incorporates cognitive concepts and processes in addition to goal anticipations. As determinants of action, the theories recognize such elements as information assembly, causal attributions, judgments, self-evaluation, etc., as fundamental. Thoughts intervene between incoming information and the final behavioral response. Proponents of this theory include Heider,[24] Festinger,[26] Lazarus,[26] and others.

The term 'field' was used in the psychology of motivation to denote a psychological environment with its antecedent -- consequent relations. It was employed to indicate that the psychologist is interested in analyzing the entire environment rather than concentrating on particular aspects of it. Thus, a field theorist is one who concentrates on the 'dynamics' as well as the 'structural' facets of behavior, concentrating on the analyses of its subjective and objective aspects.

The most influential of field theorists in Kurt Lewin.[27] His theory was an attempt to explain behavior from a number of multi-causal aspects such as, environment, person and his goals, forces, needs, drives, tensions and actions, within a single integrated conceptual schema.

The major structural aspect of Lewin's field theory is that of the life-space. Life-space is the subjective relationship between the person and his psychological environment. Lewin was greatly influenced by physicalistic conceptions in science, as he borrowed many of the concepts of physics, like 'life-space'. He contended that behavior is guided by a knowledge of the path to the goal. His conceptual scheme could be dichotomized into two categories: person constructs and environmental constructs. Lewin's basic and well-known programmatic statement is that behavior is a function of the person and the environment. The person and the environment comprise the life-space. The life-space represents psychological reality; it

depicts the totality of facts that determine behavior at a moment in time. The psychological environment (needs, attitudes, motives, and so on) affects the way an individual perceives his environmental objects and events. Similarly, the environment influences the person.

Lewin's concept of tension attempts to integrate the person and environment constructs. When there is tension the environmental object is imbued with a valence. The valence establishes a force-field, and the force acts on the person to locomote toward the goal object. Tension is released when the goal is attained, reducing the valence of the environmental object and diminishing the force acting on the person, thus causing behavior to cease and a state of equilibrium brought about. He contended that man's goal is to be in equilibrium, a state of balance and harmony between the different regions of the life-space.

It is possible that participants (post-secondary agriculture teachers) in inservice education are in a state of tension because of some needs aroused in them by internal and external forces. If they are to reach a state of equilibrium in their life-space, participation in continuing education is a logical step to take to restore them to a normal state.

Tolman,[28] as a field theorist, did contend that behavior is guided by a knowledge of the path to the goal. He introduced the concept of 'purpose' in his theoretical construct. Purpose is objectively defined as the approach toward or away from a goal. His

theory was an attempt to explain the larger and more meaningful components of behavior. Tolman's system consisted of independent variables such as hunger, intervening variables such as cognition and perception, and dependent variables such as, speed of response. This system bears a striking resemblance to Lewin's with its emphasis upon the total situation, behavioral space, perceptual and cognitive components. Yet it differs in that his experiments were performed on rats rather than on human beings.

Because Tolman's experiments were mainly conducted on animals it will be difficult to interpret his findings in terms of human beings. Nevertheless, because of the similarities of theory with Lewin's and others, his theoretical construct of 'purpose' has a message for adult-education. The fact that some teachers participate in inservice education and others not may have something to say about the awareness of their professional responsibilities and level of motivation.

Atkinson's[29] model of achievement theory is a cognitive theory. The theory assumes that one's belief about the likelihood of attaining a goal mediate between the perception of the task stimulus and the final achievement-related response. His theory was much influenced by Miller's[30] conflict model. The achievement-related behavior is conceptualized as a resultant of conflict situation. The theory says that the cues associated with competition against a standard of excellence arouse both the hope of success and the fear of failure. The strength of the approach tendency toward the goal (the hope of

success) relative to the strength of the avoidance tendency (the fear of the failure) determines whether the individual will locomote toward or away from achievement related tasks.

Atkinson's theoretical conception is of importance in educational settings, particularly in vocational programs, program planning and instructions, ability groupings and the effects of competition.[31] Attendance and quality of participation at inservice education meetings are likely to be influenced if programs are planned in a way to give teachers a positive perception and different instructional strategies employed to deliver inservice education materials.

Julia Rotter,[32] a cognitivist, was concerned with the causes of motivation. She developed a theory very much similar with Lewin's and Atkinson's, known as "the social learning theory". Three basic constructs are included in the social learning theory to demonstrate the fact that the major or basic modes of behavior are learned in a social setting. The constructs are: behavior potential, expectancy and reinforcement value. She defined behavior potential as "the potentialities of any behaviors occurring in a given situation or situations as calculated in relation to any single reinforcement or set of reinforcements". Expectancy, on the other hand, was defined as "the probability by the individual that a particular reinforcement will occur as a function of a specific behavior on his part in a specific situation". And finally, reinforcement was conceptualized

as identical with the general construct of incentive.

Rotter's theory of motivation states that behavior potential is a function of the expectancy of a goal and the reinforcement value of the goal. Her investigations of the effects of luck or chance (external factors) versus task or skill (internal factors) situations led her to the conclusion that the cues associated with luck and skill situations are linked with different patterns of reinforcement, and hence produce different goal anticipations and approach behavior.

Inservice education for the post-secondary agriculture teachers takes place in a social setting. The types of behaviors teachers demonstrate toward participation may very well depend on many factors, such as, how much they find the inservice experience satisfying and rewarding, and the extent to which it has helped them achieve their goals. Goals of participants therefore become a central element that could attract teachers into inservice education activities. If programs help them to achieve their goals, it is likely that they will derive reinforcements that will lead to self-motivation.

Operationally therefore, inservice programs for the teachers must not be left to chance or luck, but that it should be consciously and purposefully planned with the participants' goals or needs in mind.

The second group of cognitivists differ from the first mainly in their emphases on thought processes that intervene between the time an information is received and the final behavioral response. Lazarus[33] for example, believes that the main determinants of emotional

reactions are cognitive processes that are instigated following the perception of a threat stimulus. He contends that arousal is determined by cognitive appraisal and not a prior organismic state to which a cognitive label is applied. He focused enquiries on how cognitions guide the organism to a "consideration of the nature of one's plight and what might be done to obviate it."[34] He concluded that emotional reactions are a function of the cognitions concerning the perceived stimulus events. He suggested that, contrary to the views of the Drive X Habit School of thought, which conceives behavior as an internal emotional reaction necessary to energize behavior and such often views as expressed by McClelland and Atkinson, conceiving of motives as based upon emotions, emotions be treated as responses rather than as motivators. The new concept would imply, therefore, that motivation and emotions be viewed as responses following the cognitive appraisal of the stimulus situation; emotions then become detatched and motivations then become closely linked with cognition.

Festinger[35] viewed motivation in relation to human behavior in his conceptual theory termed "cognitive dissonance". Cognition is the central concept to Festinger's theory and that of Heider's attribution theory,[36] explaining the process an organism attains psychologically balanced state within itself and with the environment.

The central presumption to Festinger's theory is that all the different relationships among cognitions can be classified either as consonant or dissonant. A consonant relationship exists when there

is correspondence between the cognitions concerning one's actions and the consequences of that action; a dissonant relationship exists when a lack of correspondence between the cognitions occurs. According to the theory, dissonance produces a state of tension which the individual tries to remove or reduce, and consequently is motivational in nature. The elements of dissonance refer to 'beliefs' or 'knowledge'. These elements may be unrelated to one another or be related in a consonant or dissonant manner.

Dissonance can be removed in two ways:

(a) the individual can change his behavior, like in the case of a student, he may decide to withdraw from the course, or

(b) the individual (student) can change his cognition. According to Festinger,[37] "The individual sets about discovering values and rewards in the situation that satisfies some motivation he may have other than the motivation that led him to take the action in the first place".

Overall, Festinger's dissonance theory has implications for inservice education programming of the post-secondary agriculture teachers. It is expected that those teachers who are conscious of their professional responsibility are likely to be dissonant. This, in effect, means that they will have certain needs to satisfy or gaps to fill in their professional life. Such teachers would find it logical to participate in such activities as inservice education in order to attain a state of consonance or organic equilibrium

until new needs are again felt.

Heider[38] in formulating the attribution theory, attempted "to clarify some of the basic concepts that are most frequently encountered in an analysis of naive descriptions of behavior." His theory concerns the process by which an individual interprets events as being caused by a particular part of a relatively stable environment.[39] Attribution theory is a movement away from the mechanistic description of human behavior to a rationalistic one. The theorists deal with the relationship between events and their causal agents -- why an event has occurred, what source, motive or state it may be ascribed. The Heiderian theory perceives the determinants of behavior much the same way as Lewin; behavior is a function of the person and his environment. The theory views both the internal and external forces as combining to give expression to an individual's behavior.

Heider (and Lazarus) regards motive as an important element of human behavior, although its role in behavior is not well understood by psychologists.

Attribution theory indicates that the behavior of teachers participating in continuing education programs can be attributed to certain underlying motives. The determination of such motives may very well be a first step to take in developing a viable inservice education program. The theory also assumes that motive, as an element of behavior, is determinable through a proper appraisal of both the internal and external forces acting on the individual, in this case, the post-secondary agriculture teacher.

The Humanistic Theory

The third possible category of cognitive theorists, the humanist group, is found represented in the conceptions of such psychologists as Allport,[39] Maslow,[40] Rogers,[41] and others. The members of this new force believe that behaviorism is a narrow, artificial and relatively sterile approach to the understanding of man. They argue that the emphasis on studying the overt behavior tends, they suggest, to dehumanize man and reduce him "to a larger white rat or a slower computer."[42] They further argue that the image of man provided by the S-R orientation presents, at best, an incomplete picture of human nature and, at worst, one that may be totally inaccurate. Behaviorism, in other words, does not come into grips with what is unique about man - those highly subjective qualities and capabilities that set him apart from the laboratory animal. In their view, man is such a complex organism that cannot be objectified, quantified, and reduced to S-R units as believed and practiced by the Lockeans, Freudians, positivists and objectivists.

Personality theorists are convinced that an adequate understanding of human behavior will evolve only from the study of the whole person, the holistic approach. This means in James F. Bugental's description:[43]

> ....a complete description of what it means to be alive as a human being....including an inventory of man's native endowment; his potentialities of feeling, thought, action; his growth, evolution, and decline his interaction with various environing conditions....the range and variety of experience possible to him; and his meaningful place in the universe.

Humanistic psychologists are concerned with all aspects of human being that are uniquely human: love, hate, hope, happiness, humour, affection, responsibility, the meaning of life, etc. They criticize the behavioristic school and describe their study approach of man as mechanistic, possivisitic, reductionistic, elementistic and simplistic--techniques that are by any descriptions inadequate to give a comprehensive and true view of the complex nature of human behavior.

Man is a unique organism compared to plants and animals. This view was vividly expressed by Allport:[44]

> ....Unlike plants and lower animals, man is not merely a creature of cell structure, tropism, and instinct; he does not live his life by repeating, with trivial variation, the pattern of the species. Nature's heavy investment in individuality stands forth chiefly in homo sapiens. While we may recognize individual differences among dogs or varying strains of temperament among rats, still their lives in all essential particulars are regulated by their membership in a species. Man alone has the capacity to vary his biological needs extensively and to add to them countless psychogenic needs reflecting in part his culture (no other creature has a culutre), and in part, his own style of life (no other creature worries about his life-style).

Six positional statements made by Bugental[45] appear to catch the distinctions between the behaviorists' and humanists' views of human nature and how investigations about it should be conducted:

> 1. Adequate understanding about human nature cannot be based exclusively (or even in large part) on research findings from animal studies. Again, man is not a larger 'white rat', and a psychology based on animal data obviously excludes distinctly human processes and experiences.

2. The research topic chosen for investigation must be meaningful in terms of human existence and not selected solely on the basis of their suitability for laboratory investigation and quantification. Currently, topics not amenable to experimental treatment tend to be ignored.

3. Primary attention should be focused on man's subjective internal experiences, not on elements of overt behavior. This is not to suggest that overt behavior be discarded as a subject of study, but rather that it should not be the only subject of investiganion.

4. The continuing mutual influence of the so-called pure psychology and applied psychology should be recognized. The attempt to sharply divorce them is detrimental to both.

5. Psychology should be concerned with the unique individual case instead of the average performance of groups. The current group emphasis ignores the atypical, the exception, the person who deviates from the average.

6. Psychology should seek that which may expand or enrich man's experience.

Many contemporary humanistic writers trace their arguments to Leibnitz. Allport[45] for example, claims that:

> ....To Leibnitz the intellect was perpetually active in its own right, addicted to rational problem solving, and bent on manipulating sensory data according to its own inherent nature. For Locke the organism was reactive when stimulated; for Lebnitz it was self-propelled.
>
> The Leibnitizian tradition....maintains that the person is not a collection of acts. And activity itself is not conceived as agitation resulting from pushes by internal or external stimulation. It is purposive. To understand what a person is....is always to refer to what he may be in the future, for every state of the person is pointed in the direction of future possibilittes.

What are the implications of the humanistic theory for viewing the motivated behavior of the adult participating in continuing

learning? Many writers have argued for a holistic approach to andragogy as the only way to view adult behaviour since it is now clear that neither the mechanistic nor the organismic viewpoint is, in itself, adequate for this purpose. Apps[46] for example, argued:

> ....Is it possible to consider the three viewpoints---- the behavioristic (mechanistic), psychoanalytic (organismic) and humanistic viewpoints -- at the same time? That is, is it possible to transcend the problem....so as to accommodate all three viewpoints? We believe that it is not only possible but essential to do so.
>
> ....In other words, the human being is, at the same time in part determined (the organismic position), in part influenced by environment (the mechanistic position), and in part purposive and self-directed (the humanistic approach). Each individual does have animal characteristics and these do influence behavior....Human beings are also integral parts of the natural world....Human beings are also integral parts of their society and their culture and are constantly influenced by societal and cultural forces.... human beings also have characteristics that make them human.

In his own contribution to the humanistic position of viewing behavior, Maslow[47] observed:

> Recently, I have become more and more inclined to think that the atomistic way of thinking is a form of psychopathology, or at least one aspect of the syndrome of cognitive immaturity. The holistic way of thinking and seeing seems to come quite naturally and automatically to healthier, self-actualizing people, and seems to be extraordinarily difficult for less evolved, less mature, less healthy people.... This theory is, I think, in the functionalist tradition of James and Dewey, and is fused with the dynamism of Freud, Fromm, Honey, Jung and Alder. This integration or syntheses may be called a holistic-dynamic theory.

A holistic-dynamic view of the learner (post-secondary agriculture teacher) would necessarily imply having a deep understanding of him; the environmental forces impacting on him, his animalness,

and such other characteristics that are unique and which set him supreme to other animals such that he is capable of acting under volition to shape his own life.

Psychologists postulate that complex behaviors, the type exhibited by the adult learner, are largely motivated behaviors caused by "homeostatic need, painful stimulation or innocuous stimuli....; people are endowed with tendencies which cause them to maintain equilibrium or a state of synchrony between their constituent parts. Behavior aimed at restoration of balance may induce a state identical to that existing prior to the tension increase but, in the case of adult education participation, probably result in balance at a new level. This idea is basic to a line of thought pertaining to motivation for adult education attendance derived from holistic psychology and the homeostasis ideas developed by psychologists'.[48] With this background, the learning orientations of the post-secondary agriculture teachers may be explored with focus on the psychological and environmental factors influencing them----their motives, interests, and to significance of incentives. These variables may be explored under two conceptual motivational models and various motivational typologies. The models and typologies are closely related and form a framework for research in why adults participate in continuing education (inservice education).

Conceptual Models of Motivation

Maslow's Needs Model

Need, as a concept to explain human behavior, has received much attention from psychologists for quite sometime, prominent among which are Lewin,[49] Hull,[50] and Murray.[51] Lewin was one of the earlier theorists to recognize need as an important element of human behavior. His theory attempted to represent the various multi-causal factors of behavior, such as the objective environment, the person and his goals, forces, needs, drives, tensions, actions with a single integrated conceptual schema. Central to this schema is the motivational concept of need. Hull conceptualized 'need' as a driving force for the associated activity performed by an organism. Murray's theory of behavior was based on needs. Realizing the endless list of human needs that one could come up with, he attempted grouping them.

The real attempt to bring order into need as a theoretical concept to explain human behavior was made by A. H. Maslow.[52] Maslow's need satisfaction model provides a view of motives underlying participation that explains why learners express varying reasons for participation in educative activities and why some reasons are predominant at given times. Maslow described the basic needs in a hierarchical order ranging from physiological, safety, affiliation, esteem and ending with self-actualization. If inservice education represents a motivated behavior, the need satisfaction model suggests that the motives prompting the post-secondary agriculture teachers to engage

in learning activities are hierarchical in nature. Thus, persons in varying states of need satisfaction will participate in inservice education activities for reasons related to their basic needs. As lower order needs are satisfied (presumably through inservice education, participation), higher order needs may emerge, prompting the learner to again participate, but this time for a different higher-order reasons.

Havighurst's Developmental Task Model

Havighurst's[53] developmental task model, a motivational model, proposes that persons must complete a series of tasks at each developmental stage of life. He identified six different life stages of developmental tasks that people face: (1) infancy and early childhood, (2) middle childhood, (3) adolescence, (4) early adulthood, (5) middle age, and (6) later maturity.

Examples of developmental tasks for the adult stages are as follows:

Early Adulthood (ages 18 to 30).

- Selecting a mate
- Learning to live with a marriage partner
- Starting a family
- Rearing children
- Managing a home
- Getting started in an occupation
- Taking on civic responsibility

- Finding a congenial social group

Middle Age (ages 30 to 55)

- Achieving adult civic and social responsibility
- Establishing and maintaining an economic standard of living
- Asssisting teenage children to become responsible and happy adults
- Developing adult-leisure time activities
- Relating to one's spouse as a person
- Accepting and adjusting to the physiological changes of middle age
- Adjusting to aging parents

Later Manurity (ages 55 and over)

- Adjusting to decreasing physical strength and health
- Adjusting to retirement and reduced income
- Adjusting to the death of a spouse
- Establishing an explicit affiliation with one's age group
- Meeting social and civic obligations
- Establishing satisfactory physical living arrangements

He concluded that successful achievement of these tasks leads to happiness and success with future tasks; failure leads to unhappiness, societal disapproval, and difficulty with subsequent tasks.

According to the model, the developmental tasks motivate participation of adults in learning activities as the adult seeks assistance in the successful completion in successive tasks. This, in part, explains why the learning orientations of adults may differ not only from one stage of life to another, but from one person to another, and between sexes.

The post-secondary agriculture teachers are likely to be responding to 'developmental life-tasks' by participating in in-service education activities in an attempt to secure societal approval, and to maintain a level of consonance in themselves. The differences in their learning orientations may be explainable in terms of their varied backgrounds.

The Typologies and Education Participation Scale

Houle's Typology

In 1961, Cyril Houle[54] in his text, "The Inquiring Mind," developed a conceptual model for studying adults' orientations toward learning through the use of individual interview techniques. Participation was studied based on the adult participant, not the act of participation. In was an attempt to study differential participation based on a motivational schema. This represents a further shift from socio-economic variables of participation to the study of psychological and attitudinal variables.

Despite the small size of Houle's sample and the absence of empirical analysis, this study has become a useful and durable point

from which to begin participation as it relates to motivational orientations.

After interviewing twenty-two continuing education participants, Houle suggested that there were different orientations toward learning and these different orientations or motivational types influenced participation. He attempted to classify continuing learners on the basis of their expressed reasons for participating in education. Although subjects indicated multiple reasons for participation, they varied in the emphases they placed on these reasons. This led Houle to propose that adult learners could be sorted into three groups on the basis of their orientations toward learning:

> ....The first, or as they will be called, goal-oriented participants are those who use education as a means of accomplishing fairly clear-cut objectives. The second group of participants, the activity oriented, are those who take part because they find in the circumstances of learning, a meaning which has no necessary connection (and often no connection at all with the content or the announced purposes of the activity). The third, the learning oriented participants seek knowledge for its own value.[55]

Houle's model is static; one's primary motivational orientations do not change. When combined with the need satisfaction, developmental task or other motivational models however, the motivational orientations become more fluid, varying on the basis of hierarchical needs, state of development, or other motivational factors. Thus, Houle's orientation model serves to organize the motivational dimensions underlying participation; motivational models explain the predominance of one or another orientation in a given subject at a

given time.

Houle's concept of motivational orientations provided the framework for subsequent research concerning the motives of adult education participants. Although many matrixes have been generated, no writer has subsequently completely accepted or refuted his three-factor typology. Most of the following researchers produced anywhere from 7 to 12 factors and explained these findings as either 'confirming', 'sharpening' or 'supporting' Houle's typology.

Additional Motivational Typology Models of Participation

As mentioned earlier, Houle's typology for classifying the reasons for participation was the cornerstone for other studies that followed, as well as the development of refined survey instrumentation and further delineation of participation orientations (Sheffield,[56] Boshier,[57] Burgess[58]).

Chart A is a summary of the motivational orientations identified in studies of participation by Dickinson.[59]

Sheffield[60] developed the continuing Learning Orientation Index (C.L.O.I.) consisting of 58 items scored on a five-step index and used the instrument to gather data from over 400 conference participants. Sheffield concluded through factor analysis that the five factors supported Houle's basic participation orientations.

CHART A

SUMMARY OF FACTORS IDENTIFIED IN
STUDIES OF LEARNING ORIENTATION

Study/Researcher	HOULE TYPOLOGY		
	Goal Orientation	Activity Orientation	Learning Orientation
A. Continuing Learning Orientation Index (C.L.O.I.)			
1. Sheffield	Personal-goal Societal-goal	Need fulfillment Sociability	Learning
2. Sovie	Personal-goal Occupational-goal Professional-goal Societal-goal	Need fulfillment Personal-sociability Professional-sociability	Learning
B. Education-Participation Scale (E.P.S.)			
3. Boshier	Other-directed advancement	Social contact Self vs. other centeredness	Educational preparation
4. Morstain	External expectations	Social relationships	Cognitive interest
	Professional advancement		
	Social welfare	Escape/stimulation	
C. Reasons for Educational Participation (R.E.P.)			
5. Burgess	Personal-goal Social-goal Religious-goal Meet formal requirements	Social activity Escape	Desire to know
6. Grabowski	Personal-goal Social-goal	Social activity Escape Study alone	Desire to know Intellectual security

C.L.O.I. Participation Factors

1. Learning orientation - seeking knowledge for its own sake.
2. Desire - activity orientation - an interprersonal or social meaning with no connection to the activity content
3. Personal-goal orientation - participation to accomplish social or community objectives.
4. Societal goal orientation - participation to accomplish social or community objectives.
5. Need-activity orientation - participation because learning has an introspective or intra-personal meaning with no connection to content of activity.

Sovie[61] conducted a similar study using the C.L.O.I. which confirmed and reaffirmed Sheffield's results but she significantly included non-participants in her sample.

Burgess[62] after studying the research of the others, concluded that not all clusters of participation orientations had been found and that there was a need for larger studies. He defined eight factors:

1. The desire to know
2. The desire to achieve a personal goal
3. The desire to achieve a social goal
4. The desire to take part in social activity

5. The desire to escape some other activity or situation
6. The desire to comply with pressures exerted by relatives, friends, and society.
7. The desire to comply with requirements
8. The desire to study alone or just be alone.

These factors were developed in a 70-question instrument named Reasons for Educational Participation. After extensive factor analysis, the findings supported the earlier hypothesis that participation motives will cluster into a limited number of groupings.

Studies by Boshier,[63.64] Morstain and Smart,[65.66] demonstrated further the effectiveness and ability of a cluster typological approach in identifying a range of motivational orientations for participation in adult education activities. These participation orientations were not developed from a prior grouping of adults using only demographic characteristics.

Education Participation Scale

The Education Participation Scale (EPS) was developed by Boshier[67] in order to also investigate Houle's conceptions of participation orientations using an appropriate measuring instrument. The EPS is composed of 48 possible reasons for participation in educational activities. Individuals are asked to rate on a nine-point scale the relative influence that each of the reasons had on their decision to participate. The 48 reasons were derived from Boshier's earlier

open-ended questioning of participants in University Extension courses, examination of the Inquiring Mind, and the highest loading items from Sheffield's study. The first study was administered to 233 randomly selected participants in three evening programs in Wellington, New Zealand. Test/retest reliability was conducted on all items. Responses were factor-analyzed and 14 participation factors generated seven second-order factors. The third order factors were akin to Houle's three factor typology.

FIRST ORDER	SECOND ORDER	THIRD ORDER
1. Social Welfare	1. Interpersonal Improvement/Escape	1. Other-directed Advancement
2. Social Contact	2. Inner vs. Other-Directed Advancement	2. Learning Orientation
3. Other-directed Professional Advancement	3. Social Sharing	3. Social Contact
4. Intellectual Recreation	4. Artifact	4. Self vs. Other Centeredness
5. Inner-Directed Professional Advancement	5. Self-Centeredness vs. Altruism	
6. Social Conformity	6. Professional Future Orientation	
7. Educational Preparedness	7. Cognitive Interest	
8. Cognitive Interest		
9. Educational Compensation		
10. Social Sharing		

11. Television Abhorence

12. Social Improvement and Escape

13. Interpersonal Facilitation

14. Educational Supplementation

Boshier further developed these participation responses into a two dimension "growth" and "deficiency" model of participants. The need was indicated "....to validate the EPS on extreme groups of adult education participants known to vary with respect to motivation and to ascertain the relationship between factor scores and the number of courses attended....highest educational qualification....and subject matter of courses attended."[68] Although it does not appear that this was intended to encourage the use of EPS in a single occupational set using participation as a mediating variable, the intriguing use of this application explains part of the purpose of the study. Hopefully, this will add to the understanding of the utility of using the EPS to identify motives.

In 1974, Morstain and Smart[69] replicated Boshier's study to determine the usefulness of EPS in a crosscultural context, New Zealand as contrasted to United States and to study differences in expressed reasons for participation when adult students were clustered in groups by sex and age. Using the 48 EPS items on a larger sample of 648 part-time, degree oriented adults, six orientations were obtained similar to those obtained earlier by Boshier. They

labelled them thus:

1. Social Relationships
2. External Expectations
3. Social Welfare
4. Professional Advancement
5. Escape/Stimulation
6. Cognitive Interest

These factors were then studied to determine the degree of importance accorded them by certain groups of individuals. Noticeable variations existed across different age-sex groupings of adults i.e., occupational, age, education. Would results from the EPS enable one to identify adults with different purposes for participation in continuing education? This 1974 study tends to support the differentiating ability of the EPS and indicates reasons for participation that are more complex than Houle theorized.

In 1976, Boshier again studied EPS but with special attention to related studies and their resulting problems of statistical factor analysis. After pointing out the many pitfalls of statistical techniques used in the various studies of Houle's typology, Boshier[68] concludes that, "Houle's original work is not wrong. It just did not go far enough to include all the basic orientations which exist."

Finally, in 1977, Morstain and Smart moved EPS methodology another step by not only identifying participation typologies but examining distinctive profiles of adult learners grouped in terms of

these motivational patterns. Results indicated that each group of adult learners associated with a derived motivational pattern exhibited a wide range of demographic characteristics.[69] More simply stated, in trying to identify motives for participation one cannot group adults solely on the basis of demographic variables, such as, older women participating in education to re-enter the job market. Carrying this further, one can hypothesize that motives for participation cannot be grouped by occupational set, i.e., teachers participating in continuing education solely to increase their professional image.

This study is significant because:

(a) tbe typology was not based on background or demographic data but on motivational orientations, and

(b) analysis was not based on single item responses but on multi-factor groups which assessed dimensions on adult learning orientations.

Summary

All these studies appear to indicate that it is possible to carry out investigations with a view to identifying groups of learners with similar motivational profiles or orientations. It also appears that instruments such as EPS may have utility in differentiating participation based on motivational typologies. However, it should be pointed out that most studies held the variable of participation as constant. The studies focused on the motivational

orientations of subjects already participating in adult continuing education programs; the casual participant was considered the same as the frequent participant.

In addition, the studies did not group occupational backgrounds. Therefore, it becomes questionable whether one may conclude that participation motives described in the literature are applicable to all occupational subsets including vocational agriculture. Nevertheless, it has been a major contribution to the literature to demonstrate the effectiveness and ability of a cluster typological approach in identifying a range of motivational behaviors of participating adults in continuing education.

Learning Styles

The Concept of Learning Styles

Educators continue to identify viable alternatives to the traditional procedures for programming. One of such efforts in recent years is in the area of learning styles as an organizing centre for delivery of educational programs. Apparently, andragogy seems to have benefitted considerably from this new development, perhaps much more than pedagogy.

Results of investigations have pointed to the fact that adult learners exhibit learning styles and therefore may be able to benefit from programs so organized.[71,72] Malcom Knowles[73] recognized this concept as an important tool in adult continuing education. He observed that, "understanding how a person learns, and helping people

understand how they learn is a major requisite for a successful educational program. The understanding can be especially important for adult education or community education programs since participants may have different needs than those in more conventional learning situations". Knowles also pointed out the potentials in linking learners' learning styles with their needs, an idea that could be interpreted in a way to mean linking the learners' learning styles with their appropriate learning orientations.

In a recent article, Smith and Haverkamp[74] stated that educators should seek to match learners with learning situations that are commensurate with their learning styles. These suggestions have yielded potentially useful and important tools for all persons in learning activities and those educators designing learning experiences in education in general, and could be particularly valuable in adult continuing education.

The concept of learning styles, depicting how people learn, has been variously described in educational literature as 'learning set',[75] and 'cognitive style'[76,77]. Discussions of these ideas are congruent with the structural aspects of learning styles, i.e.

(a) learning takes place as a relatively stable cognitive pattern, and (b) is related to the interaction of the learner and his environment and experience. Such a definition implies that learning styles are an important consideration in either successful group participation or structured learning experiences because they

must be suitable for adaptation to new and unfamiliar situations.[78]

Experiential learning theory, developed in the 40's by Kurt Lewin[79] and his associates provides a conceptual framework for studying individual learning styles. The model is consistent with the structure of human cognition and the stages of human growth and development. The theory is referred to as "experiential learning" in part, because of the important role that experience plays in the learning process. The experiential learning model explains a cycle of how experience is translated into concepts which in turn are used as guides in the choice of new experiences. It consists of four integrated stages: (1) concrete experience, (2) observation and reflection, (3) formation of abstract concepts and generalizations, and (4) testing implications of concepts in new situations. The effective learner needs four different kinds of abilities. He must be able to involve himself fully and openly in new experiences (concrete experience abilities), he must be able to consider these experiences from many perspectives (reflective observation abilities), he must be able to create concepts which integrate his observations into sound theories (abstract conceptualization abilities), and he must be able to use these theories to make decisions and solve problems (active experimentation abilities).[80,81] A closer examinanion of the four-stage learning model would suggest that learning requires abilities that are polar opposites and that the learner, as a result, must continually choose which set of learning abilities he will bring

to bear in any specific learning situation. Specifically, there are two primary dimensions to the learning process. The first dimension represents the concrete experiencing of events at one end and abstract conceptualization at the other. The other dimension has active experimentation at one extreme and reflective observation at the other. Thus, in any learning process, movement is between the two opposite poles, e.g. from actor to observer, or from specific involvement to general analytic detachment. The implication of this model is that learning takes place in an environment reflecting the resolution of certain dialectical tensions between two sets of opposing characteristics. Kolb[82] indicated that people tend to resolve the tension in a rather consistent and stable way by noting that: "As a result of our hereditary equipment, our particular past experience, and the demands of our present environment, most people develop learning styles that emphasize some learning abilities over others. We come to resolve the conflicts between being active and reflective and between being immediate and analytical in characteristic ways....through socialization experiences in family, school and work....Each of us in a unique way develops a learning style that has some weak and strong points." This patterned behaviour of the learner is confirmed by Cohen[83] and Kagan, et al.[84] in their extensive researches.

The Learning Style Inventory

The Learning Style Inventory (LSI) developed by Kolb[85] is based on the experiential learning theory which measures a person's abilities on each of the two dimensions of the learning process. It is designed on each of the two dimensions of the learning process. It is designed to measure the learner's strengths and weaknesses on a nine-item self-description questionnaire. Each item consists of four words which describes how an individual learns and the respondent is asked to rank-order each set of four words. One word in each item corresponds to one of the four learning abilities. For example, one set of four words is feeling, watching, thinking, doing, which respectively reflects Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC) and Active Experimentation (AE). The inventory also yields two other scores that indicate the extent to which an individual emphasizes abstractness over concreteness (AC-CE), and the extent to which active experimentation is emphasized over reflection (AE-RO).

Kolb and associates[86] tested the Learning Style Inventory (LSI) on various groups - managers, medical students, college students, teachers, etc. and found that they had many different types of scores (styles). They identified four statistically different styles they labelled the Converger, the Diverger, the Assimilator and the Accommodator. Based on research and clinical observation, these various learning characteristics were described as below:

1. The Converger's dominant learning abilities are Abstract Conceptualization (AC) and Active Experimentation (AE). His greatest strength lies in the practical application of ideas. An individual with this style seems to do best in activities requiring the practical application of ideas. His knowledge is organized so that through hypothetical-deductive reasoning, he can focus it on specific problems. Research has shown that Convergers are relatively unemotional, having a preference to deal with things rather than people. They tend to have narrow technical interests, choosing to specialize in the physical sciences. Engineers are characteristic of this learning style.
2. The Diverger has learning strengths opposite to those of the Converger. He is best at Concrete Experience (CE) and Reflective Observation (RO). His greatest strength lies in his imaginative ability and being able to view concrete situations from many perspectives and to organize many relationships into meaningful "gestalt". He performs better in situations such as 'brain storming' that call for generation of ideas. Research has shown divergers to be interested in people and tend to be imaginative and emotional. They have broad cultural interests and often specialize in the arts. This style of learning is characteristic of people with humanities and liberal arts backgrounds; so also are counselors, organization development consultants, and personnel managers.

3. The Assimilator's dominant learning abilities are Abstract Conceptualization (AC) and Reflective Observation (RO). People with this learning abilities are capable of creating theoretical models. An assimilator excels in inductive reasoning, in assimilating disparate observations into an integrated explanation. He is less interested in people and mainly concerned with abstract concepts. He is less concerned with the practical use of theories; rather, it is more important to him than the theory be logically sound and precise. This learning style is characteristic of people in the basic sciences and mathematics rather than applied sciences.
4. The Accommodator's learning strengths are opposite to those of the Assimilator. He is best at Concrete Experience (CE) and Active Experientation (AE). His greatest strength lies in doing things, in carrying out plans and experiments and involving himself in new experiences. He tends to be more of a risk-taker than people with the other three learning styles. Quite the opposite of Assimilator, this person excels in situations where he must adapt himself to specific immediate circumstances, and if his plan or theoretical explanation does not fit the situation, he will discard it. He tends to solve problems in an intuitive trial and error manner, relying heavily on other people for information rather than on his own analytic ability. The accommodator is at ease with people, but is sometimes seen as impatient and 'pushy'. His educational background is often in technical or

practical fields, such as business, often in marketing or sales and such action-oriented jobs.

The Experiential Learning Model: Growth and Development

The Experiential Learning Model provides a framework for conceptualizing the learning styles of individuals as well as suggesting more normative directions for human growth and development. Individual learning styles have implications for how people learn not only in the limited educational sense but also in the broader aspects of adaptation to life, such as decision-making, problem solving, attitude change and life-style in general. As a molar concept, the Experiential Model attempts to describe the central process of human adaptation to the social and physical environment. It is a holistic concept that seeks to explain the emergence of basic life orientations as a function of dialectic tensions between basic modes of relating to the world.[87]

When viewed broadly, how one learns becomes a major determinant of the course of his personal development. The experiential learning model provides a means of mapping these different developmental paths and a normative adaptive ideal. The human growth process is divided into three stages: (1) the Acquisition stage - the first stage which extends from birth to adolescence and marks the acquisition of basic learning abilities and cognitive structures, (2) the Specialization stage which extends through formal education and/or career training and the early experience of adulthood in work

and personal life, and (3) Integration stage marked by reassertion and expression of the nondominant adaptive modes or learning styles. This stage is marked with new career interests, changes in life-style and creativity in one's chosen career. Kolb[88] observed that:

> ....Through these three stages, development is marked by increasing complexity and relativism in dealing with the world and one's experiences, and by higher level integrations of the dialectic conflicts between the four primary adaptive modes: Concrete Experiences, Reflective Observation, Abstract Conceptualization, and Active Experimentation. With each of these four modes a major dimension of personal growth is associated, e.g., Affective Complexity, Perceptual Complexity, Symbolic Complexity and Behavioral Complexity.

Summary

Experiential learning theory provides a model for conceptualizing the learning process in such a way that individual learning styles and the corresponding environment can be identified. The model is a simple learning cycle which describes how experience is translated into concepts which are used in turn in the choice of new experiences.

The cycle is conceived in four stages: first, immediate concrete experience; second, observations and reflections; third, formation of abstract concepts and generalizations; and fourth, testing implications of concepts in new situations. To be effective, the learner needs four corresponding kinds of abilities:

1. Concrete Experience
2. Reflective Observation

3. Abstract Conceptualization

4. Active Experimentation

The learner must at each time in the process of learning decide on which abilities he will draw upon in any specific situation. As a result of personal and environmental factors, most people develop learning styles that emphasize some learning abilities over others. The Learning Style Inventory (LSI) is a simple self description inventory designed to measure the learning strengths and weaknesses of a learner. Four different types of learning styles are identifiable: (a) the Converger, the Diverger, the Assimilator, and the Accommodator. The Learning Style Inventory has been tested on groups of individuals including Managers, Medical Students, College Students, Teachers and Extension workers with varying results.

On the whole, the LSI appears a suitable instrument for determining the modes of learning of adult learners, including the post-secondary agriculture teachers.

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CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

Introduction

This investigation was designed to focus enquiries on the Wisconsin post-secondary agriculture teachers with the primary objectives of: (1) identifying the motives underlying their participation in inservice programs, (2) identifying their preferred learning style, and (3) determining the existing relationships between the teachers' motives for inservice education participation and their preferred learning modes. It was hoped that such information would render useful guidelines for planning and implementation of inservice education for instructors in agriculture at the post-secondary level in Wisconsin.

Selection of Population

The population for this investigation comprised the post-secondary agriculture teachers employed by the Wisconsin Board of Vocational, Technical and Adult Education (WBVTAE), teaching in the state at the time this study was conducted. The subjects were selected based on the following criteria:

1) They must be actively engaged in teaching in one or more areas of agriculture such as, Farm Training Program, Production Agriculture and Agribusiness. Teachers whose duties were primarily administrative in nature like the District Coordinators were excluded from the study. Technicians were also excluded.
2) They must have participated in one or more organized inservice education programs offered at the district, state or national level.

The investigation focussed exclusively on the post-secondary agriculture teachers because this body of professionals constitutes an entity for whom an integrated inservice education could be planned and implemented. In Wisconsin, instructions in agriculture at the secondary and post-secondary levels are administered under two separate government agencies, namely the Wisconsin Department of Public Instruction (WDPI) being in charge of secondary education, and the Wisconsin Board of Vocational, Technical and Adult Education (WBRTAE) being in charge of post-secondary education. From the standpoint of pedagogical practice, high school agriculture teachers' needs and interests are in many respects different from those in the post-secondary institutions. Hence, an inservice arrangement which pays no regard to the differences between the two groups of professionals and treat their inservice needs as the same is not likely to contribute significantly no the professional development of the

teacher-participants.

A previous investigation in the area of inservice education for the post-secondary agriculture teachers in the state focused on the teachers' perceptions and attitude toward inservice education.[1] This enquiry was designed to deepen knowledge in the teachers' motives for participating at all. The findings from this enquiry plus the findings from the previous one should be valuable to inservice education organizers in the state for developing a comprehensive and more fruitful approach to inservice education programming.

As an agriculture teacher, teaching adults in a training institution in Nigeria, the investigator was convinced that the experiences gained during the course of this investigation would be valuable to him in his teaching position in Nigeria. Specifically, he should be capable of taking a more rational view of the problems involved in organizing and implementing inservice programs, and he should be able to conduct relevant researches toward the solution of inservice and other educational problems.

The potential population for this study comprised all the post-secondary agriculture teachers in Wisconsin who met the criteria set by the investigator. The teachers were spread over 15 VTAE districts.

The teacher directory for the 1981-82 school year was not immediately available at the beginning of the fall semester since the consultant in charge of Agricultural Education was still in the

process of sorting out the teachers' postings. This situation presented a problem of being able to obtain an accurate list of teachers early enough in the semester to whom questionnaires were to be sent.

A list of 151 post-secondary agriculture teachers was compiled when the new directory was finally ready and it was cross-checked with the WBVTAE Agriculture Education Consultant for accuracy. This number (151 respondents) represented the final population for the study.

Instrumentation

The study employed the revised version of the Education Participation Scale by Haag.[2] The Educational Participation Scale was originally developed by Sheffield[3] from the idea emanating from Houle's typology of adults orientations to learning. The revised version of EPS instrument used by Haag in his study contained 40 items (suggested reasons adults engage in continuing education) as against 58-item instrument developed by Sheffield. The 40-item version of EPS instrument was considered suitable for eliciting responses from the post-secondary agriculture teachers on their motives for participating in inservice education activities. The 40-item EPS instrument was suitable for the following reasons:

1) The instrument was short in length requiring only about 19 minutes to complete. This small commitment of effort by the subjects would minimize resistance to

completing the questionnaire.

2) Several studies using the EPS (Boshier,[4,5] Morstain and Smart[6]) produced consistent and supportive motivation-orientation patterns, and thus indicate some degree of instrument validity with professional groups.

3) Previous studies indicated instrument stability and reliability in item test/retest consistency and testing results over time.

4) Extensive factor analysis indicated that subjects were indeed participating for reasons described in the items.[7]

5) The EPS was based on Houle's factor typology and represented the most recent studied existing instrument appropriate to gathering data on reasons for participation.

The 40 item version of EPS developed by Haag had a mean item test-retest reliability .60.[8] The items cast on a four (rather than on a nine) point scale, indicated no influence, little influence, moderate influence and much influence responses to a particular item (See Appendix A).

The scale poles were systematically varied so the "No Influence" or "Much Influence" category was sometimes on the right and sometimes on the left side of the page. This was done in order

to minimize response bias. Items that were expected to load on each of the factors were scattered randomly throughout the instrument. The respondents were required to circle categories (e.g. "Little Influence") rather than numbers.

A personal data sheet was included in the first part of the instrument to collect pertinent demographic information such as age, marital status, level of education, teaching experience and level of income. The responses to these variables were obtained for the purpose of (1) comparative grouping for statistical analysis of the learning orientations of the post-secondary agriculture teachers, and (2) for describing the entire population.

Part III of the instrument attempted to gather data about the learning abilities of the respondents, utilizing the Learning Style Inventory (LSI) developed by Kolb.[9] The LSI is a nine-item self-description questionnaire. Each item consists of four words which describes how the individual learns. Each respondent was asked to rank order each set of four words which describes how the individual learns, assigning a 4 to the word which best characterizes his/her learning style, a 3 to the word which is next best, a 2 to the next most characteristic word, and 1 to the word which is least characteristic of the learner. The respondent was further instructed not to make a tie. (See Appendix A).

Although test-retest studies with various groups of respondents showed the Learning Style Inventory to possess a high reliability (an upper limit of .80), variations in reliability scores have nevertheless been observed across the board due to (1) situational variations in learning modes, (2) inability of LSI to accurately measure the Concrete Experience (CE) orientations, and (3) instability of personal disposition over time. However, used with care, the LSI could yield a statistically valid group average. Predictive studies using the LSI to determine learning modes have been found more suitable with group situation rather than individuals.[10]

The four basic scales of the LSI comprise the following items on the basis of which scores are computed:

CE: receptive, feeling, present oriented, accepting, intuitive, experience

RO: observing, reflecting, reserved, observation, tentative, watching.

AC: analytical, conceptualization, rational, evaluative, thinking, logical.

AE: active, experimentation, practical, responsible, doing, pragmatic.

Of the 36 items appearing on the LSI only 24 are scored and hence contribute information to an individual's learning abilities. The remaining items (12 in number) were included in the LSI in order to improve the quality of responses by not putting the respondents in a

mindset when filling the instrument. The combination score (AC-CE) indicates the extent to which an individual emphasizes abstractness over concreteness and (AE-RO) indicates the extent to which an individual emphasizes action over reflection. A learner finds his dominant learning style by plotting his/her scores (AC-CE, AE-RO) on the Learning Style grid Kolb developed. A learner falling in one of the quadrants on the grid could be an Accommodator, a Diverger, a Converger, or an Assimilator.

In summary, the instrument was designed to collect data in three main areas: the demographic variables, the learning orientations and the preferred learning styles of the post-secondary agriculture teachers.

Respondents were assured anonymity of responses in order to encourage them to send back their completed questionnaires.

Data Collection

Prior to the data-collection stage, the investigator made a personal visit to the office of the Agricultural Education Consultant, Wisconsin Board of Vocational, Technical and Adult Education in Madison, to seek formal permission to collect data from the post-secondary agriculture teachers in the State. The trip was also an occasion to collect useful documents including the Directory of Teachers for the academic years 1980/81 and 1981/82.

Data collection from the teachers was by mail questionnaires. A letter describing the major objectives of the study signed by the

investigator and his Major Adviser, Professor John F. Thompson, accompanied the questionnaire forms to individual respondents (See Appendix B); also enclosed was a self-addressed postage paid envelope for returning the completed questionnaire.

One hundred and fifty-one post-secondary agriculture teachers were identified and mailed the questionnaire forms on September 3, 1981. Each questionnaire was coded in a way to enable the investigator identify nonrespondents. Eighty-seven responses (about 58 per cent of population) were received two weeks after the first batch of questionnaire forms was mailed out. The first and second follow-up letters were mailed out to non-responding subjects on September 19, 1981 and October 15, 1981 respectively (See Appendices C and D).

Data collection lasted nine weeks at the end of which a total of 122 responses were received (representing about 81 percent of the population). These responses served as the basis for data analysis regarding the learning orientations and learning styles of Wisconsin post-secondary agriculture teachers.

The problem of bias is a vital issue in any research utilizing questionnaires to collect data. Data that are not representative can suffer from errors of a systematic nature. To the extent that systematic errors exist the data are of limited use as the basis for describing the population.[11] Borg[12] suggested that when more than 20 percent of the questionnaires are not returned, it is desirable to interview a small number of non-responding subjects

or refusals to determine the reasons for non-response.

In this study, the investigator is convinced that 80 percent return rate of instrument just met Borg's criterion and therefore adequate to remove any demographic bias in the population being investigated. No follow-up effort to interview the non-responding subjects was regarded necessary.

Eight of the instruments returned were found unusable for the following reasons: (1) the respondent claiming not to have had any inservice experience before, (2) a substantial part of the instrument left unfilled and, (3) personal decisions of some respondents not to complete the questionnaire.

Procedures for Analysis of Data

The treatment of the collected data involved sorting out those questionnaires that were unusable due to improper completion. Eight of such questionnaires were found and rejected, thus leaving a balance of 114 usable instruments. The instruments were coded and punched on IBM cards for computer runs in the Madison Academic Computing Center (MACC).

Statistical Analysis

Various types of statistical techniques were adopted in the analysis of the data used in this study:

1. The Statistical Package for the Social Sciences (SPSS)[17] subprogram FREQUENCIES was utilized to describe statistically data regarding certain selected demographic variables pertaining to the post-secondary agriculture teachers. Mean scale scores, standard deviations and percentages were calculated for each demographic variable identified for the respondents.

2. The SPSS subprogram FACTOR with the method of principal factoring with iteration was utilized to identify the dimensions underlying the teachers' participation in inservice education programs.

The technique of factor analysis can be considered a multivariate technique in the sense that the interrelationships of a number of variables (independent or dependent) are investigated simultaneously.

The technique essentially operates on a correlation matrix and determines which variables are measuring the same underlying constructs, and to what degree these variables are measuring these constructs. The most widely used factor analytic techniques demand that the underlying constructs be independent of each other (or othorgonal) and that they account for completely different kinds of variance in the domain of behavior being studied.

If the domain of behavior being investigated (defined by the totality of the measures obtained) is unidimensional, then only one underlying construct (or "factor") will emerge. But if there are

two or more underlying unrelated aspects of the domain, then two or more factors will be generated by the statistical procedure. If only some of the total variance in the behavior can be explained by one construct, while other constructs are necessary to explain (or account for) other amounts of the total variance, then our domain of behavior must be considered to be multidimensional.

Results from a factor analysis can indicate the extent to which a domain of behavior is multidimensional. We can also discover to what extent variable overlapping is the kinds of variable that they are accounting for.

The following steps were involved in the analysis of data: (1) the preparation of the correlation matrix, (2) the extraction of the initial factors, that is clustering variables with eigenvalues equal to or greater than unity for analysis, and (3) the rotation of the extracted factors to a terminal solution by the oblique rotation method.

The extraction of six factors was specified for rotation with the SPSS subprogram FACTOR for the fact that previous studies utilizing the Education Participation Scale (EPS) regarded this number or even five factors as cleanest.[14] The investigator opted for six factors instead of five in order to make the results of the investigation comparable with the EPS studies most of which had based their data analysis on six factors.

(3) Educational Participation Scale (EPS) items were scored 1 for "No Influence", (2) for "Little Influence", (3) for "Moderate Influence" and (4) for "Much Influence". Mean scores on each of the identified factors were computed for each respondent using the following method: The value assigned by each respondent to each EPS item loading .40 or higher were summed up and the total divided by the number of such items in the factor. The scores were useful in categorizing respondents into different learning orientanion groups.

4. Analysis of Variance. The SPSS subprogram ONEWAY was utilized to provide the basis for determining whether the several group mean scores encountered in this study differed significantly.

The analysis of variance is a method for dividing the variations observed in experimental data into different parts, each part assignable to a known source, cause, or factor. We may assess the relative magnitude of variation resulting from different sources and ascertain whether a particular part of the variation is greater than expectation under the null hypothesis.

In its simplest form, the analysis of variance is used to test the significance of the differences between the means of a number of different populations. As the name implies ONEWAY is limited to problems involving only one independent variable (one basis of classification).

A test of significance of several sample means is based on the following basic assumptions:

a) Each sample is drawn randomly and independently from a different class or treatment population.

b) The variances of the class or treatment populations are all equal.

c) The class or treatment population are normally distributed. This is known as homogeneity of variance. A variety of tests of homogeneity available but for the purpose of tbis study, the Cochran's test was applied.[15]

The Scheffe[16] procedure of multiple comparisons was adopted where the analysis of variance and F-test showed overall significance to evaluate comparisons among means. The Scheffe method is one of the procedures for testing the significance of post-hoc comparisons. It has the advantage of being versatile, applicable to groups of unequal sizes, and it uses the readily available F-test. It is not seriously affected by violations of the assumptions of normality and homogeneity of variance.

5. The SPSS subprogram SCATTERGRAM was used to determine the relationship between the personal characteristics of the post-secondary agriculture teachers and their learning orientations. This sub-program outputs a two-dimensional plot (graph), the slope of the regression line, the Pearson product moment correlation (r), tests of significance, and others.

Correlation is the relationship between two or more paired variables. The degree of relationship may be measured and represented

by the coefficient of correlation. Variables are sometimes negatively or positively correlated. Many types of correlation are in existence.

The Scattergram and Linear Regression Line: When the relationship between two variables is plotted graphically, paired variable values are plotted against each other on the X and Y axis. The line drawn through, or near, the coordinate points is known as the line of the best fit or regression line. It is the line from which the sum of deviations of all coordinate points has the smallest possible value.

The Pearson product-moment (r) is utilized in problem-solving when:

(a) The data are expressed in interval or ratio score form.

(b) The distribution of X and Y have a linear relationship.

(c) The variances are approximately equal.

(d) The distribution have no more than one mode.

6. Friedman's Test: The data on learning abilities were scored as suggested by Kolb.[18] The Friedman's two-way analysis of variance by ranks was applied to test for the statistical significance of ranks of the teachers' learning abilities based on their learning orientations of Professional Advancement, External Expectations, and Cognitive Interest.

For the purpose of this study, the following computational formula was utilized:

$$X_r^2 = \frac{12}{Nk(k+1)} \sum R_1^2 = 3N\ (k+1)$$

where: R_1 = sum of ranks for the ith column

N = number of learning orientations

k = number of learning abilities

This statistic has an approximate chi-square distribution with k-1 degrees of freedom.

The Friedman's test operates on a tentative assumption that there is no significant difference between the various samples, and the probability of getting the observed differences as a result of chance is then calculated. This is done by ranking each set of matched measurements. Then, if our tentative negative assumption is correct, there should be little difference between the total rank values scores by each sample. The significance of any disparity is then tested.

Level of Significance

There is nothing conclusive about the selection of a significance level; the choice is largely arbitrary. Some critics even suggest that significance levels be abandoned, arguing that they are useless and misleading since they do not dispose of all rival hypotheses.[19]

Another school of thought recommends the use of a procedure whereby the actual level of significance associated with each research finding is stated. For instance, if a finding yields

significance at the .30 level or .09 it should be reported at that level and allow the reader to determine whether for his purposes it has any practical significance.[20]

Proponents of significance levels argue that it is very important no have a formal and a non-subjective way of deciding whether a given set of data shows haphazard or systematic variations. If it is haphazard, they argue, there is no need to engage in further analysis. If it is systematic, however, it does not mean that the analysis is concluded with the test of significance; rather it is the beginning of a more in-depth analysis. It was important therefore not to leave the determination of what was a systematic or haphazard arrangement of data to the intuition of the investigator.[21]

However, the choice of a significance level in reporting the results of a study might be made with the awareness that there are inherent problems of making Type I and Type II errors with whatever level is selected.

However, despite the problems involved, it was found necessary in this study to have some standard in determining what results would be considered as chance occurrence and which ones would not. It was therefore arbitrarily decided to use .05 as the level of significance for the following reasons: (1) the nature of the research was such that the researcher felt he could afford to wrongly conclude that the results were significant five times in 100 when in fact they were not and (2) the sample was reasonably large for

reasonably valid statistical significance statements to be made regarding the hypotheses formulated.

FOOTNOTES

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CHAPTER IV

ANALYSIS OF DATA PART I

Introduction

The main purpose of this study was to investigate the motivational reasons underlying the participation of Wisconsin post-secondary agriculture teachers in inservice education, and to determine the relationship between the teachers' reasons and their preferred learning styles.

In Chapter I, the general background including the rationale and scope of the investigation was discussed. The literature related to the motivational behavior of the adult in continuing learning was reviewed in Chapter II. Several theories and typologies that could serve as a framework for developing investigation into the learning orientations and learning styles of the post-secondary agriculture teachers were cited. Chapter III, the Methodology Chapter, described how the research was planned and executed. Specifically, items relating to population selection, instrumentation and techniques of data collection were covered.

This chapter (Chapter IV) deals with the anslysis of data and presentation of findings of the investigation. The chapter was designed to cover the following topical areas: (a) the demographic description of the population for the study, (b) the identification

of the factor structure (or learning orientations) of the teachers, their learning style and learning abilities, and (c) testing of hypotheses. Relevant data encountered in the process of the investigation were presented in several tables to aid interpretation and discussion of the study.

Investigations were designed and focused on the following research questions and hypotheses:

Research Questions

a) What are the learning orientations (motivating factors) of Wisconsin post-secondary agriculture teachers with regards to their participation in inservice education programs?

b) What degree of importance do teachers attach to the learning orientations influencing them to participate in inservice education?

c) How significantly are the teachers' learning orientations influenced by their personal variables of age, marital status, educational background, length of teaching experience and level of income? Is there a relationship between the teachers' personal characteristics and their learning orientations?

d) What are the learning abilities of the post-secondary agriculture teachers, and how significantly related are these abilities to the teachers' learning orientations?

Hypotheses

Several hypotheses were formulated thus:

1. There is no significant difference in the learning orientations of post-secondary agriculture teachers with varying age backgrounds.
2. There is no significant difference in the learning orientations of post-secondary agriculture teachers with different marital status backgrounds.
3. There is no significant difference in the learning orientations of post-secondary agriculture teachers with different levels of education.
4. There is no significant difference in the learning orientations of post-secondary agriculture teachers with different years of teaching experience.
5. There is no significant difference in the learning orientations of post-secondary agriculture teachers with different levels of income.
6. There is no significant relationship between the post-secondary agriculture teachers' personal variables of age, marital status, educational level, teaching experience, level of income and their learning orientations of Social Relationships, Professional Advancement, External Expectations, Escape/Stimulation, Cognitive Interest, and Social Welfare.

7. There is no significant differences among the learning abilities of post-secondary agriculture teachers whose learning orientations are characterized by:
   (a) Professional Advancement
   (b) External Expectations, and
   (c) Cognitive Interest

Demographic Data

In order to aid interpretation of data and understanding of the findings, the investigator considered a comprehensive treatment of the demographic variables of the respondents as a logical starting point. The demographic data of the Wisconsin post-secondary agriculture teachers were presented in several tables and discussed under the headings: age, marital status, level of education, length of teaching experience and level of income.

Age

In Table 1, the age distribution of the post-secondary agriculture teachers are presented. The teachers have a mean age of 45 years. A close observation of the age distribution indicates a wide variation within the group with a lower limit of 30 years or less and an upper limit of well over 51 years. Sixty-seven out of 114 respondents (58.8 percent) represent the single largest subgroup over 40 years of age. Nine (7.9 percent) of the respondents are below 30 years of age. The age distribution indicates the teachers are

largely in the upper age groupings. This is as expected as adult instructors, particularly the on-farm-training instructors who are recruited after they had had other experiences.

Table 1

AGE DISTRIBUTION OF THE POST-SECONDARY AGRICULTURE TEACHERS IN WISCONSIN

Age in Years	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
Under 30	9	7.9	100.0
31 - 35	19	16.7	92.2
36 - 40	19	16.7	75.5
41 - 45	17	14.9	58.8
46 - 50	13	11.4	43.9
51 years and over	37	32.5	32.5
Total	114	100.0	

Marital Status

One hundred and four out of 114 respondents were married and living with their spouses. This figure represents a high percentage (91.2 percent) compared with the number who are either divorced (2.6 percent) or never have been married before (5.3 percent).

Widowed, partnered or separated cases were virtually non-existent among the teachers. (See Table 2).

TABLE 2

MARITAL STATUS OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS

	Absolute Frequency	Relative Frequency (Percent)
Never have been married	6	5.3
Married	104	91.2
Divorced	3	2.6
No responses	1	0.9
Total	114	100.0

Highest Educational Achievement of the Respondents

Of the 114 respondents, at least 69 representing (60.6 percent) held a minimum qualification of Master's degree; three teachers (2.6 percent) held qualifications lower than the Bachelor's degree. Two teachers (1.8 percent) were holders of Doctorate degree. With this type of distribution, it is obvious that majority of the post-secondary agriculture teachers in Wisconsin operate with educational qualifications of Master's degree or higher. (See Table 3)

TABLE 3

HIGHEST EDUCATIONAL ATTAINMENT OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS

Educational Level	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
Less than Bachelor's Degree	3	2.6	100.0
Bachelors Degree	3	2.6	97.4
Bachelor's Degree plus Graduate Credits	39	34.2	94.8
Master's Degree	10	8.8	60.6
Master's Degree plus Graduate Credits	57	50.0	51.8
Doctorate	2	1.8	1.8
Total	114	100.0	

Teaching Experience of the Respondents

The respondents were asked to indicate the number of years they had taught. The data in Table 4 summarises the responses to the question. The mean number of years respondents had taught was 17 approximately. The teaching experience distribution indicates that seven teachers (6.1 percent) have taught for four years or less at the lower end of the scale while 14 (12.3 percent) have taught for over 30 years at the upper end.

With an average of 17 years of involvement in teaching, it is reasonable to conclude that the post-secondary agriculture teachers in Wisconsin are experienced professionals; and having been in instructional programs for that long it is logical to expect many of them to have participated in inservice programs over the period in order to keep abreast of developments in their instructional areas.

TABLE 4

TEACHING EXPERIENCE OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS

Teaching Experience in Years	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
Less than 4	7	6.1	100.0
5 - 10	38	33.3	93.1
11 - 15	28	24.6	59.8
16 - 20	14	12.3	35.2
21 - 25	6	5.3	22.9
26 - 30	7	5.3	17.6
Over 30	14	12.3	12.3
Total	114	100.0	

Income of Respondents

The mean annual income of the post-secondary agriculture teachers in Wisconsin is $26,215.00 (See Table 5). Forty-two percent of the respondents represent the largest single group with income between $25,001.00 and $30,000.00. The group with the largest income (5.3 percent) earns over $30,000.00 per annum. Three of the respondents refused to declare their incomes.

TABLE 5

INCOME LEVELS OF THE POST-SECONDARY AGRICULTURE TEACHERS IN WISCONSIN

Level of Income per year	Absolute Frequency	Relative Frequency (Percent)	Cumulative Frequency (Percent)
Less than $10,000	3	2.6	100.0
$10,001 - $15,000	2	1.8	97.4
$15,001 - $20,000	20	17.5	95.6
$20,001 - $25,000	32	28.1	78.1
$25,001 - $30,000	48	42.1	50.0
Over $30,000	6	5.3	7.9
Missing	3	2.6	2.6
Total	114	100.0	

The learning orientations and learning styles of the post-secondary agriculture teachers are likely to be influenced by income

since income creates wealth and invariably helps to establish one's social and psychological position in life.

Learning Orientations

One of the main questions this study attempted to answer is "What are the main reasons or motives which influenced Wisconsin post-secondary agriculture teachers to participate in an inservice education?" This question was answered by identifying the factor structure which characterized the learning orientations of the respondents.

Factor Structure

Education Participation Scale (EPS) were scored 1 for "No Influence", 2 for "Little Influence", 3 for "Moderate Influence" and 4 for "Much Influence".

Subprogram FACTOR of the Statistical Package for the Social Sciences (SPSS) was utilized to analyze the EPS item scores for the respondents. The default options of the subprogram FACTOR allowed for the exclusion of cases where missing data were encountered.

The means and standard deviations for the 40-EPS items were calculated and reported in Table 6. Based on the mean scores, the EPS items 1, 3, 18 and 32 appeared to influence the teachers most in their reasons for participating in inservice education. Mean scale scores for these items ranged from 3.0 to 3.4 on a 4-point scale. Teachers' responses varied more on item 3 where a standard deviation

TABLE 6

BASIC STATISTICS OF 40 EPS ITEMS FOR WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS

	EPS Items	Mean	Standard Deviation
	(N = 114)		
1.	To seek knowledge for its own sake	3.10	.860
2.	To share a common interest	2.79	.806
3.	To secure professional advancement	3.00	1.00
4.	To become more effective as a citizen	2.32	.881
5.	To get relief from boredom.	1.33	.528
6.	To carry out the recommendation of some authority	2.63	.969
7.	To satisfy an enquiring mind	2.94	.831
8.	To overcome the frustration of day to day living	1.41	.612
9.	To be accepted by others.	1.61	.720
10.	To give me higher status in my job.	2.27	.949
11.	To supplement a narrow previous education	2.14	.897
12.	To stop myself becoming a "vegetable"	1.51	.777
13.	To acquire knowledge to help with other educational courses	2.94	.926
14.	To fulfill need for personal associations and friendships	2.08	.829
15.	To keep up with competition	2.47	.898
16.	To escape the intellectual narrowness of my occupation	1.78	.865
17.	To participate in group activity	2.00	.817
18.	To increase my jobs competence	3.40	.771
19.	To gain insight into my personal problems	1.66	.772
20.	To help me earn a degree, diploma or certificate	2.41	1.140
21.	To escape television	1.22	.550
22.	To prepare for community service	2.08	.818
23.	To gain insight into human relations.	2.20	.847
24.	To have a few hours away from responsibilities	1.32	.591
25.	To learn just for the joy of learning	2.41	.841
26.	To become acquainted with congenial people	1.85	.803
27.	To provide a contrast to the rest of my life	1.52	.702
28.	To get a break in the routine of homework	1.46	.660
29.	To improve my ability to serve mankind	2.61	.992
30.	To keep up with others	1.76	.967
31.	To improve my social relationships.	1.76	.706
32.	To meet formal requirements.	3.00	.928
33.	To maintain or improve my social position	1.58	.761
34.	To escape an unhappy relationship	1.08	.277
35.	To provide a contrast to my previous education	1.81	.844
36.	To comply with the suggestions of someone else	2.05	.931
37.	To learn just for the sake of learning	2.33	.933
38.	To make new friends	1.75	.807
39.	To improve my ability to participate in community work	2.09	.867
40.	To comply with instructions from someone else	2.37	1.02

of 1.0 was observed, but on the other 3 items they were reasonably unanimous. Other influential items next in rank included 2, 6, 7, 13, 15, 20, 25, 29, 30 and 40. The respondents however expressed varying amounts of influence with items 20 and 40 having 1.14 and 1.02 standard deviations respectively. Item 34 with a mean score of 1.10 was the least influencial in motivating the teachers to participate in inservice education.

The EPS items were intercorrelated to produce a matrix. An examination of the correlation matrix revealed that, although low, many of the items are generally correlated; in fact, correlation scores of up to 0.5 or more could be observed in certain cases. The data in Table 7 represent the Correlation Matrix among the 40 EPS items. Note that correlation coefficients below the main diagonal are shown and that the table is symmetric about the main diagonal.

The data in Table 7 were analyzed using the principal-factor solution. Table 8 presents the principal factors obtained for these data. Six principal factors with eigenvalue equal to or greater than 1 were extracted. The body of the table indicates the factor loadings for the 40-EPS items on the six factors. Both the calculated and estimated communalities are shown on the extreme right of the table. The bottom rows indicate the contribution of each factor to the total communality. It will be observed that the contribution of the factors to the total communality decreased from the first to the sixth. The first factor accounted for 42.7 percent and decreased progressively

TABLE 7

CORRELATION COEFFICIENTS OF 40 EPS ITEMS FOR 114 RESPONDENTS

EPS Items	1	2	3	4	5	6	7
1							
2	.12451						
3	.00000	.16085					
4	.21354	.30508	.26285				
5	-.01291	.18705	.10522	-.03106			
6	-.14409	-.11198	-.16251	-.20794	-.05048		
7	.46267	.25615	.05572	.37012	.17544	-.32871	
8	-.00953	.21588	.13621	.02665	.57722	-.11698	.25303
9	.03496	.14236	.02571	.24532	.15098	.09582	.28748
10	.05755	.12250	.37072	.25134	.13713	.01654	.30368
11	.32981	.16859	.19608	.18965	.11817	-.09052	.38461
12	.08795	.11555	.10723	.05436	.25959	-.10393	.19497
13	.25244	.01890	.29007	.13911	-.01303	-.10914	.30760
14	.05312	.38656	.00000	.09015	.23321	.02655	.20937
15	.19001	.04811	.23709	.28822	.06161	-.08817	.32600
16	-.06946	.09217	-.02142	.03292	.09993	-.00893	.18639
17	-.07911	.18293	.00000	.18028	.00010	.04683	.16379
18	.31491	.16810	.28814	.28453	-.26221	-.13453	.34429
19	,9k923	,k3673	.09560	.12088	.43634	.01760	.25427
20	-.04288	.28711	.45474	.19871	.07901	.10491	.11621
21	-.00825	.23096	.11776	.17753	.38468	-.00335	.25394
22	.13283	.32164	.12452	.55414	.00059	-.14840	.40300
23	.22587	.27986	.29501	.39622	.20143	-.06686	.41311
24	.00852	.10464	-.09395	-.12871	.13169	.06215	.15545
25	.44101	.14335	.06604	.28185	.02372	.18735	.58147
26	.07527	.20922	.05765	.27674	.13723	-.03418	.27717
27	-.01154	.22964	.17152	.14528	.12929	.09423	.10577
28	.08079	.21843	-.02805	-.04866	.22543	.20779	.15550
29	.25966	.31323	.26110	.54143	-.19263	-.21164	.40253
30	.14540	.09775	.22017	.28780	.03843	-.07598	.36299
31	-.06675	.13859	.01312	.12437	.31274	.03330	.16312
32	-.11719	-.02215	.14968	-.06029	.06955	.41587	-.15536
33	-.10405	.09498	.12163	.24544	.16569	.10196	.02563
34	-.15217	-.08730	.00000	-.10989	.19201	.14876	-.01701
35	.03978	.15746	-.01097	.09644	.24796	.02597	.20664
36	-.05324	-.00905	-.15908	.07986	.03800	.42293	.06444
37	.51168	.03195	-.02976	.16264	.03964	.07977	.50515
38	.08973	.17518	-.09180	.13903	.08514	.04630	.14180
39	.22353	.20035	.11755	.53135	.05459	-.13604	.39412
40	0.39517	-.20817	-.09943	-.04972	-.00361	.54762	-.29844

TABLE 7 (Continued

EPS Items	8	9	10	11	12	13	14
9	.35199						
10	.28748	.34456					
11	.18231	.05613	.08709				
12	.34822	.10076	.21467	.00390			
13	.04725	-.03835	.19879	.25600	.12351		
14	.40675	.42709	.20714	.05926	.19219	.10347	
15	.15072	.20206	.30880	.13766	.19628	.38167	.23358
16	.27851	.08226	.09463	.27818	.19749	.13258	.33560
17	.12975	.33061	.11948	-.10112	.27725	.13475	.49234
18	-.16023	-.04404	.31996	.17322	.17603	.33494	.04875
19	.53442	.25634	.25063	.21499	.27778	-.01782	.28992
20	.12506	.17758	.33391	.24263	.10324	.07798	.13989
21	.41500	.15106	.22360	.20058	.25262	.11888	.22355
22	.04227	.21295	.10264	.21148	.10744	.08044	.07177
23	.26642	.34401	.30101	.23105	.08010	.22913	.22643
24	.16766	.16972	-.03814	-.06661	.14141	.00419	.28515
25	.06157	.17959	.09310	.15713	.25325	.28406	.13652
26	.35064	.42719	.20964	.09255	.22580	.04908	.51894
27	.37671	.26533	.15062	.06111	.26680	.00941	.32290
28	.32918	.30620	.14331	.01750	.24026	-.08771	.48838
29	-.04367	.14542	.26636	.08708	.05916	.18770	.13888
30	.13924	.41709	.26853	.18813	-.02509	.21203	.21680
31	.35884	.39601	.19238	.06694	.05668	.06137	.42950
32	-.03936	.00546	.13388	-.01265	-.01944	-.01009	-.02506
33	.33780	.47032	.45160	.05870	.21337	.11886	.37842
34	.34399	.21155	.09193	-.00890	.01621	.05708	.09114
35	.19131	.14795	-.05100	.24317	-.07355	-.00413	.18168
36	.09951	.14048	.06712	.01301	.01174	-.09252	.11396
37	.09951	.14048	.06712	.13317	.21065	.24979	.01229
38	.20909	.30825	.07476	.00915	.11623	.06528	.05987
39	.13750	.19204	.24027	.18609	.05311	.12285	.18267
40	-.12579	-.07806	-.09183	-.08568	-.14598	-.20927	-.13412

TABLE 7 (continued)

EPS Items	15	16	17	18	19	20
16	.15775					
17	.36612	.27547				
18	.32630	.00956	.10293			
19	.20434	.30301	.22021	-.01654		
20	.08990	.04610	.19891	.22990	.10802	
21	.25791	.29744	.18544	-.03682	.35167	.22266
22	.23679	.13070	.24956	.12281	.14736	.10210
23	.31270	.16233	.33455	.12919	.45926	.30584
24	.06317	.15770	.30685	-.06352	.05840	.08996
25	.23216	.07523	.20222	.34018	.06092	.11026
26	.25013	.20642	.48012	.00686	.35180	.09713
27	.23986	.26785	.43629	.03406	.45004	.31782
28	.14999	.22729	.51536	.05122	.39898	.09051
29	.36504	-.07257	.25828	.42909	.06166	.16151
30	.55153	-.02672	.21103	.22660	.21363	.10829
31	.19228	.14075	.35349	-.21271	.30867	.08898
32	-.04963	-.04363	-.01222	-.12167	.09481	.32893
33	.29144	.18110	.32773	-.05411	.38398	.17057
34	.02941	.03803	.08203	-.24459	.08909	.03772
35	.08335	.29660	.14778	-.07885	.31059	.00644
36	.13496	.14170	.15830	-.12146	.09057	.17023
37	.11215	-.00084	.06074	.19894	.14408	.04469
38	.21250	.21312	.44975	-.03126	.26496	.08199
39	.38452	.00249	.26175	.19348	.25448	.08314
40	-.10783	-.04384	-.02214	-.23613	.03017	.14655

TABLE 7 (Continued)

EPS Items	21	22	23	24	25	26	27
22	.14435						
23	.26117	.45662					
24	.06525	.05954	.07273				
25	.14183	.16531	.32365	.06609			
26	.30424	.31464	.47932	.21717	.28243		
27	.20255	.16604	.45921	.17175	.17987	.40032	
28	.17816	.15213	.27986	.35451	.12269	.37271	.39679
29	.07750	.43545	.32561	-.07666	.32638	.21052	.07102
30	.05936	.29000	.27255	.05629	.07851	.17552	.11738
31	.27948	.25898	.35990	.22960	.07383	.50942	.34763
32	.15918	-.04981	.04472	-.02229	-.15911	-.08515	.14897
33	.31223	.29440	.29114	.05699	.13000	.45813	.46890
34	.18365	-.11230	-.03227	.11950	-.06830	.01339	.10944
35	.21173	.07690	.35257	.08799	.19129	.12180	.26542
36	.10259	.09122	.02099	.06849	.08892	.14709	.15389
37	.12748	.08735	.24269	.04094	.60299	.16409	.17207
38	.22820	.08740	.27692	.20707	.23392	.57211	.34533
39	.15141	.51180	.39068	-.16646	.22703	.21913	.25536
40	.10171	-.09175	-.12878	-.10462	-.23118	-.19280	.00106

TABLE 7 (Continued)

EPS Items	28	29	30	31	32	32	34
29	.14096						
30	.19011	.40518					
31	.37613	.12779	.20755				
32	.03841	-.02830	-.13780	-.01077			
33	.27824	.16193	.21954	.56918	.12350		
34	.19640	-.09196	.02700	.19675	-.00298	.21107	
35	.16007	-.00109	-.01685	.27961	-.05683	.05962	.10846
36	.10916	.01415	.17323	.10468	.38514	.16367	.09006
37	.23269	.22453	.09352	.02231	-.02491	.04160	-.07076
38	.28434	.03231	.06716	.46436	-.05877	.26539	.00952
39	.21713	.49666	.35819	.23295	-.05864	.33999	-.07056
40	-.01847	-.12340	-.06833	-.04430	.50298	-.00142	.05549

EPS Items	35	36	37	38	39	40
36	.02539					
37	.09325	.06410				
38	.18758	.16618	.12192			
39	.07503	.00516	.17970	.15200		
40	.02898	.52217	-.16666	.01018	-.10088	

TABLE 8

PRINCIPAL FACTOR SOLUTION FOR 40 EPS ITEMS AND COMMUNALITY ESTIMATES

EPS Items	Common Factors						Communality	
	1	2	3	4	5	6	Estimated	Calculated
1	.257	-.490	-.165	-.028	.378	-.044	.551	.479
2	.395	-.075	-.015	.046	-.081	-.017	.522	.171
3	.262	-.223	.295	.452	-.235	.252	.542	.529
4	.486	-.386	.297	-.054	-.151	-.285	.603	.580
5	.310	.341	-.237	.457	.060	-.164	.583	.507
6	-.115	.460	.411	-.137	.282	.082	.609	.499
7	.622	-.413	-.155	.067	.260	-.139	.738	.676
8	.524	.362	-.297	.427	-.042	-.028	.671	.679
9	.528	.193	.022	-.116	-.094	-.028	.603	.340
10	.450	-.058	.235	.268	-.105	.231	.566	.409
11	.296	-.196	.007	.300	.171	-.157	.496	.270
12	.343	.042	-.152	.130	.093	.268	.437	.240
13	.273	-.317	.012	.137	.085	.219	.549	.249
14	.573	.289	.167	-.173	-.090	.194	.644	.515
15	.516	-.178	.145	-.032	-.069	.131	.574	.342
16	.320	.198	-.138	.057	.090	.044	.491	.174
17	.561	.211	.030	-.426	-.088	.266	.650	.620
18	.245	-.587	.162	.000	.056	.411	.617	.603
19	.545	.286	-.060	.244	.054	-.127	.609	.461
20	.321	.039	.395	.245	.044	.241	.559	.381
21	.448	.203	.015	.278	.101	-.069	.468	.336
22	.485	-.235	.182	-.145	-.163	-.341	.618	.487
23	.671	-.073	.089	.063	.008	-.145	.681	.488
24	.212	.238	-.218	-.169	.078	.200	.377	.224
25	.457	-.376	-.155	-.122	.422	.057	.636	.571
26	.655	.183	-.129	-.247	-.086	.002	.691	.547

TABLE 8 (Continued)

EPS Items	Common Factors 1	2	3	4	5	6	Communality Estimated	Calculated
27	.549	.281	.062	-.018	.034	.103	.637	.396
28	.501	.319	-.105	-.189	.091	.157	.662	.432
29	.456	-.478	.285	-.171	-.136	-.033	.634	.567
30	.440	-.184	.185	-.057	-.159	-.025	.657	.291
31	.548	.363	-.085	-.121	-.181	-.157	.622	.511
32	-.021	.309	.546	.168	.255	.070	.550	.492
33	.578	.273	.149	-.007	-.188	-.013	.688	.467
34	.099	.324	-.060	.135	-.032	.024	.388	.138
35	.293	.151	-.143	.067	.153	-.237	.458	.213
36	.149	.314	.407	-.184	.359	-.095	.579	.458
37	.345	-.302	-.152	-.050	.538	.003	.613	.525
38	.469	.239	-.142	-.302	.039	.026	.588	.391
39	.527	-.271	.191	-.091	-.155	-.285	.602	.501
40	-.205	.442	.612	-.036	.290	-.171	.673	.726
Factor Contribution to Communality	7.47	3.602	2.105	1.647	1.463	1.98	23.39	17.48
% Factor Contribution	42.7	20.6	12.0	9.4	8.4	6.9	100	74.73

to the sixth factor which accounted for only 6.9 percent. Invariably, the principal components are orthogonal to one-antoher. The loadings on the first factor were positive while subsequent ones contained both positive and negative loadings.

The data in Table 8 were not amenable to meaningful interpretation and hence were subjected to further analysis. Since all the six factors contributed significantly to the total communality, all of them were retained for rotation in order to be able to make sense out of the initial factors. The factors were rotated by the Kaiser normalization method (oblique method of rotation) and after 22 iterations, six meaningful factors were obtained. Two factor matrices produced after rotation (Pattern Matrix and Structure Matrix) are displayed in Tables 9 and 10. The pattern matrix delineates more clearly the clustering of the EPS items than the structure matrix. However, the two tables applied conjointly were found valuable in identifying items which should be retained under each factor. Items which loaded .40 or more were included in the respective factors. Table 11 displays the rotated factors with the item loadings specified. Apparently, some items which had loaded significantly in some previous studies utilizing the EPS instrument failed to load on any of the six factors in this study. It is more likely that the items have little or no influence on the post-secondary agriculture teachers in their reasons for participating in inservice education programs. The EPS items which loaded below .40 are indicated below with their respective factor loadings:

TABLE 9

FACTOR PATTERN AFTER ROTATION WITH KAISER NORMALIZATION FOR 40 EPS ITEMS

EPS Item	Social Relationships Factor 1	Professional Advancement Factor 2	External Expecations Factor 3	Escape/ Stimulation Factor 4	Cognitive Interest Factor 5	Social Welfare Factor 6
1	-.080	.042	-.093	-.032	.661	-.064
2	.126	-.120	-.099	.125	.050	-.221
3	-.198	-.686	-.071	.101	-.132	-.122
4	-.099	-.082	-.000	-.038	.086	-.726
5	-.061	-.017	-.053	.739	-.019	.094
6	.134	.009	.656	-.095	-.051	.161
7	.017	-.027	-.131	.208	.596	-.292
8	.165	-.141	-.159	.735	-.056	.076
9	.394	-.025	.038	.140	-.054	-.266
10	.078	-.543	.013	.119	-.066	-.150
11	-.247	-.111	.003	.325	.289	-.151
12	.255	.255	-.083	.155	.172	.186
13	.006	-.340	-.098	-.037	.280	.003
14	.654	-.076	-.075	.110	-.038	-.036
15	.228	-.295	-.018	-.059	.112	-.284
16	.239	-1024	.009	.253	.088	.064
17	.777	-.086	.065	-.217	-.024	-.049
18	.041	-.519	-.106	-.399	.356	-.044
19	.148	-.066	.068	.547	.034	-.127
20	.017	-.520	.286	.066	.008	-.047
21	.053	-.141	.116	.466	.076	-.072
22	.025	.079	-.021	.015	.033	-.697
23	.143	-.177	.031	.254	.166	-.429
24	.462	.040	-.027	.016	.068	.203
25	.169	-.002	-.017	-.044	.701	-.053
26	.592	.055	-.065	.108	.026	-.267

TABLE 9 (Continued)

EPS Item	Social Relationships Factor 1	Professional Advancement Factor 2	External Expectations Factor 3	Escape/ Stimulation Factor 4	Cognitive Interest Factor 5	Social Welfare Factor 6
27	.416	-.153	.156	.198	.017	-.095
28	.591	-.008	.094	.103	.086	.027
29	.060	-.211	-.040	-.283	.152	-.585
30	.126	-.184	-.027	-.055	.006	-.422
31	.445	.127	-.018	.295	-.189	-.305
32	-.129	-.248	.651	.065	-.030	.073
33	.360	-.158	.095	.214	-.196	-.320
34	.116	-.034	.044	.269	-.151	.117
35	.051	.192	.043	.368	.154	-.101
36	.133	.099	.652	-.024	.145	-.095
37	.057	.060	.080	.044	.741	.046
38	.568	.146	.027	.040	.079	-.108
39	.019	-.009	-.034	.024	.062	-.675
40	-.166	.082	.812	-.001	-.108	-.036

TABLE 10

FACTOR STRUCTURE AFTER ROTATION WITH KAISER NORMALIZATION FOR 40 EPS ITEMS

EPS Item	Social Relationships Factor 1	Professional Advancement Factor 2	External Expectations Factor 3	Escape/ Stimulation Factor 4	Cognitive Interest Factor 5	Social Welfare Factor 6
1	-.013	-.091	-.224	-.018	.676	-.213
2	.231	-.223	-.010	.212	.174	-.315
3	-.076	-.685	-.075	.121	.029	-.246
4	.060	-.278	-.056	.045	.283	-.745
5	.180	-.080	.013	.700	.016	.002
6	.105	.077	.673	-.019	-.208	.188
7	.217	-.253	-.233	.291	.721	-.497
8	.411	-.230	-.076	.785	.052	-.090
9	.500	-.150	.077	.320	.071	-.359
10	.210	-.596	.020	.236	.094	-.311
11	-.052	-.220	-.049	.294	.345	-.251
12	.316	-.291	-.083	.260	.228	-.008
13	.058	-.391	-.162	.021	.360	-.164
14	.700	-.172	-.016	.349	.084	-.202
15	.313	-.413	-.046	.108	.271	-.435
16	.330	-.085	.033	.340	.120	-.052
17	.743	-.183	.097	.097	.095	-.297
18	.002	-.554	-.219	-.293	.462	-.236
19	.387	-.194	.112	.634	.124	-.258
20	.133	-.537	.275	.172	.075	-.192
21	.269	-.239	.138	.529	.141	-.202
22	.171	-.121	-.048	.111	.213	-.692
23	.360	-.314	.013	.395	.333	-.570
24	.426	.024	.003	.150	.066	.095
25	.245	-.165	.140	.073	.735	-.272

TABLE 10 (Continued)

PES Item	Social Relationships Factor 1	Professional Advancement Factor 2	External Expectations Factor 3	Escape/ Stimulation Factor 4	Cognitive Interest Factor 5	Social Welfare Factor 6
26	.679	-.108	-.028	.347	.176	-.402
27	.538	-.253	.191	.395	.106	-.250
28	.639	-.097	.129	.326	.139	-.133
29	.122	-.369	-.116	-.145	.344	-.657
30	.216	-.308	-.045	.072	.170	-.494
31	.577	-.011	.065	.465	-.055	-.356
32	-.050	-.198	.649	.094	-.132	.057
33	.507	-.275	.159	.402	-.040	-.412
34	.178	-.021	.106	.292	-.151	.088
35	.202	.082	.051	.390	.169	-.151
36	.196	.051	.632	.090	.045	-.108
37	.147	-.080	-.046	.110	.712	-.152
38	.599	.030	.056	.247	.144	-.215
39	.177	-.210	-.067	.131	.256	-.703
40	-.123	.135	.821	-.004	-.283	.081

TABLE 11

FACTOR STRUCTURE: ITEMS AND FACTOR LOADINGS OF THE EDUCATION PARTICIPATION SCALE AFTER OBLIQUE ROTATION FOR 114 RESPONDENTS

	Items	Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
9	To be accepted by others	.39*	-.02	.04	.14	-.05	-.27
19	To fulfill a need for personal associations and friendships	.18*	-.07	.07	.55	.03	-.13
17	To participate in group activity	.78*	-.09	.06	-.22	-.02	-.15
24	To have a few hours away from responsibilities	.46*	.04	-.03	.02	.07	.20
26	To become acquainted with congenial people	.59*	.06	-.07	.11	.03	-.27
27	To provide a contrast to the rest of my life.	.42*	-.15	.16	.20	.02	-.09
28	To get a break in the routine of homework.	.59*	-.01	.09	.10	.09	.03
31	To improve my social relationships	.45*	.13	-.02	.30	-.19	-.31
38	To make new friends	.57*	.15	.03	.04	.08	-.11
3	To secure professional advancement	-.20	-.69*	-.07	.10	-.13	-.12
10	To give me higher status in my job	.08	-.54*	.01	.12	-.07	-.15
18	To increase my job competence	.04	-.52*	-.11	-.39	.35	-.04
20	To help me earn a degree, diploma or certificate	.02	-.52*	.29	.07	.01	-.05

TABLE 11 (continued)

	Items	I Social Relationships	II Professional Advancement	III External Expectations	IV Escape/ Stimulation	V Cognitive Interest	VI Social Welfare
6	To carry out the recommendations of some authority	.13	.10	.66*	-.02	-.05	.16
32	To meet formal requirements	-.13	-.25	.65*	.06	-.03	.07
36	To comply with the suggestions of someone else	.13	.10	.65*	-.02	.14	-.10
40	To comply with instructions from someone else	-.17	.08	.81*	-.00	-.11	-.04
5	To get relief from boredom	-.06	-.02	-.05	.74*	-.02	.09
8	To overcome the frustration of day to day living	.17	-.14	-.16	.74*	-.06	.08
19	To gain insight into my personal problems	.15	-.07	.07	.55*	.03	-.13
21	To escape television	.05	-.14	.12	.47*	.08	-.07
1	To seek knowledge for its own sake	-.08	.04	-.09	-.03	.66*	-.06
7	To satisfy an enquiring mind	.02	-.03	-.13	.21	.60*	-.29
25	To learn just for the joy of learning	.17	-.00	-.02	-.04	.70*	-.05
37	To learn just for the sake of learning	.06	.06	.08	.04	.74*	.05
4	To become more effective as a citizen	-.10	-.08	-.00	-.04	.09	-.73*
22	To prepare for community service	.03	.08	-.02	.01	.03	-.70*
23	To gain insight into human relations	.14	-.12	.03	.25	.17	-.43*

TABLE 11 (continued)

	Items	I Social Relationships	II Professional Advancement	III External Expectations	IV Escape/ Stimulation	V Cognitive Interest	VI Social Welfare
29	To improve my ability to serve mankind	.06	-.21	-.04	-.28	.15	-.59*
30	To keep up with others	.13	-.18	-.03	-.06	.01	-.42*
39	To improve my ability to participate in community work	.02	-.01	-.03	.03	.06	-.67*

*Loadings greater than .40 which formed item clusters.

EPS Item No		Highest Loadings
2	To share a common interest.	.22
11	To supplement a narrow previous education	.33
12	To stop myself becoming a "vegetable"	.25
13	To acquire knowledge to help with other courses	.28
15	To keep up with competition	.30
16	To escape the intellectual narrowness of my occupation	.25
33	To maintain and improve my social position	.35
34	To escape an unhappy relationship	.27
35	To provide a contrast to my previous education	.37

Because the EPS items did not load on any of the factors, they were excluded from further analysis in the investigation.

The data in Table 12 indicate that there is a wide range in the strength of intercorrelations among the six factors - Professional Advancement and External Expectations correlated .03 (the lowest) while Social Relationships and Escape Stimulation correlated .36 (the highest).

As one might expect, given the nature and meaning of the EPS items, Social Relationships correlated highest with Escape Stimulation. The Social Welfare factor demonstrated a generally stronger pattern of correlation with the remaining five factors; thus, it correlated negatively (-.21) with Social Relationships, positively (.27) with

TABLE 12

PEARSON PRODUCT-MOMENT CORRELATIONS OF SIX EPS FACTORS

	Social Relationships	Professional Advancement	External Expectations	Escape Stimulation	Cognitive Interest	Social Welfare
Social Relationships	1	-.12	.07	.36	.12	-.21
Professional Advancement		-	.03	-.13	-.19	.27
External Expectations		-	.09	-.18	.04	
Escape Stimulation			-	.07	-.14	
Cognitive Interest				-	-.27	
Social Welfare					-	

Professional Advancement, negatively (-.14) with Escape Stimulation, and negatively (-.27) with Cognitive Interest. The post-secondary agriculture teachers might have viewed their inservice education participation role not only aimed at improving their professional performance, but to better the comunity and serve others.

The rotated factors in Table 9 were amenable to meaningful interpretation. Inspection of the EPS clustering in this investigation suggests that the first factor is Social Relationships. Items 9, 19, 17, 24, 26, 27, 28, 31, and 38 have high loadings on this factor and less on others. Individuals who score high on this dimension state a need for personal association, participation in group activity, making new friends, express being accepted by others, and avoidance of monotony of life and work (Table 11).

The second factor is Professional Advancement. Items 3, 10, 18, and 20 have high loadings on the dimension. (Table 11). The variables which load on this factor appear to express some concern for advancement within one's profession. Previous studies have characterized high scorers on this scale as subjects perceiving their educational preparation as highly job-oriented or vocationally oriented, leading to greater competence and higher status in the individual's chosen occupation. For the post-secondary agriculture teachers, the factor could be of importance particularly in seeing inservice education participation as an opportunity to improve in professional competence and as a stepping stone to higher job status.

The third factor is External Expectations. Items 6, 32, 36 and 40 have high loadings on this factor. Individuals who score high on this dimension are seeking to fulfill certain needs externally imposed, such as, instruction, suggestions and requirements from other individuals or agencies (Table 11). For most post-secondary agriculture teachers, the seeming mandated requirement of inservice education participation for relicensure might have influenced high scorers on this factor.

The fourth factor is Escape/Stimulation. Items 5, 8, 19, and 21 load highest on this factor (Table 11). It is noteworthy that items which load high on this factor in previous studies are also found in this study. The items appear to reflect a need for stimulation, a desire to get away from a boring situation or an unpleasant environment. Teachers who score high on this factor might be participating in inservice education for the primary reason of having a contrast to life, getting away from responsibilities for a change, removing boredom, or overcoming the day-to-day frustration of work, living, or association.

The fifth factor is Cognitive Interest. Items 1, 7, 25 and 37 load highest on this factor. Learning and the pursuit of knowledge for its intrinsic value are the driving force behind this dimension. It reflects a basic inquiry motivation or traditionally pure academic motivation (Table 11).

Social Welfare is the sixth factor. Motives in this scale reflect broader humanitarian community service concern. Participation in further education may be based on non-selfish expectations to better the community or serve others. Items 4, 22, 23, 29, 30 and 39 make up this dimension (Table 11).

The Second Objective of the Study: This objective was to determine the degree of importance which certain groups of post-secondary agriculture teachers placed on various reasons for participating in inservice education. This gave rise to the research question: "How significantly are the post-secondary agriculture teachers' learning orientations influenced by the personal variables of age, marital status, level of education, length of teaching experience and level of income?"

Importance Attached to the Learning Orientations of Wisconsin Post-Secondary Agriculture Teachers

The data in Table 13 provide information on the mean scale scores grouped by the EPS motivational typologies for the total sample and selected age groupings of Wisconsin post-secondary agriculture teachers. For the entire population (N = 114), relatively more importance was placed on those reasons for participation in inservice education which comprised the Professional Advancement, Cognitive Interest and to a lesser extent, External Expectations dimensions.

It should be remembered that the total range of scores was from 1 to 4, "Very Little influence" to "Very Much Influence". The mean scores for Professional Advancement and Cognitive Interest dimensions indicated about moderate influence - mean scores of 2.79 and 2.71 respectively. The External Expectations indicated little influence (a mean score of 2.15). With the standard deviation scores

TABLE 13

EPS SCALE SCORE MEANS AND STANDARD DEVIATIONS FOR THE AGE GROUPINGS OF RESPONDENTS

		EPS DIMENSION					
		Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
Entire Pop.	M	1.70	2.79	2.15	1.41	2.71	2.11
(N = 114)	SD	.50	.69	.64	.48	.69	.53
Under 30 Years	M	1.84	2.31	2.22	1.58	2.69	1.83
(N = 9)	SD	.39	.67	.68	.40	.50	.70
31 - 35 Years	M	1.71	2.97	1.99	1.46	2.78	2.11
(N = 19)	SD	.50	.60	.57	.57	.84	.43
36 - 40 Years	M	1.60	2.45	1.88	1.37	2.57	2.14
(N = 19)	SD	.51	.61	.75	.46	.61	.50
41 - 45 Years	M	1.60	2.90	2.19	1.38	2.62	1.99
(N = 17)	SD	.42	.57	.59	.41	.70	.58
46 - 50 Years	M	1.51	3.17	2.25	1.92	2.65	1.99
(N = 13)	SD	.60	.60	.59	.42	.93	.62
Over 51 Years	M	1.84	2.80	2.30	1.40	2.81	2.25
(N = 37)	SD	.52	.74	.64	.50	.61	.50

*Mean Scale scores have a range of 1.0 to 4.0
1 = little influence 4 = very much influence

of .69 for Professional Advancement and .69 for Cognitive Interest, the post-secondary agriculture teachers were equally unanimous on the two dimensions as influencing them moderately to participate in inservice education.

In an earlier study Morstain and Smart[1] had observed a similar finding regarding the reasons adults participated in continuing education. The findings in this study take a difference from that of Morstain and Smart's in that External Expectations featured higher as an influencing dimension than Social Welfare observed by them. This preference is to be expected since job security and progress of the post-secondary agriculture teachers depend in part on complying with regulations set by the authority.

The respondents generally placed little emphasis on Social Welfare (2.11), Social Relationships (1.70) and Escape Stimulation (1.41) dimensions as influencing their inservice education participation.

Age Differences of Respondents With Respect to Their Learning Orientations

Table 13 provides information regarding the learning orientations mean scores and standard deviations for the post-secondary ogriculture teachers. For the purpose of in-depth analysis, the post-secondary agriculture teachers were classified into six-age categories: Under 30 years, 31 to 35 years, 36 to 40 years, 41 to 45 years, and 46 to 50 years and over 50 years. The table provides a comparison between the scores for the entire population and the

various age-groupings. The data indicate that within the overall pattern, there is a considerable variation in the mean scores of the EPS dimensions across the groupings. Professional Advancement which took a leading position in influencing the participation of teachers had a mean score range of 2.31 to 3.17 across the age groupings. There is no clearcut trend suggested in the mean scores of this dimension except that those respondents in the 46 to 50 year-age bracket placed more emphasis on it than did others. In general, all age groupings regarded his dimension as important to them.

The Cognitive Interest dimension for the age groupings had a mean score range of 2.57 to 2.80 with the oldest teachers (51 years and above) having the highest score (2.81). Apparently the oldest teachers were more influenced into inservice education participation by this dimension than those in the younger age categories.

External Expectations dimension exerted little influence on the teachers' participation in inservice education (mean score range of 1.88 to 2.30). However, teachers in the age bracket of 51 years and above were almost influenced by this factor, with a mean score of 2.30. From the data analysis, it would seem that older teachers were generally more influenced by this factor in their inservice education participation than the younger ones.

The dimensions of Social Welfare, Social Relationships and Escape/Stimulation apparently had little influence on the teachers. A close observation of the data would reveal a smaller standard

deviation range or tighter clustering of responses to those factors which had no or little influence on the decision of the teachers to participate than those factors which exhibited the highest influence.

Learning Orientations of Teachers as Influenced by Marital Status

One of the objectives of this investigation was to find out if the marital status variable had any influential effect on the Wisconsin post-secondary agriculture teachers' learning orientations. But as the reader would recall in Table 2, nearly all the respondents (91.2 percent) were married, thus placing a large majority under one marital status category. Since this was the case, it was felt that no useful information would be derived by carrying out further statistical analysis on the collected data.

From now on, the investigator decided to stop any further statistical analysis based on the marital status variable in this study.

Learning Orientations of Teachers as Influenced by Educational Level

The data in Table 14 indicate the mean scores and standard deviations for the post-secondary agriculture teachers grouped by the highest educational level. A close observation of the data reveals no particular trend with regards to the mean scores on the EPS dimensions. However, respondents with educational qualifications of less than the Bachelor's degree were generally most influenced by

TABLE 14

EPS SCALE SCORE MEANS AND STANDARD DEVIATIONS FOR THE HIGHEST EDUCATIONAL LEVEL OF RESPONDENTS

		EPS DIMENSION					
		Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
Entire Pop. (N = 114)	M	1.70	2.79	2.15	1.41	2.71	2.11
	SD	.50	.69	.64	.48	.48	.53
Less than Bachelors Degree (N = 3)	M	2.41	3.33	2.83	2.42	3.17	2.44
	SD	.63	.52	.95	.52	.33	.38
Bachelor's Degree (N = 3)	M	2.04	2.75	2.00	1.83	3.00	1.61
	SD	.32	.50	.00	.63	.44	.67
Bachelor's Degree plus graduate credits (N = 39)	M	1.60	2.68	2.14	1.40	2.67	2.12
	SD	.45	.63	.53	.44	.44	.67
Master's Degree (N = 10)	M	1.80	2.90	2.18	1.48	2.60	2.08
	SD	.58	.53	.71	.43	.52	.48
Master's Degree plus graduate credits (N = 57)	M	1.70	2.79	2.10	1.34	2.74	2.10
	SD	.50	.75	.70	.44	.50	.50
Doctorate (N = 2)	M	1.62	3.50	2.88	1.38	2.00	2.33
	SD	.39	.00	.18	.53	.13	.24

*Mean scale scores have a range of 1.0 to 4.0
1 = little influence 4 = very much influence

the EPS dimensions of Professional Advancement (mean score: 3.33) and Cognitive Interest (mean score: 3.17). This is to be expected considering the fact that the average educational qualification of the post-secondary agriculture teacher in Wisconsin is Master's degree plus some graduate credits. Since educational qualifications are so vital to professional growth and job security, it is no wonder, therefore, that the teachers with low educational qualification were largely influenced by these two EPS dimensions. In general, it would seem that the higher the educational qualification of the teacher, the less influenced he is by the Cognitive Interest motive.

Respondents were generally about moderately influenced by the Professional Advancement factor (mean score range: 2.68 to 3.50); holders of the Doctorate degree were most influenced (mean score 3.50). In general, those respondents who were moderately influenced by the motive of Professional Advancement also were about moderately influenced by the Cognitive Interest dimension with the exception of holders of the Doctorate degree who appeared more concerned with improving their professional competence than engaging in cognitive activities not necessarily related to professional improvement. While other categories of teachers regarded External Expectations as having little influence in their decision to participate in inservice education generally, the holders of Bachelor's degree and Doctorate degree regarded the factor as having about moderate influence on them. It is possible that holders of the Bachelor's

degree are young in the profession and still in the process of struggling to gain professional recognition. Holders of the Doctorate degree might as well be struggling to improve themselves professionally in order to gain the necessary recognition from the authorities. These reasons might have considerable influence on the two categories of teachers to the extent that regulations set by the authorities become an important source of influence.

The dimension of Social Welfare had little influence while those of Social Relationships and Escape Stimulation had no influence on the teachers' decision to participate in inservice education.

Overall, the level of educational attainment of the post-secondary agriculture teachers did not seem to give a clear indication of the EPS dimension that would characterize an individual on the motivating factors. Respondents, irrespective of educationol attainment, were generally moderately motivated by the dimensions of Professional Advancement and Cognitive Interest and little influence by External Expectations, Social Welfare and Social Relationships. Apparently no single factor has an overriding influence on the teachers' decision to participate in inservice education.

Learning Orientations of Teachers as Influenced by Teaching Experience

The data in Table 15 indicate the mean scores and standard deviations grouped by motivational typologies and compared with years of teaching experience of the post-secondary agriculture teachers in

TABLE 15

EPS SCALE SCORE MEANS AND STANDARD DEVIATIONS OF RESPONDENTS BY LENGTH OF TEACHING EXPERIENCE

		EPS DIMENSION					
		Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
Entire Pop.	M	1.70	2.79	2.15	1.41	2.71	2.11
(N = 114)	SD	.50	.69	.64	.47	.69	.53
Less than 4 years	M	2.14	3.04	2.32	1.96	3.04	2.17
(N = 7)	SD	.47	.51	.64	.60	.53	.66
5 - 10 years	M	1.66	2.78	2.05	1.51	2.72	2.08
(N = 38)	SD	.47	.66	.73	.54	.72	.54
11 - 15 years	M	1.67	2.71	2.03	1.38	2.74	2.21
(N = 28)	SD	.52	.73	.59	.45	.82	.48
16 - 20 years	M	1.52	2.54	2.29	1.14	2.45	1.77
(N = 14)	SD	.51	.56	.49	.21	.48	.48
21 - 25 years	M	1.74	3.29	2.58	1.25	3.04	2.42
(N = 6)	SD	.59	.64	.74	.42	.83	.27
26 - 30 years	M	1.62	3.00	2.18	1.39	2.50	1.81
(N = 7)	SD	.56	1.01	.37	.35	.80	.75
Over 30 years	M	1.90	2.77	2.23	1.29	2.68	2.27
(N = 14)	SD	.36	.63	.69	.29	.37	.39

*Mean scale scores have a range of 1.0 to 4.0
1 = little influence 4 = very much influence

Wisconsin.

Analysis of the data revealed that the participation of the post-secondary agriculture teachers in inservice education is influenced first by the dimension of Professional Advancement (mean range score of 2.54 to 3.29), and second, by the Cognitive Interest dimension (mean score range of 2.50 to 3.04). The motives of External Expectations, Social Welfare, Social Relationships and Escape/Stimulation had little or no influence on the teachers decisions to participate in inservice education.

In general, younger teachers had relatively high mean scores on most of the dimensions but particularly more so for Professional Advancement (3.04) and Cognitive Interest (3.04). The dimensions are at their lowest ebb however about the mid-career point of the teachers' professional lives (16 to 20 years); thereafter, there is a sudden rise in the mean score of all the six dimensions. This finding is largely consistent with the data in Table 13 where selected age groups were compared to the motivational typologies. As one would expect, older teachers and invariably the more experienced professionally are less influenced by social orientations, but rather by those factors which could lead to improved professional life and self improvement. It would seem that as teachers got beyond their mid-career lives, they generally became more sensitive to their professional responsibilities, their personal development and compliance with the requirements set by the authorities. It is also possible that the desire for the individual teacher to aspire to a

position of responsibility within the profession might, in part, account for the observable change in him/her beyond the midcareer stage.

Learning Orientations of Teachers as Influenced by Level of Income

The data in Table 16 indicate the mean scores and standard deviations for the EPS dimensions of Wisconsin post-secondary agriculture teachers grouped by levels of income.

The teachers, irrespective of level of income, were generally about moderately influenced by two dimensions in their participation in inservice education. These are: the Professional Advancement (mean sccre range of 2.50 to 2.95) and Cognitive Interest (mean score range of 2.64 to 3.00). It would appear, that with increased income, teachers tended to be more influenced by the Professional Advancement dimension. Those in the income bracket of less than $10,000 per year were least influenced by this factor (mean 2.50), while those earning between $25,001 and $30,000 per year appeared to be most influenced (mean score: 2.95). Also, those teachers in the lower income categories (less than $10,000 to $20,001) were generally more influenced by the Cognitive Interest dimension.

It is possible that those teachers with less income are those with less educational qualification and experience; they might have viewed cognitive interest as an avenue for professional improvement in order to acquire a higher professional status and income level. In general, the higher the income of an individual, the

TABLE 16

EPS SCALE SCORE MEANS AND STANDARD DEVIATIONS OF RESPONDENTS BY LEVEL OF INCOME

		EPS DIMENSION					
		Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
Entire Prop.	M	1.71	2.81	2.14	1.42	2.73	2.11
(N = 114)	SD	.50	.67	.64	.48	.68	.52
Less than $10,000	M	1.96	2.50	2.33	2.08	2.83	2.17
(N = 3)	SD	.28	.25	1.04	.14	.29	.17
$10,001-$15,000	M	2.39	2.63	2.38	1.63	3.00	1.83
(N = 2)	SD	.24	.18	.53	.18	.71	.47
$15,001-$20,00	M	1.72	2.61	2.11	1.61	2.88	2.03
(N = 20)	SD	.56	.78	.60	.61	.60	.72
$20,001-$25,000	M	1.65	2.75	2.16	1.28	2.73	2.16
(N = 32)	SD	.44	.73	.67	.40	.71	.53
$25,001-$30,000	M	1.70	2.95	2.11	1.38	2.64	2.10
(N = 48)	SD	.52	.62	.63	.41	.75	.47
Over $30,000	M	1.81	2.79	2.21	1.42	2.83	2.31
(N = 6)	SD	.43	.43	.80	.68	.30	.41

*Mean scale scores have a range of 1.0 to 4.0
1 = little influence 4 = very much influence

less he is motivated by the Cognitive Interest to participate in inservice education.

Teachers were little influenced to participate in inservice education by the factors of External Expectations (2.11 to 2.38), Social Welfare (1.83 to 2.31) and Social Relationships (1.65 to 1.96). Escape/Stimulation had no influence on the teacher's involvement in inservice programs.

Learning Orientation of Individual Members

For the purpose of further statistical analysis in relation to the learning styles of the respondents, the investigator found it expedient to identify each respondent with the learning orientation(s) he/she emphasized most. The data in Table 17 represent the mean score of the respondents on each of the six learning orientations. The learning orientation(s) most emphasized is (are) asterisked. A few cases were encountered where some respondents expressed equal amounts of influence on two learning orientations.

A summary of the data in Table 17 by numerical figures indicated that the majority of the post-secondary agriculture teachers were most influenced to participate in inservice education by three principal learning orientations:

1. Professional Advancement (N = 56)
2. Cognitive Interest (N = 50)
3. External Expectations (N = 20)

These figures served to further confirm the results in Table 13.

TABLE 17

FREQUENCY OF LEARNING ORIENTATION MOST EMPHASIZED BY THE TEACHERS

Respondent's Identification Number	EPS DIMENSIONS					
	Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
1	1.667	2.750*	1.750	1.250	2,750*	2.000
2	1.111	2.750*	1.500	1.000	2.500	2.167
3	1.556	3.000	2.250	1.250	4.000*	2.833
4	1.889	2.500	1.750	1.250	3.000*	2.167
5	2.222	2.250	2.500*	1.000	2.000	1.667
6	1.000	2.250*	2.000	1.000	2.000	1.333
7	1.889	3.750*	1.750	2.000	3.500	2.667
8	1.889	3.250	2.000	1.000	3.500*	2.667
9	1.778	3.250*	2.250	1.000	1.750	1.167
10	1.111	2.750	1.500	2.250	3.750*	2.000
11	1.222	2.500	1.250	1.750	3.000*	1.667
12	2.444	2.400	2.250	1.250	3.000*	2.333
13	1.444	1.250	3.000*	1.250	3.000*	2.000
14	1.667	3.000*	1.000	1.000	2.500	1.833
15	1.667	1.750	2.250	2.250	2.500*	1.833
16	1.667	3.250*	2.250	1.000	2.250	2.500
17	2.333	3.000*	1.500	1.000	2.250	1.000
18	1.333	3.000*	1.500	1.000	2.250	1.000
19	1.111	1.500	1.500	1.000	2.500*	1.333
20	1.111	2.250*	1.500	1.000	2.250*	2.167
21	1.222	2.000	3.250*	1.000	3.250*	1.667
22	2.778	3.250*	1.250	1.500	2.750	2.167
23	1.889	2.000	2.250	1.000	3.000*	3.000*
24	1.222	2.000	2.500*	1.000	1.250	1.167
25	1.667	3.500*	2.000	1.000	2.500	2.167
26	1.667	1.750	2.750*	1.250	2.500	2.000
27	1.889	2.000	2.750*	1.750	2.000	1.667
28	2.222	3.000	2.000	2.500	3.750*	2.667
29	1.556	2.250	3.000*	1.500	3.000*	2.167
30	2.444	3.250*	2.750	1.000	3.000	1.833
31	1.111	3.250*	2.750	1.000	1.250	1.500

TABLE 17 (Continued)

Respondent's Identification Number	EPS DIMENSIONS					
	Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
32	1.556	3.250*	2.000	1.000	3.000	1.833
33	2.000	3.500*	2.750	1.750	2.250	2.500
34	2.000	3.250*	3.000	1.500	2.750	2.333
35	1.778	3.000*	1.250	1.000	2.500	1.833
36	2.444	3.500*	1.750	1.000	2.500	2.667
37	1.222	3.250*	1.750	1.000	2.500	2.500
38	1.667	2.500	1.500	1.000	3.500*	1.833
39	1.000	1.000	2.500*	1.000	1.000	1.000
40	2.667	3.750*	2.750	2.000	2.500	2.333
41	1.000	2.250	1.500	1.000	4.000*	1.833
42	1.667	1.750	1.750	1.000	3.000*	2.500
43	1.333	3.000	1.500	1.250	3.250*	2.500
44	2.000	2.000	1.750	1.250	2.500*	2.333
45	3.111	3.500*	3.250	3.000	3.500*	2.667
46	2.556	2.500	2.750	1.500	3.500*	2.167
47	2.111	3.750*	2.750	1.000	3.250	2.667
48	1.778	2.500	3.500*	1.000	3.750	1.667
49	2.222	1.500	3.500*	1.250	2.750	2.500
50	2.111	3.250*	2.250	1.500	3.000	2.667
51	2.111	3.000	2.000	2.750	3.250*	2.333
52	1.000	3.500*	3.250	1.250	3.000	2.333
53	1.111	3.750*	1.500	1.000	2.500	2.167
54	1.333	3.000*	1.750	1.500	1.750	1.167
55	1.778	2.500	2.500	1.250	3.750*	3.167
56	1.000	2.000	2.500	1.000	2.750*	1.000
57	1.778	3.250*	2.000	2.250	2.000	2.833
58	1.000	2.750*	1.750	1.000	2.500	1.167
59	1.333	2.000	2.50*	1.250	1.500	1.833
60	2.556	3.250*	1.500	1.000	3.000	2.833
61	1.333	3.500*	2.000	1.250	2.000	2.833
62	1.333	1.750	1.000	1.000	2.750*	1.000
63	1.889	2.750*	2.000	1.500	2.750*	2.667
64	1.667	1.000	1.750*	1.500	1.750*	1.167
65	1.667	3.000*	2.000	1.500	2.000	2.333

TABLE 17 (Continued)

Respondent's Identification Number	EPS DIMENSIONS					
	Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
66	1.333	2.000	2.000	1.500	2.250*	1.167
67	2.111	2.750	3.250*	2.250	2.250	2.000
68	1.667	3.750*	2.500	1.250	1.750	2.333
69	1.778	3.000	1.250	1.500	3.250*	1.833
70	2.222	3.250	3.000	1.500	3.500*	3.000
71	1.111	3.250*	2.250	1.250	3.250*	2.167
72	2.000	3.250*	1.500	2.000	2.000	2.500
73	1.667	2.250	1.500	2.000	3.000*	2.333
74	2.444	4.000*	2.250	2.000	4.000*	2.167
75	1.667	2.500*	2.500*	1.000	2.250	1.667
76	1.111	2.250	2.250	1.500	2.750*	1.833
77	2.000	2.500	2.000	2.000	3.000*	2.167
78	2.222	2.750*	2.000	1.750	2.500	1.500
79	1.778	4.000*	2.500	2.500	3.750	2.667
80	1.000	4.000*	2.250	1.000	3.250	1.667
81	2.222	3.000	1.500	2.000	3.500*	2.333
82	1.889	3.500*	1.750	1.500	3.500*	2.833
83	2.333	2.750	3.750*	1.500	2.500	2.500
84	1.444	2.750*	1.250	1.000	2.250	1.667
85	1.222	3.000*	2.250	1.000	1.750	1.333
86	1.444	3.000	1.250	1.000	3.750*	2.333
87	2.333	1.750	2.750*	2.000	2.750*	2.000
88	1.111	2.500*	1.250	1.250	2.000	1.500
89	2.222	2.250	2.000	1.250	3.750*	1.000
90	1.111	2.250	1.250	1.250	3.000*	2.833
91	2.222	2.750	3.500*	2.500	2.500	2.000
92	1.111	2.500	1.000	1.000	3.500*	2.833
93	1.778	3.000	1.750	1.000	3.250*	2.333
94	1.556	3.500*	2.750	1.500	1.500	2.167
95	1.667	3.000	1.750	1.250	3.250*	2.667
96	2.778*	2.750	2.250	2.000	2.500	2.333
97	1.778	3.250*	2.000	1.750	1.750	1.833
98	2.222	3.250*	2.500	1.500	2.500	2.667

TABLE 17 (Continued)

Respondent's Identification Number	EPS DIMENSIONS					
	Social Relationships	Professional Advancement	External Expectations	Escape/ Stimulation	Cognitive Interest	Social Welfare
99	1.667	3.250*	2.000	2.500	2.750	2.333
100	1.778	3.500*	1.750	2.500	3.500*	2.167
101	2.000	3.000	3.250*	1.750	2.500	2.333
102	1.444	3.500*	3.000	1.000	1.750	2.167
103	1.889	3.000*	1.750	1.250	2.750	2.000
104	1.556	2.500	1.750	1.500	3.500*	2.500
105	1.222	3.750	3.250	1.000	4.000*	2.833
106	1.000	1.500	2.750*	1.000	1.750	1.333
107	1.000	1.750	2.500*	1.000	2.250	1.167
108	1.333	3.750*	1.250	1.000	3.750*	2.333
109	1.667	1.500	2.000	1.000	2.000	2.500*
110	1.111	3.500*	2.000	1.500	2.750	2.000
111	1.550	2.250	1.000	1.000	2.000	2.500*
112	3.111	3.250*	2.500	1.000	3.000	2.500
113	1.444	3.000	1.750	1.250	3.250*	1.500
114	1.000	3.750*	2.500	1.000	1.000	1.833
Frequency Count	1	56	20	0	50	3

NOTE: *Indicates Learning Orientation Influencing the respondent most.

The remaining three learning orientations which apparently had very little or no influence included:

(1) Social Welfare (N = 3)

(2) Social Relationships (N = 1) and

(3) Escape Stimulation (N = 0)

Since the learning orientations comprising social welfare, Social Relationships and Escape Stimulation did not play any significant role in influencing the teachers' participation in inservice education programs, they were excluded from the computations regarding the relationship between the teachers' learning orientations and their preferred learning styles. This decision was necessary in order to limit analysis of data to those factors that are of real practical professional significance both to the administrators and the participating teachers.

Summary

Differences in the personal variables of age, level of education, length of teaching experience and level of income with respect to the reasons why the Wisconsin post-secondary agriculture teachers participated in inservice education were observed.

Within the overall pattern, those reasons which dealt with Professional Advancement, Cognitive Interest and External Expectations were found to moderately influence the teachers to participate in continuing education.

Those reasons reflecting broader humanitarian community service (Social Welfare) and those dealing with personal association or participation in group activity (Social Relationships) had about little influence, but Escape/Stimulation as a motivating factor had no influence on the teacher participants.

On the age variable grouping, no particular trend seemed suggested by the scale scores of the EPS dimensions. However, older teachers were generally more moderately influenced by the Professional Advancement and Cognitive Interest factors than were the younger ones.

The post-secondary agriculture teachers with educational qualifications of less than the Bachelor's degree regarded the Professional Advancement and Cognitive Interest dimensions as moderately influencing them, while those with higher qualifications emphasized the Cognitive Interest less. This trend is to be expected considering the fact that those at the bottom of the educational ladder are conscious of the fact that they are holding qualifications lower than the average in the profession which is perhaps not good enough for job security.

The reasons dealing with compliance with formal requirements (External Expectations) moderately influenced those teachers with educational qualifications of less than the Bachelor's degree more than any other category in the group. This reason could be attributed to the teachers' consciousness of the security of their jobs and perhaps the ambition to progress in the profession.

Relatively inexperienced teachers had high scores on most of the EPS dimensions. The dimensions are however at their lowest ebb about the midcareer point of the teachers' professional lives; thereafter a sudden rise in the scale scores were observed. Both the least experienced and most experienced post-secondary agriculture teachers were more influenced by the various EPS dimensions than those just about their mid-career lives.

With increased income, the teachers tended to be more influenced by the EPS dimensions of Professional Advancement and less by the Cognitive Interest. This phenomenon is to be expected since remunerations and enhanced position are more directly and closely linked with good professional record. One should also take cognizance of the fact that the post-secondary agriculture teachers form a group of professionals who are vocationally oriented; Cognitive Interest as a motivating factor may not have featured quite as prominently as Professional Advancement in the teachers' bid for improved professional performance.

Third Objective of this Study: The objective was twofold: (a) to determine if the learning orientanions influencing the post-secondary agriculture teachers to participate in inservice education programs exhibited significant statistical variations when individuals were grouped within the demographic variables of age, level of education, length of teaching experience, and level of income, and (b) to determine the statistical relationships existing between the teachers' learning orientations and their personal variables of age, level of education, length of teaching experience, and level of income.

Significance of Group Differences in the Learning Orientations of Post-Secondary Agriculture Teachers

The SPSS subprogram ONEWAY analysis of variance was performed on the group mean scores of Wisconsin post-secondary agriculture teachers to determine the significance of the differences in their motives for participating in inservice education.

For the purpose of statistical treatment, the respondents were set into categories according to their personal variables of age, level of education, length of teaching experience and level of income. The groupings within the independent variables consisted of the following: six for the age variable, six for educational level, seven for teaching experience, and six for income. Five null hypotheses were formulated.

Age as an Independent Variable

Hypothesis: The following hypothesis was formulated "There is no significant difference in the learning orientations of post-secondary agriculture teachers with varying age backgrounds".

No test the hypotbesis, the independent variable age was categorized into the following:

(a) 30 years of age or below

(b) 31-35 years of age

(c) 36-40 years of age

(d) 41-45 years of age

(e) 50 years of age and above.

The data in Table 18 represent the analysis of variance summary performed on the mean scores of the teachers based on their age groupings.

Of the six learning orientations, Professional Advancement was found statistically significant at the probability level of less than .05.

A test for homogeneity of variance indicated no statistical significance ($p = .747$). The Scheffe method of multiple comparisons also indicated that, although a statistically significant difference could be observed in Professional Advancement, no two groups were significantly different at the probability level of .05 in this dimension. An inspection of the mean scores reveals that the groups are fairly close, but no specific trend is suggested.

TABLE 18

ANOVA SUMMARY TABLE OF THE LEARNING ORIENTATIONS OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS BY AGE GROUPINGS

1) Learning Orientation	Group Means	D.f.	SS	MS	F-Ratio	F-Prob.
Social Relationships	1.84 1.74 1.59 1.60 1.51 1.84	5 107	1.74 26.36	.35 .25	1.41	.23
2) Professional Advancement	2.31 2.97 2.46 2.40 3.17 2.80	5 107	6.84 45.90	1.37 .43	3.19	.01*
3) External Expectations	2.22 1.99 1.93 2.23 2.25 2.33	5 105	2.72 41.50	.55 .40	1.38	.24
4) Escape/ Stimulation	1.58 1.46 1.39 1.39 1.08 1.46	5 106	1.71 22.56	.34 .21	1.60	.17
5) Cognitive Interest	2.69 2.78 2.60 2.62 2.65 2.81	5 106	.88 52.36	.18 .49	.36	.88
6) Social Welfare	1.83 2.11 2.12 2.00 1.99 2.25	5 107	1.83 29.75	.37 .28	1.31	.26

Significance = .05 probability * *

On the remaining dimensions, the post-secondary agriculture teachers did not show significant differences in their mean scores.

Level of Education as an Independent Variable

Hypothesis: The following null hypothesis was formulated "There is no significant difference in the learning orientations of post-secondary agrilulture teachers with different levels of education".

For the purpose of testing this hypothesis, the teachers were grouped in the following order:

(a) Less than Bachelor's degree

(b) Bachelor's degree

(c) Bachelor degree plus graduate credits

(d) Master's degree

(e) Master's degree plus graduate credits

(f) Doctorate degree

Table 19 represents the summary of the oneway analysis of variance on the learning orientations with education as an independent variable. The analysis indicates that the post-secondary agriculture teachers differ significantly at the probability level of less than .05 on one out of the six dimensions - the Escape/ Stimulation.

A test for homogeneity of variances indicated no statistical significance. The Scheffe method of multiple comparisons indicated that two pairs of groups of teachers were significantly different at .05 level of probability. Teachers having qualifications of less

TABLE 19

ANOVA SUMMARY TABLE OF THE LEARNING ORIENTATIONS OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS BY LEVEL OF EDUCATION GROUPINGS

Learning Orientation	Group Means	D.f.	SS	MS	F-Ratio	F-Prop.
1) Social Relationship	2.41 2.04 1.60 1.80 1.70 1.72	5 107	2.30 25.79	.46 .24	1.91	.10
2) Professional Advancement	3.33 2.75 2.68 2.90 2.80 3.50	5 107	2.50 50.24	.50 .50	1.07	.38
3) External Expectations	2.83 2.00 2.16 2.18 2.13 2.88	5 105	2.49 41.74	.50 .40	1.25	.29
4) Escape/ Stimulation	2.42 1.83 1.40 1.48 1.32 1.38	5 106	4.05 20.22	.81 .19	4.24	.002*
5) Cognitive Interest	3.17 3.00 2.67 2.60 2.76 2.00	5 106	2.19 51.05	.44 .48	.91	.48

TABLE 19 (continued)

6) Social Welfare	2.44 1.61 2.12 2.08 2.10 2.33	5 107	1.20 30.39	.24 .28	.84	.52

Significance = .05 probability = *

than the Bachelor's degree, group one with a mean score of 2.4167 was significantly different from two groups: (a) the holders of Bachelor's degree with graduate credits (mean: 1.3974), and (b) the holders of Master's degree with graduate credits (mean: 1.3227).

Apart from Escape/Stimulation dimension, no significant differences were observed in the remaining five learning orientations. An inspection of the mean scores on these learning orientations would reveal that they are about generally evenly distributed among the groups.

Length of Teaching Experience as an Independent Variable

Hypothesis: The following null hypothesis was formulated "There is no significant difference in the learning of orientations of post-secondary agriculture teachers with varying years of teaching experience".

The following comprised the categories into which the post-secondary agriculture teachers were put according to their learning experience:

(a) 4 years of teaching experience or less

(b) 5-10 years of teaching experience

(c) 11-15 years of teaching experience

(d) 16-20 years of teaching experience

(e) 21-25 years of teaching experience

(f) 26-30 years of teaching experience

(g) 30 years or more of teaching experience

The data in Table 20 represent the summary of one-way analysis of variance with learning orientations as the dependent variables and teaching experience as the independent variable. The analysis indicates that the post-secondary agriculture teachers differ significantly on two learning orientations: Escape/Stimulation at the probability level of less than .05, and Social Welfare at the probability level of .05.

A test of homogeneity of variances on Escape/Stimulation dimension indicated a statistical significance of =.039. This level of significance obviously indicates that the variances in the populations from which the samples were drawn were not equal. This need not seriously invalidate the results obtained. However, it indicates that the results should be interpreted with caution.

Scheffe procedure indicated that the group of teachers with 4 years of teaching experience or less (mean: 1.96) was significantly different from the group with 16-20 years of teaching experience (mean: 1.14).

A test of homogeneity on Social Welfare also revealed a statistical level of significance ($p = .04$). Again, it is an indication that the results here should be cautiously interpreted.

Although the overall results on the Social Welfare dimension was significant statistically, Scheffe procedure could not detect pairs of groups that were significantly different at the .05

TABLE 20

ANOVA SUMMARY TABLE OF THE LEARNING ORIENTATIONS OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS BY LENGTH OF TEACHING EXPERIENCE

Learning Orientation	Group Mean	D.f.	SS	MS	F-Ratio	F-Prob.
1) Social Relationship	2.14 1.66 1.67 1.52 1.74 1.62 1.90	6 106	2.53 25.56	.42 .24	1.75	.12
2) Professional Advancement	3.04 2.80 2.71 2.54 3.29 3.00 2.77	6 106	3.36 49.38	.56 ..47	1.20	.31
3) External Expectations	2.32 2.10 2.03 2.29 2.58 2.18 2.31	6 104	2.38 41.84	.40 .40	1.00	.44
4) Escape/ Stimulation	1.96 1.49 1.39 1.14 1.25 1.39 1.29	6 105	3.79 20.48	.63 .20	3.24	.006*
5) Cognitive Interest	3.04 2.74 2.74 2.45 3.04 2.50 2.67	6 105	2.75 50.48	.46 .48	.95	.46

TABLE 20 (Continued)

6) Social Welfare	2.17 2.07 2.21 1.77 2.42 1.81 2.27	6 106	3.49 28.09	.58 .27	2.20	.05*

Significance = .05 probability = *

probability level. The mean scores were such that no trend was suggested. Also, the level of significance for the dimension was such that could be described as a borderline case, barely significant.

Apart from the two learning orientations discussed above, none of the remaining four was found statistically significant.

Levels of Income as an Independent Variable

Hypothesis: The following null hypothesis was formulated: "There is no significant difference in the learning orientations of post-secondary agriculture teachers with different levels of income."

For the purpose of data analysis, the post-secondary agriculture teachers were grouped into the following order:

(a) Earning $10,000 per year or less

(b) $10,001 - $15,000 per year

(c) $15,001 - $20,000 per year

(d) $20,001 - $25,000 per year

(e) $25,001 - $30,000 per year

(f) Over $30,000 per year

The ANOVA result between level of income and teachers' learning orientations is presented in Table 21. The data indicate that the post-secondary agriculture teachers differ significantly on Escape/Stimulation factor at the probability level of less than .05.

A test of homogeneity of variances on the dimension indicated a statistical significance of p = .001. Obviously, caution

TABLE 21

ANOVA SUMMARY TABLE OF THE LEARNING ORIENTATIONS OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS BY LEVEL OF INCOME GROUPINGS

Learning Orientation	Group Means	D.f.	SS	MS	F-Ratio	F-Ratio
1) Social Relationships	1.96 2.39 1.72 1.65 1.70 1.82	5 104	1.32 25.83	.26 .25	1.06	.39
2) Professional Advancement	2.50 2.63 2.61 2.75 2.97 2.79	5 105	2.43 46.72	.49 .45	1.08	.38
3) External Expectations	2.33 2.38 2.11 2.19 2.15 2.21	5 102	.26 42.24	.05 .41	.13	.99
4) Escape/ Stimulation	2.08 1.63 1.61 1.24 1.38 1.42	5 103	3.18 20.63	.64 .20	3.18	.01*
5) Cognitive Interest	2.83 3.00 2.88 2.73 2.65 2.83	5 103	.94 49.04	.19 .48	.39	.85
6) Social Welfare	2.17 1.83 2.03 2.16 2.10 2.31	5 104	.62 29.69	.12 .29	.43	.83

Significance = .05 probability = *

is called for in the interpretation of this result. Scheffe method of multiple range test indicated that, although a statistically significant difference is recorded with Escape/Stimulation dimension, no two groups of respondents are significantly different in their scores at .05 probability level. Apart from Escape/Stimulation, no other factor was found statistically significant in their mean scores. An inspection of the remaining five learning orientations would reveal an even spread of mean scores within each factor.

Relationships Between Learning Orientations and Selected Personal Variables

Part of this investigation was concerned with determining the relationship existing between the learning orientations and selected variables of the post-secondary agriculture teachers with regards to their age, level of education, length of teaching experience, and level of income. It was envisaged that the predictive value or trend observed in such relations could have useful implications for inservice education planning for the teachers. The following ndll hypothesis was formulated:

Hypothesis

In was hypothesized that "There is no significant relationship between the post-secondary agriculture teachers' personal variables of age, educational level, teaching experience, level of income

and their learning orientations of:

a) Social Relationsbips

b) Professional Advancement

c) External Expectations

d) Escape/Stimulation

e) Cognitive Interest

f) Social Welfare."

Variable of Age

As indicated by the data in Table 22, a relationship was suggested between the age of the post-secondary agriculture teachers and the dimension of External Expectations. The correlation was statistically significant at the probability level of .03. But with a correlation coefficient of .183 and a regression slope of .019, the relationship was weak at best.

Although not quite as clear-cut, the trend of relationship seemed to suggest that as the teachers grew older, they tended to become more influenced by the External Expectations dimension (Graph 1).

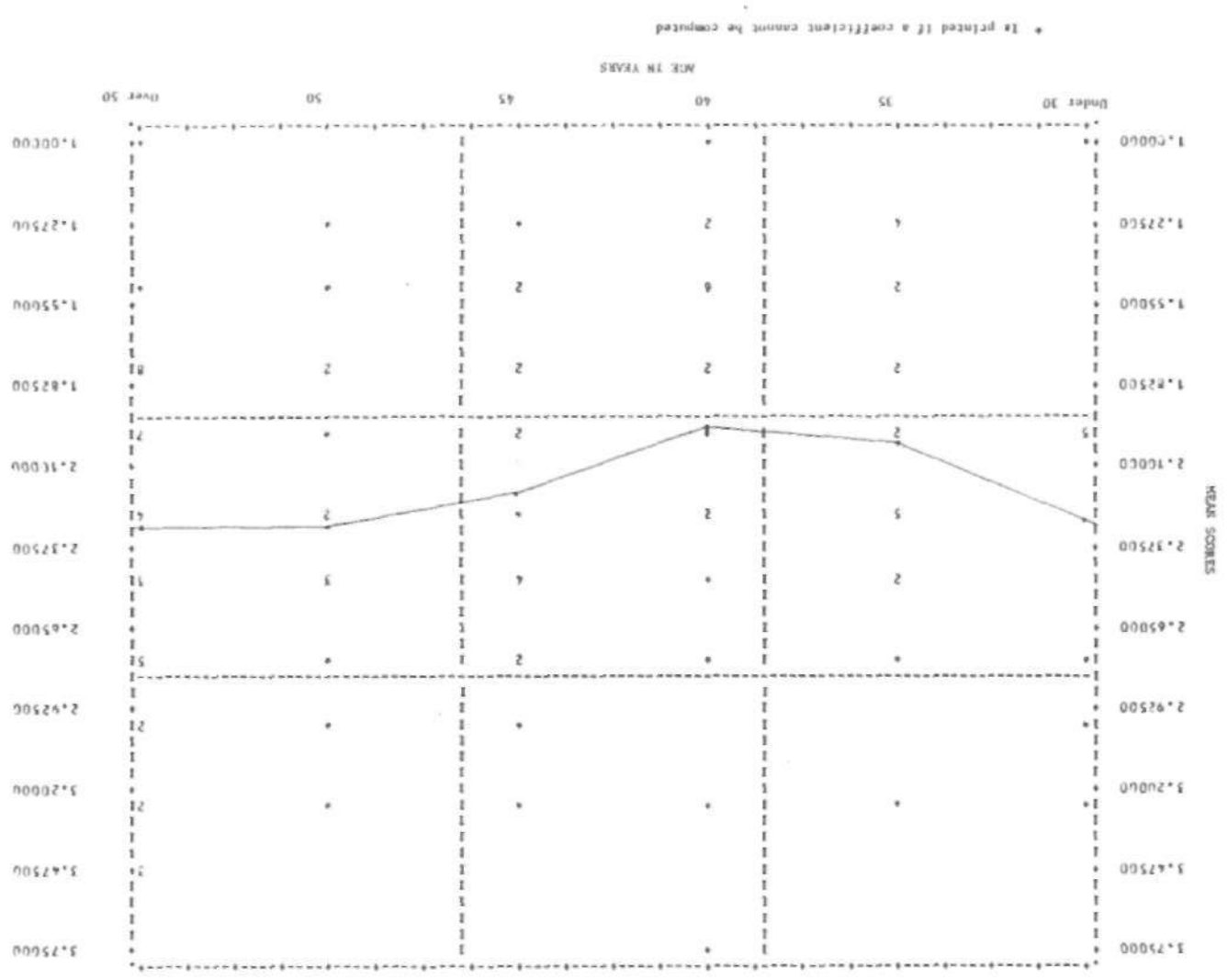
A positive relationship was also suggested between age and Social Welfare ($r = .156$), statistically significant at probability level of .05. With a regression slope of .048, again the trend of relationship suggested is not quite clear-cut. It would however appear that social welfare became an important factor influencing the teacher to participate in inservice education as he grew older

TABLE 22

PEARSON CORRELATION MATRIX BETWEEN LEARNING ORIENTATIONS AND FOUR SELECTED PERSONAL VARIABLES OF THE POST-SECONDARY AGRICULTURE TEACHERS

Learning Orientation	r	r^2	Prob.	Slope
A. With Age				
Social Relationships	.060	.004	.26	.017
Professional Advancement	.132	.018	.08	.052
External Expectations	.183	.033	.03*	.067
Escape/Stimulation	-.072	.005	.226	-.019
Cognitive Interest	.049	.002	.302	.020
Social Welfare	.156	.024	.05*	.048
B. With Education				
Social Relationships	-.071	.005	.23	-.031
Professional Advancement	.035	.001	.36	.021
External Expectations	-.048	.002	.31	-.027
Escape/Stimulation	-.274	.075	.002*	-.114
Cognitive Interest	-.053	.003	.29	-.032
Social Welfare	-.002	.000	.49	-.001
C. With Teaching Experience				
Social Relationships	.023	.001	.40	.001
Professional Advancement	.013	.0002	.45	.001
External Expectations	.114	.012	.12	.008
Escape/Stimulation	-.250	.063	.004*	-.013
Cognitive Interest	-.086	.007	.18	-.007
Social Welfare	.027	.001	.39	.002
D. With Income				
Social Relationships	-.08	.006	.20	-.008
Professional Advancement	.19	.037	.023*	.025
External Expectations	-.029	.000	.42	-.002
Escape/Stimulation	-.229	.052	.009*	-.020
Cognitive Interest	-.096	.009	.16	-.012
Social Welfare	.066	.004	.25	.007

Significance = .05 probability = *



GRAPH 1.

SCATTERGRAM OF EXTERNAL EXPECTATIONS FACTOR AND AGE OF POST-SECONDARY AGRICULTURE TEACHERS

(Graph 2). This trend should not be unexpected since older people are generally more conscious and generally more community oriented than the younger ones. It is also possible that as the teachers got older, they became more conscious of the social welfare role of their profession.

Variable of Education

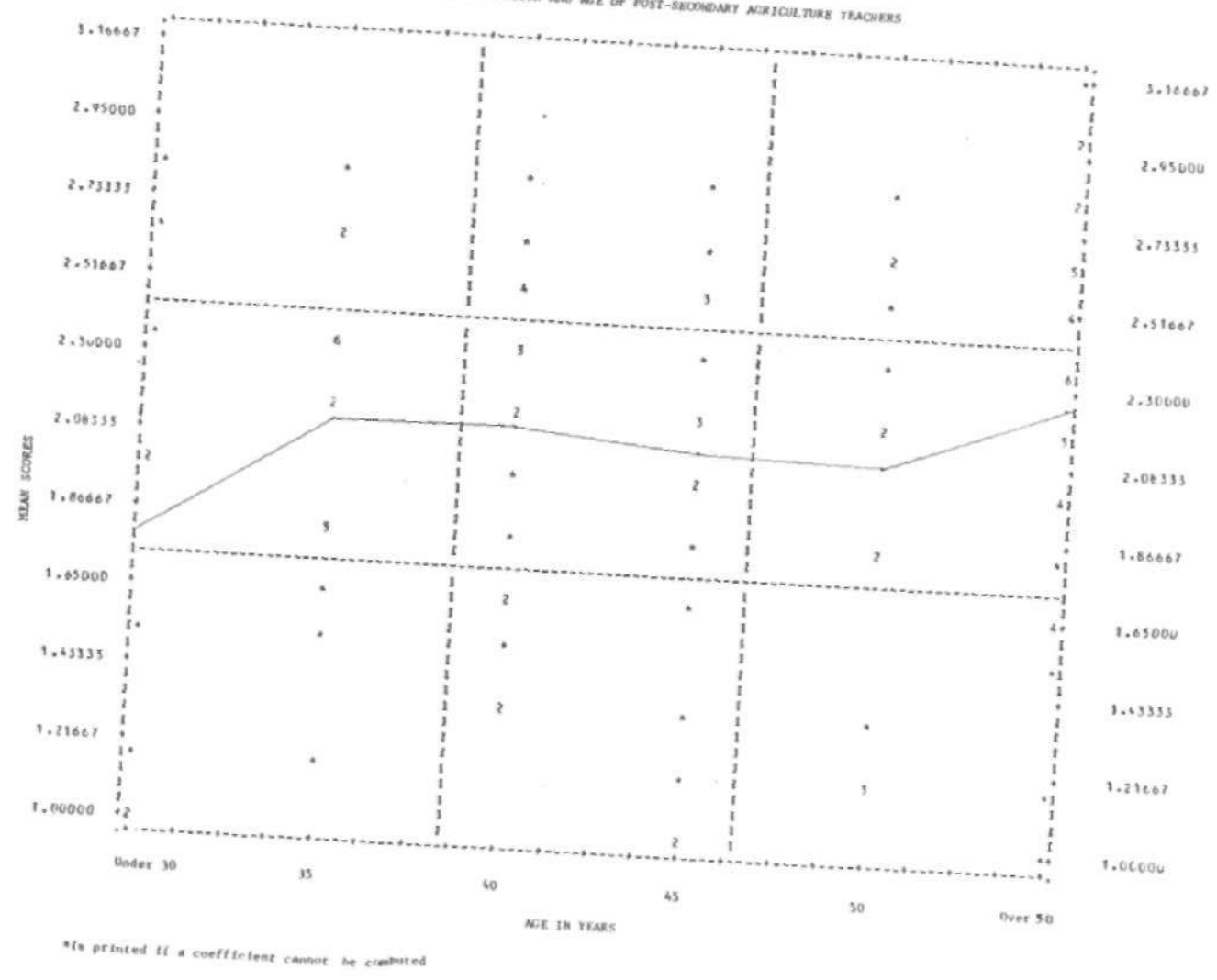
As indicated in Table 22, a negative relationship (r = -.048) was suggested between the level of education of the post-secondary agriculture teachers and the dimension of Escape/Stimulation. The relationship was significant at probability level of .002. With a regression slope of -.114, the trend of relationship is fairly clear. The higher the educational qualification of the post-secondary agriculture teacher, the less influenced he is by the dimension of Escape/Stimulation. This being the case, Escape/Stimulation orientation is of greater importance to those teachers of lower educational qualifications than it is of those with higher qualifications. (Graph 3).

Teaching Experience Variable

A negative relationship was observed between the years of teaching experience of the teachers and Escape/Stimulation dimension (r = -.250, slope = -.013). The correlation was statistically significant at probability level of .004. (Table 22).

GRAPH 2.

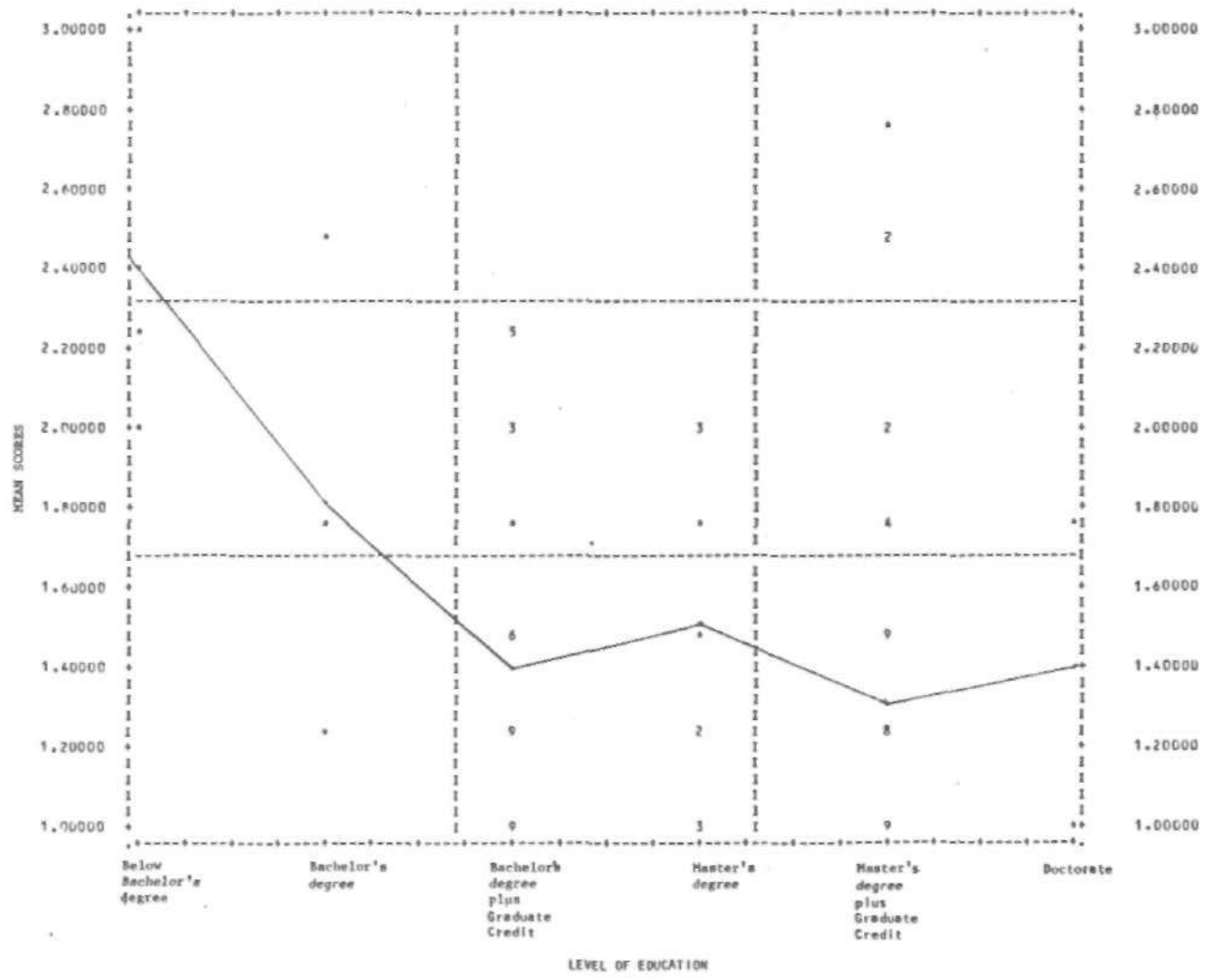
SCATTERGRAM OF SOCIAL WELFARE FACTOR AND AGE OF POST-SECONDARY AGRICULTURE TEACHERS



*Is printed if a coefficient cannot be computed

GRAPH 3.

SCATTERGRAM OF ESCAPE/STIMULATION FACTOR AND LEVEL OF EDUCATION OF POST-SECONDARY AGRICULTURE TEACHERS



A clear-cut trend is not suggested by this relationship. However, it would appear that the post-secondary agriculture teachers were generally negatively influenced to participate in inservice education by the Escape/Stimulation dimension as they advanced in years of teaching experience. (Graph 4).

Variable of Income

There was a significant relationship suggested between the level of income of post-secondary agriculture teachers and Professional Advancement factor with a correlation value of (r = .19, slope: .023), statistically significant at probability level of .023 (Table 22).

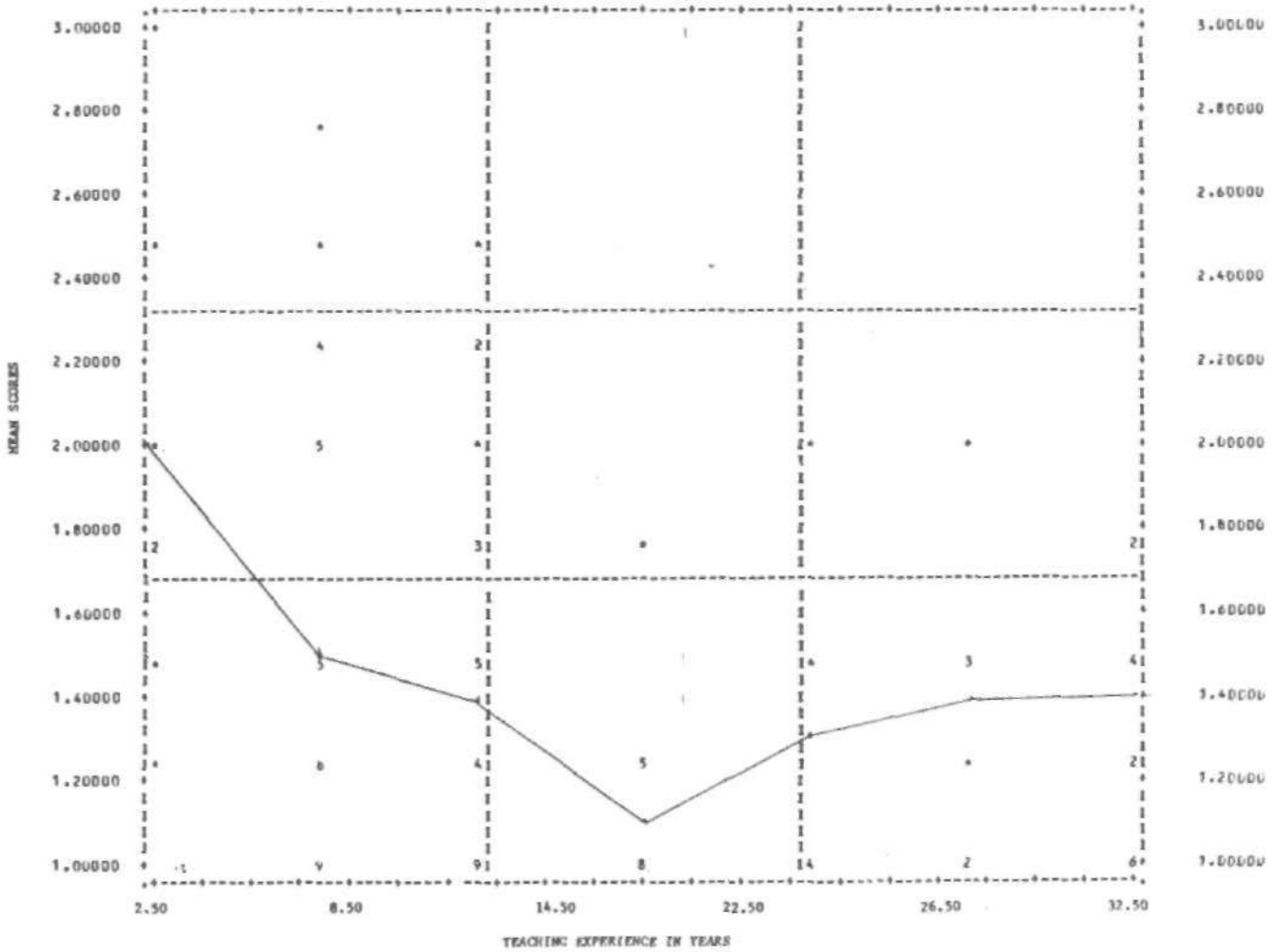
Although not entirely clear-cut as one would have liked to see for the purpose of accurate interpretation of results, the trend of relationship between the two variables seem to suggest that as the post-secondary agriculture teachers' earnings (income) rose, the teachers tended to be more influenced into inservice education participation by the Professional Advancement dimension (Graph 5).

The Escape/Stimulation factor was once again observed to have a negative relationship with the teachers' income. The dimension correlated negatively (-.228, slope: -.02) with income, and found statistically significant at probability level of .009.

Although no clear-cut trend is suggested by the relationship, a close inspection of Graph 6 would seem to indicate that the higher

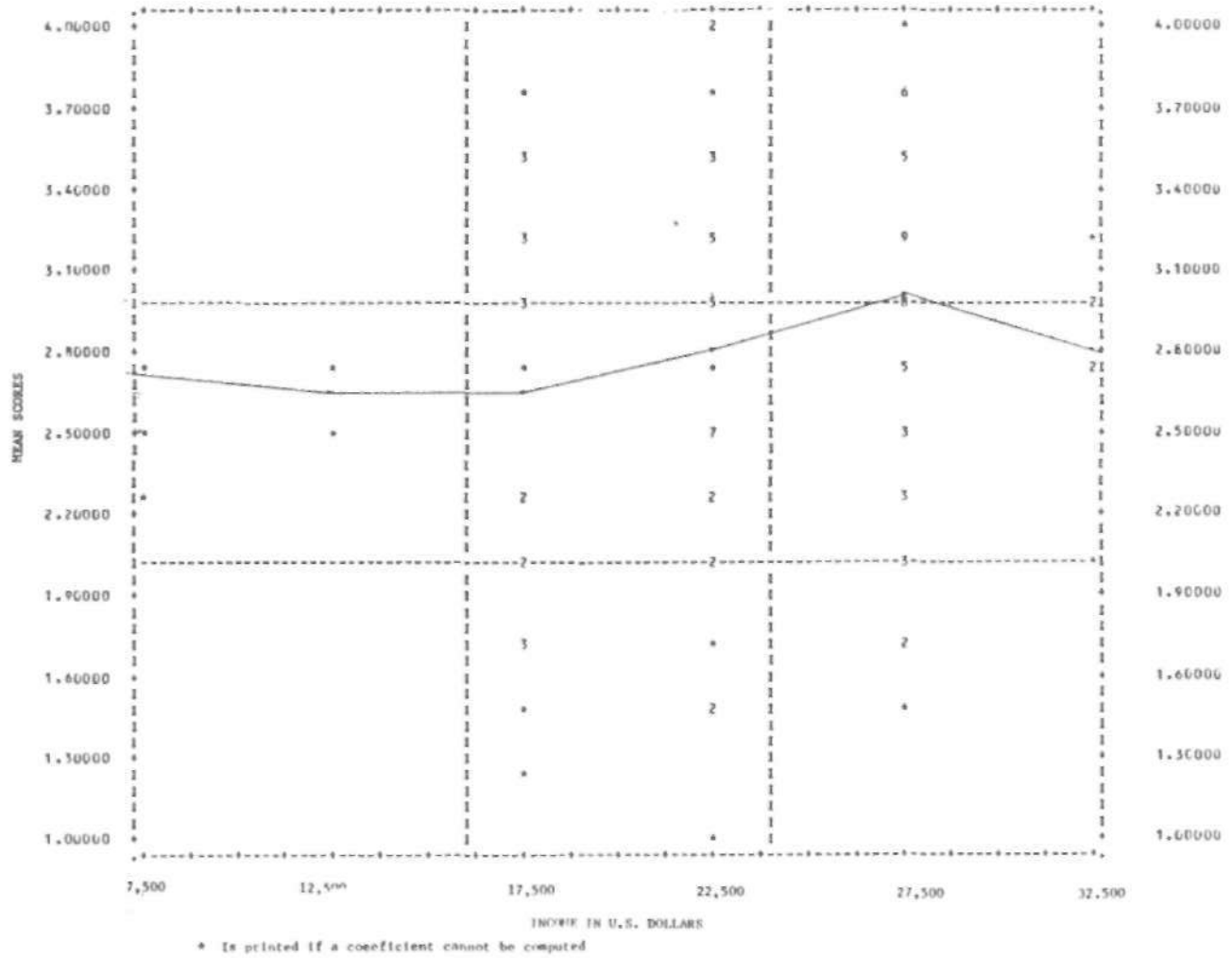
GRAPH 4.

SCATTERGRAM OF ESCAPE/STIMULATION FACTOR AND TEACHING EXPERIENCE OF POST-SECONDARY AGRICULTURE TEACHERS



GRAPH 5.

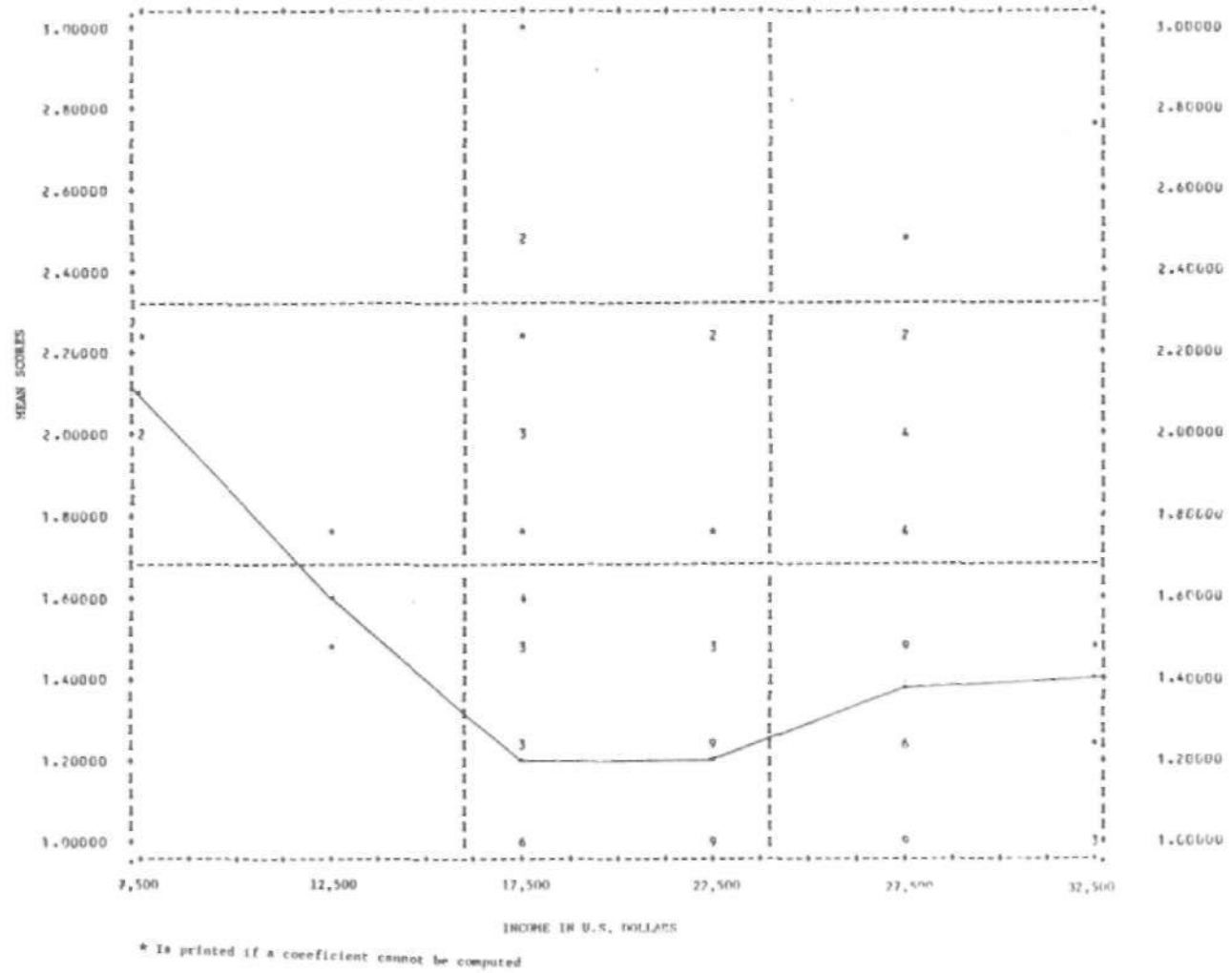
SCATTERGRAM OF PROFESSIONAL ADVANCEMENT FACTOR AND INCOME OF POST-SECONDARY AGRICULTURE TEACHERS



* Is printed if a coefficient cannot be computed

GRAPH 6.

SCATTERGRAM OF ESCAPE/STIMULATION FACTOR AND INCOME OF POST-SECONDARY AGRICULTURE TEACHERS



* Is printed if a coefficient cannot be computed

the level of income of the teacher, the less influenced he/she is by the Escape/Stimulation factor. Apparently, this factor is generally of greater influence to those teachers earning lower incomes in the profession.

Summary

One-way analysis of variance performed on the group mean scores of the post-secondary agriculture teachers with regards to their learning orientations and their personal variables of age, education, teaching experience and income indicated that teachers differed significantly on the following dimensions: Professional Advancement, when grouped by age, Escape/Stimulation when grouped by level of education, Escape/Stimulation and Social Welfare when grouped by teaching experience, and Escape/Stimulation when grouped by income.

In determining the relationships between the learning orientations of the post-secondary agriculture teachers and some selected personal variables, significant correlations were found between:

(a) Age, External Expectations and Social Welfare

(b) Level of Education and Escape/Stimulation

(c) Years of teaching experience and Escape/Stimulation

(d) Level of Income, Professional Advancement and Escape/Stimulation.

It is noteworthy that the Escape/Stimulation factor established negative significant relationships with three of the

five personal variables of the post-secondary agriculture teachers. The relationships were in education, teaching experience and income. Apparently, this factor influenced to a greater extent teachers with lower educational qualifications, fewer years of teaching experience, and lower levels of income.

The factors of External Expectations and Social Welfare were positive with age, and the Professional Advancement was positive with income.

PRESENTATION OF DATA PART II

The Learning Styles of Wisconsin Post-Secondary Agriculture Teachers

The fourth main objective of this investigation was to identify the learning styles of Wisconsin post-secondary agriculture teachers. It was hoped information derived would be valuable in the design and implementation of inservice education programs for the Wisconsin post-secondary agriculture teachers. It was also envisaged that such information utilized conjointly with the teachers learning orientations could offer invaluable rationale for inservice education programming in general.

The investigator sought answers to the following research question: "What are the learning styles of Wisconsin post-secondary agriculture teachers, and how significantly related are the learning styles to the teachers' learning orientations?"

The first part of the research question was answered by utilizing the Kolb's Learning Style Inventory (LSI) to identify the teachers' learning styles; the relationships existing between the respondents' learning styles and their learning orientations were established through the formulation of a research hypothesis.

The Teachers' Learning Styles

The reader is reminded that the Learning Style Inventory (LSI) was developed by Kolb to measure a person's abilities on each of the two dimensions identified by the experiential learning theory.

In form, the LSI is a nine item self-description questionnaire. Each item consists of four words which describes how the individual learns and the respondent is asked to rank order each set of four words. One word in each item corresponds to one of the four learning abilities--Concrete Experience (CE), Reflective Observation (RO), Abstract Conceptualization (AC) and Active Experimentation (AE).

The scoring system provides a measurement of an individual's relative emphasis on each of the four learning abilities as well as the two combination scores that indicate the extent to which an individual emphasizes abstractness over concreteness, and the extent to which action is emphasized over reflection.

An individual's scale score on each of the learning ability is computed by adding the rank numbers for the appropriate six items in each of the four columns corresponding to the four learning abilities. For scoring purposes the following items constituted each of the learning abilities: Concrete Experience -- receptive, feeling accepting, intuitive, present-oriented and experience; Reflective Observation -- tentative, watching, observing, reflecting, observation and reserved; Abstract Conceptualization -- analytical, thinking, evaluative, logical, conceptualization and rational; Active Experimentation -- practical, doing, active, pragmatic, experimentation and responsible. The two combination scores were similarly computed by subtracting Concrete Experience from Abstract Conceptualization (AC-CE), and Reflective Observation from Active Experimentation (AE-RO).

The data in Table 23 is a summary of the mean scores and standard deviations of the post-secondary agriculture teachers on the four learning scales - CE, RO, AC and AE. The mean scores on the learning modes were also ranked 1 to 4, with 1 being the lowest and 4 the highest on the scale.

The learning abilities for the total sample (N = 114) ranked in the following order:

1. Active Experimentation (Mean Score = 17.18)
2. Abstract Conceptualization (Mean Score = 14.16)
3. Concrete Experience (Mean Score = 14.16)
4. Reflective Observation (Mean Score = 11.92)

Obviously, the teachers regarded the Active Experimentation the most important as a mode of learning, followed by Abstract Conceptualization. Reflective Observation is the least emphasized by the teachers as a learning ability.

It is no sdrprise that the post-secondary agriculture teachers regarded Active Experimentation as the most important learning mode considering the nature of their profession. Active Experimentation indicates an active "doing" orientation to learning that relies heavily on experimentation. High AE individuals learn best when they can engage in such things as projects, homework, or small group discussions. They dislike passive learning situations such as lectures characterizing the Reflective Observation learning mode. It is no wonder therefore that the post-secondary agriculture

TABLE 23

LEARNING STYLE INVENTORY MEAN SCORES, STANDARD DEVIATIONS AND RANKINGS FOR WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS

N=114

Learning Ability	Mean Score	Standard Deviation	Ranking	AC-CE	AE-RO
Concrete Experience(CE)	14.16	3.41	2		
Reflective Observation(RO)	11.92	3.50	1	1.98	5.26
Abstract Conceptualization (AC)	16.58	3.90	3		
Active Experimentation (AE)	17.18	3.44	4		

*Mean scores ranked 1 to 4, 1 being the lowest and 4 being the highest.

teachers ranked least on Reflective Observation as a learning ability. Both Abstract Conceptualization and Concrete Experience are of intermediate in nature as learning abilities emphasized by the teachers.

With a standard deviation range of 3.41 to 3.90, it is reasonable to conclude that the respondents were about evenly clustered around each of the learning abilities. To determine the learning style of Wisconsin post-secondary agriculture teachers, a composite score was computed by subtracting the two mean scores on each axis to produce the following:

AC - CE = 16.58 - 14.60 = 1.98

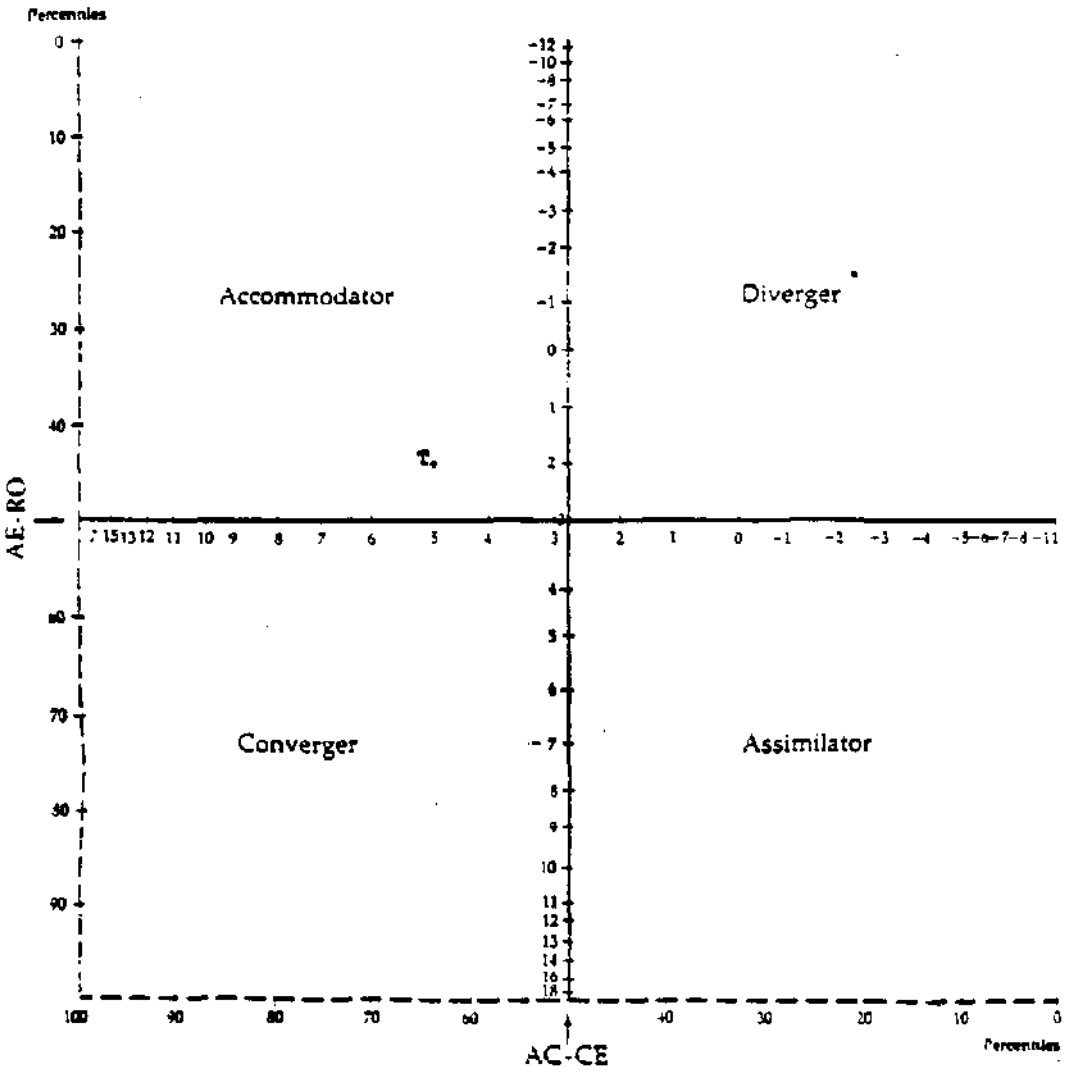
AE - RO = 17.18 - 11.92 = 5.26

The composite score fell within the Accommodator quadrant. (See Figure 1 marked 'T'). A close observation of the chart indicates however that the tendency of this group in this direction is less than moderate. This is saying in another word, that the post-secondary agriculture teachers also emphasized other learning styles if only to a lesser extent. The mean scores on the learning abilities (Table 23) are indicative of this fact.

The Accommodator learning style is to be expected of the post-secondary agriculture teachers considering their professional role in the society. The Accommodator is described as best at Concrete Experience and Active Experimentation learning abilities. He likes to do things, carrying out plans, experiments and involves himself in

FIGURE 1

KOLB'S LEARNING STYLE TYPE GRID.



"T" indicates the Learning Style of Wisconsin Post-Secondary Agriculture Teachers

new experiences; he is adaptable and at ease with people. His educational background is often in technical or practical fields, and such people are commonly found in action-oriented jobs.

Hypothesis

The reader is reminded that only three learning orientations were found significant in influencing the Wisconsin post-secondary agricutlure teachers to participate in inservice education. They are: Professional Advancement, External Expectations and Cognitive Interest (Table 17). Since Social Welfare, Social Relationships and Escape Stimulations did not play a major role in influencing the teachers, the factors were excluded from further computations relating to the relationship between the teachers' learning orientations and their learning abilities.

The following null hypothesis was formulated "There is no significant difference in the learning abilities of Wisconsin post-secondary agriculture teachers whose learning orientations are characterized by:

a) Professional Advancement

b) External Expectations, and

c) Cognitive Interest".

The data in Table 24 represent the analysis of the relationship between the learning abilities and the learning orientations of the teachers. The Friedman's two-way analysis of variance by ranks indicated a chi-square value of 7.81 with three degrees of

TABLE 24

THE RELATIONSHIP BETWEEN THE LEARNING ORIENTATIONS AND LEARNING ABILITIES OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS

Learning Orientation		Learning Ability: Concrete Experience	Reflective Observation	Abstract Conceptual-ization	Active Experimenta-tion
Entire Pop. (N = 114)	Mean	14.16	11.92	16.58	17.18
	SD	3.41	3.50	3.91	3.44
Professional Advance-ment (N = 56)	Mean	13.68 (2)	11.52 (1)	16.41 (3)	17.07 (4)
	SD	3.80	3.75	4.20	4.26
External Expectations (N = 20	Mean	14.50 (2)	12.10 (1)	17.15 (3)	17.55 (4)
	SD	2.50	3.34	3.15	2.80
Cognitive Interest (N = 50)	Mean	14.42 (2)	12.16 (1)	17.08 (4)	16.92 (3)
	SD	3.34	3.06	3.62	2.18
Sum of Ranks/Column		6	3	10	11

$X^2 = 7.81$, $df = 3$ $p = .05$

NOTE: Ranks assigned are indicated in parenthesis: 1 represents lowest rank and 4 the highest.

freedom. This calculated chi-square value shown in the table was less than the chi-square table value of 7.81473 at 0.05 level of significance. The null hypothesis that teachers with certain learning orientations do not differ in their learning abilities was rejected. This result shows that there is a significant difference in the learning abilities of Wisconsin post-secondary agriculture teachers whose learning orientations are characterized by Professional Advancement, External Expectations and Cognitive Interest.

A close examination of the data in Table 24 reveals that the respondents have the highest mean scores in Active Experimentation learning ability for all the tested learning orientations except in Cognitive Interest. This result tallies with the emphasis put by the entire population (N = 114) where Active Experimentation ranked as most important. The Reflective Observation learning ability ranked lowest for all the categories of learning orientation. Further analysis of data reveals that Professional Advancement and External Expectations ranked alike for all the learning abilities while Cognitive Interest ranked differently. The data seemed to suggest that those teachers whose learning orientation is based in Cognitive Interest ranked Abstract Conceptualization highest as their learning style.

Summary

Part II of this investigation presented the findings regarding the learning styles of Wisconsin post-secondary agriculture teachers.

The analysis of data revealed that the teachers ranked, from highest to lowest, in their learning abilities in the following order:

Active Experimentation

Abstract Conceptualization

Concrete Experience, and

Reflective Observation

When the learning abilities were considered from the two composite dimensions AC-CE and AE-RO, the teachers' learning style was discovered to be that of Accommodator, although their tendency in this regard was relatively weak. Invariably the post-secondary agriculture teachers also emphasized, even though to a lesser extent, other learning styles.

The relationship between the respondents' learning modes and their learning orientations revealed a statistically significant difference. While the factors of Professional Advancement and External Expectations ranked alike for the four learning abilities, the Cognitive Interest ranked differently. Teachers with the Cognitive Interest learning orientation emphasized Abstract Conceptualization as a learning ability most important to them; whereas those classified under Professional Advancement and External Expectation regarded Active Experimentation as their most important learning mode.

FOOTNOTE

1. Barry R. Morstain, J. C. Smart. "Reasons for Participation in Adult Education Courses: A Multivariate Analysis of Group Differences." Adult Education, 24, 2, 1974, pp. 85-98.

CHAPTER V

SUMMARY, CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

This chapter presents a summary of the study, conclusions based on the findings, implications, and recommendations.

Summary of the Study

The summary of this study contains the following sections: purpose and objectives of the study, methodology of the study, and findings of the study.

The Purpose and Objectives of the Study

The major purpose of this study was twofold: 1) to investigate the orientations to learning of Wisconsin post-secondary agriculture teachers with regards to their inservice education participation, and 2) to determine the relationships between the teachers' learning orientations and their learning styles.

It was envisaged that an indepth knowledge of the post-secondary agriculture teachers' learning orientations and their learning styles could provide the necessary rationale for inservice education leaders to evolve articulated programs in design, planning and implementation, much to the benefit of the participating teachers.

The objectives formulated for the study were:

1) To describe the personal characteristics of Wisconsin post-secondary agriculture teachers with regards to their age, marital status, educational background, length of teaching experience, and level of income.

2) To determine the learning orientations of Wisconsin post-secondary agriculture teachers in relation to their inservice education participation.

3) To determine if significant variations exist in the learning orientations of the post-secondary agriculture teachers in groupings by age, level of education, length of teaching experience, and level of income. The relationship between the teachers' personal characteristics and their learning orientations would also be determined.

4) To determine the learning styles of the post-secondary agriculture teachers and relate the learning styles to the teachers' learning orientations.

In order to accomplish objectives three and four, several hypotheses were formulated and tested for statistical significance.

For test of significance of the learning orientations scores, the following null hypotheses were formulated:

(a) There is no significant difference in the learning orientations of post-secondary agriculture teachers with varying age backgrounds.

(b) There is no significant difference in the learning orientations of post-secondary agriculture teachers with different levels of education.

(c) There is no significant difference in the learning orientations of post-secondary agriculture teachers with varying years of teaching experience.

(d) There is no significant difference in the learning orientations of post-secondary agriculture teachers with different levels of income.

The relationship between the teachers' personal variables and their learning orientations was explored through the formulation of the following null hypothesis:

There is no relationship between the post-secondary agriculture teachers' personal variables of age, educational level, teaching experience, level of income and their learning orientations of:

a) Social Relationships

b) Professional Advancement

c) External Expectations

d) Escape/Stimulation

e) Cognitive Interest

f) Social Welfare

The relationship between the teachers' learning abilities and their learning orientations was explored by formulating the following null hypothesis:

There is no significant difference between the learning abilities of post-secondary agriculture teachers whose learning orientations are characterized by:

a) Professional Advancement

b) External Expectations

c) Cognitive Interest

Methodology of the Study

A summary of the methodology for this study included: Source of data, instrumentation, data collection and data analysis.

Source of Data

The population for the study was the entire post-secondary agriculture teachers in Wisconsin employed by the Wisconsin Board of Vocational, Technical and Adult Education (WBVTAE) involved in active teaching in the state at the time the study was conducted. Teachers whose duties were of administrative nature were excluded from the study. Technicians were also excluded.

The final population for this investigation comprised 151 post-secondary agriculture teachers, spread over 15 districts in Wisconsin. For various reasons including the voluntary decision of some teachers not to participate in the exercise, or questionnaires having been so badly completed as to render them unutilizable, the number of post-secondary agriculture teachers who participated in the study dwindled to 114, which comprised the entire population for the study. The names of the respondents were compiled from

the directory of teachers supplied by the consultant in charge of the Agricultural Education section of Wisconsin Board of Vocational, Technical and Adult Education.

Instrumentation

The study employed the revised version of the Education Participation Scale (EPS) by Haag[1] to collect the data for the study. The revised version of the EPS instrument contained 40 items and was considered suitable for eliciting appropriate responses from the post-secondary agriculture teachers on their motives for inservice education participation.

The 40-item version of EPS developed by Haag had a mean item test-retest reliability of .60. The items were cast on a four-point scale, indicating no influence, little influence, moderate influence and much influence response to a particular EPS item.

The scale poles were systematically varied so the "No influence" or "Much influence" category is sometimes on the left side of the page. Items that were expected to load on each factors were randomly distributed throughout the instrument.

A personal data sheet was incorporated in the first part of the instrument for the collection of pertinent demographic information.

Part III of the instrument was designed to gather information about the respondents' learning abilities, utilizing the Learning Style Inventory (LSI) developed by Kolb.[2] In this section, each

respondent was asked to rank order each set of four words, assigning a four to the word which best described his/her learning style, a 3 to the word which is best, a 2 to the next most characteristic word, and 1 to the word which is least characteristic of the learner. The data arising from these formed the basis for determining the learning styles, including the learning abilities.

Data Collection

Data collection from the post-secondary agriculture teachers was by mail questionnaires to 151 post-secondary agriculture teachers in the state. A cover-letter describing the major objectives of the study accompanied each questionnaire form to the respondent. Also enclosed was a self-addressed postage-paid envelope for returning the completed questionnaire.

In order to improve rate of response, two letters were mailed to non-respondents at different times requesting their response. Data collection lasted nine weeks by which time 122 responses had been received, representing 81 percent of the entire population. Because of faulty completion and some other reasons, eight of the completed questionnaires were found untilizable.

Data Analysis

The data gathered from the respondents were punched on IBM cards for computer runs in the Madison Academic Computing Center (MACC).

The statisnical techniques used to analyze the collected data included:

1) The SPSS subprogram FREQUENCIES: This statistical technique was applied to gathered data to describe certain demographic variables pertaining to the post-secondary agriculture teachers.

2) The SPSS subprogram FACTOR: This statistical technique was applied to the gathered data to identify the learning orientations underlying the teachers' participation in inservice education.

3) The SPSS subprogram COMPUTE. Education Participation Scale items were scored (1) for "No Influence", (2) for "Little influence", (3) for "Moderate influence" and (4) for "Much influence). The SPSS subprogram COMPUTE applied to the EPS scale scores enabled the researcher to compute both the learning orientations (factors) and the learning abilities from the EPS variables and Learning Style Inventory respectively.

4) The SPSS subprogram ONEWAY analysis of variance: This statistical technique performed on the respondents' mean scores enabled the researcher to determine significant variations across the learning orientations of the post-secondary agriculture teachers grouped by some selected personal variables.

5) The SPSS subprogram SCATTERGRAM: This statistical technique enabled the investigator to determine the relationship between the teachers' learning orientations and their personal variables of age, level of education, legnth of teaching experience, and level

of income.

6) The Friedman's Test: The Friedman's two-way analysis of variance by ranks was applied to test the data collected for significant differences between the learning abilities, based on the teachers' learning orientations of Professional Advancement, External Expectations and Cognitive Interest.

The level of significance for the study was .05.

Summary of Findings

The major findings of this study are summarized and presented in several parts according to the objectives formulated.

First Objective

> To describe the personal characteristics of Wisconsin post-secondary agriculture teachers with regards to their age, marital status, educational background, length of teoching experience, and level of income.

It was discovered that the average age of the post-secondary agriculture teacher in Wisconsin was 45. Thirty-seven of 114 respondents (32.5 percent) represented the single largest subgroup over 51 years of age.

Majority of the post-secondary agriculture teachers (91.2 percent) were married and living with their spouses.

In Wisconsin, the post-secondary agriculture teacher's average educational qualification is a Master's degree plus some graduate credits. Very few teachers (2.6 percent) held educational qualifications lower than the Bachelor's degree, and fewer still

(1.8 percent) were holders of the Doctorate degree.

The teachers were asked to indicate the number of years of teaching experience they have had. Data revealed that the post-secondary agriculture teachers had taught for an average of 17 years. While 7 teachers (6 percent) had a maximum of four years of teaching experience, 14 (12.3 percent) had taught for up to 30 years or more.

The mean annual income of the post-secondary agriculture teachers in Wisconsin was found to be $26,215.00. Fifty-two percent of the respondents represented the largest group with incomes between $25,001.00 and $30,000.00. A standard deviation of 1.1 indicated some variation in income within the group.

Second Objective of the Study

> To determine the learning orientations of Wisconsin post secondary agriculture teacher's with regards to their inservice education participation.

Individual item responses (or motives) and selected grouping of item responses by motivational typologies were identified which were influential in the decisions of the post-secondary agriculture teachers to continue their education. Out of 40-EPS items, four were found to be very influential. In a ranking order of their influence they were:

EPS Item Number	Reason
18	To increase my job competence
1	To seek knowledge for its own sake
3	To secure professional advancement
32	To meet formal requirements

It is logical to understand the relationship between the four EPS items listed above. Because of the nature of their profession, the post-secondary agriculture teachers are vocationally oriented. An increase in the level of job competence, therefore, is not only an insurance against job security but a way to gain professional status. Job security might also be basic to some teachers being influenced by the motive of compliance with formal requirements now that Wisconsin is making mandatory inservice education participation a requirement for relicensure.

It is also logical to understand the relationship between the first, second and third items listed above. These are in line with the practical nature of content material, usually the focus of curriculum of most inservice education activities. It indicates that the content of the learning experience begs the response.

It is noteworthy that two of the EPS items regarded most important by the respondents clustered under Professional Advancement, a typology regarded by the teachers as most influential (mean score: 2.79) in their inservice education participation decisions.

The remaining two items, number 1 and number 32 loaded under two separate typologies.

Some teachers might have perceived educational activities and "seeking knowledge for its own sake" as part of what is expected, hence the strong emphasis put on item 1 which ranked as one of the highest in the list.

Other influential items in order of importance included 7, 13, 2, 6, 20, 15, 29, 15, 20, 25, 40 and 30. The mean scores for the items ranged from 2.40 to 2.90.

Item 34 - "To escape an unhappy relationship" (mean: 1.10) was the least influential in motivating teachers' participation in inservice education.

Nine items failed to load significantly on any of the six learning orientations (factors) found to influence the teachers' participation in inservice education. The items included numbers 2, 11, 12, 13, 15, 16, 33, 34, and 35. Since the items failed to load up to .40, they were excluded from further computations in the analysis of data.

Six learning orientations were obtained from factoring the 40-EPS items. They were:

1. Social Relationships (SR)
2. Professional Advancement (PA)
3. External Expectations (EE)
4. Escape/Stimulation (ES)
5. Cognitive Interest (CI)

6. Social Welfare (SW).

Examination of the mean scale scores clustered by the six motivational typologies suggest that no single cluster of responses seem to have overriding influence on participation decisions of the post-secondary agriculture teachers. However, Professional Advancement dimension (mean score: 2.79) was the most influential in the teachers' decision to participate, followed by the Cognitive Interest (mean score: 2.15) dimension. The External Expectations (mean score: 2.15) indicated some influence.

This was the general pattern of responses reported in the 1974 participation study by Morstain and Smart.[3] They indicated that, compared to other factors, more importance was placed by the respondents on the PA and CI dimensions.

In this investigation, the respondents generally placed lower values on Social Welfare, Social Relationships, and Escape/Stimulation as dimensions influencing their inservice education participation.

Overall, the results indicate that the motives which influence teachers to participate in inservice education programs are clearly not within the Activity-Oriented typology as described by Houle.[4] The post-secondary agriculture teachers are most influenced in their inservice education participation by the Professional Advancement factor. The teachers obviously sought to improve their professional knowledge, aspire to a higher status in their job, and attain professional competency.

Based on Boshier's[5] study of 1971 categorizing the typology of motivational orientations as representing growth - or deficiency motivated behavior, the teachers in this study appeared to be growth-motivated, self-actualizing persons.

It is noteworthy, that External Expectations dimension did not feature as prominently as Professional Advancement; this is perhaps because the post-secondary agriculture teachers are yet to be fully subjected to mandatory inservice education participation.

Apart from being slightly influenced by the social Welfare dimension, teachers did not perceive themselves as being strongly influenced by the dimensions of social nature. The fact that Escape/ Stimulation was not regarded as an influential factor is evidence that the teachers not only like their jobs but that they derive satisfaction from performing them.

Age as an Independent Variable

Age variations of the post-secondary agriculture teachers with regards to the dimensions motivating them to participate in inservice education were observed. Those reasons dealing with Professional Advancement, Cognitive Interest, and External Expectations appeared to be important to all age groups. However, older teachers (about 50 years of age or more) appeared to be more influenced by these three dimensions than the younger ones were.

Level of Education as an Independent Variable

As one might expect, holders of the Bachelor's degree were generally more influenced by the dimensions of Professional Advancement and Cognitive Interest. However, in general, respondents were moderately influenced by the PA factor but more so for the category of teachers with the Doctorate degree qualification. Analysis of data seems to suggest that for the CI dimension, the higher the educational qualifications of the teacher, the less influenced he/she is by this motive.

Those teachers with the Bachelor's degree qualification were more influenced by the External Expectations factor than any other group. Other factors of social nature and the Escape/Stimulation had little or no influence on the inservice education participation of the teachers irrespective of the educational qualifications possessed.

Teaching Experience as an Independent Variable

When the Wisconsin post-secondary agriculture teachers were grouped by teaching experience, it was discovered that their inservice education participation was generally influenced by the PA and CI dimensions irrespective of background years of teaching experience. Other dimensions had little or no influence on the teachers. However, teachers with the least years of teaching experience and presumably the younger ones had higher mean scores on most of the dimensions, but particularly so for PA and CI. The dimensions are at their lowest

ebb about the mid-career point of the teachers professional lives; thereafter, a steady rise in influence is observed.

If age has any relationship with years of teaching experience, then it is no wonder (as was observed earlier when age was treated as an independent variable) that beyond the mid-career point, the post-secondary agriculture teachers appeared to slowly become more sensitive to Professional Advancement, Cognitive Interest and External Expectations as influencing factors in their inservice education participation.

Level of Income as an Independent Variable

A general trend was suggested in relation to the respondents' income levels and the influencing dimensions. Although, irrespective of income level, the post-secondary agriculture teachers were generally influenced to participate in inservice education by the PA and CI dimensions, with increase in income the teachers tended to be more influenced by the Professional Advancement factor. As such, the low-paid teachers (earning less than $10,000 per year) were least influenced by this factor while those earning the highest income ($25,001 or higher) were most influenced by the dimension.

The opposite could be observed with the Cognitive Interest dimension. The lower the teacher's income, the more influenced he/she is by the Cognitive Interest dimension, which at some point is changed to Professional Advancement as the teacher attains a higher income level.

First preference for Learning Orientation

A frequency count of the learning orientation most preferred by individual post-secondary agriculture teachers was taken. It should be realized that cases were encountered where an individual expressed simultaneously equal preferences for two orientations. Such cases were counted under the appropriate factor.

The frequency count indicated that the dimension of Professional Advancement (N = 56) took a leading role followed by Cognitive Interest (N = 50) and External Expectations (N = 20) in motivating teachers' participation. Other dimensions - Social Welfare (N = 3), Social Relationships, (N = 1) and Escape/Stimulation (N = 0) were relatively of little or no preference to the teachers. This observation is very much in line with the observations made earlier in this study.

Third Objective of the Study

The objective was two-fold:

> (a) to determine if the learning orientations influencing the post-secondary agriculture teachers to participate in inservice education exhibited significant statistical variations when individuals were grouped within the demographic variables of age, level of education, length of teaching experience, and level of income, and (b) to determine the statistical relationships existing between the teacbers' learning orientations and their personal variables of age, level of education, length of teaching, experience, and level of income.

In order to achieve this objective, five null hypotheses were formulated.

Hypothesis One: There is no significant difference in the learning orientations of post-secondary agriculture teachers with varying age backgrounds.

Data analayzed under the stated hypothesis for age revealed that a significant variance occurred in the dependent variable of Professional Advancement. The older teachers generally regarded this dimension as being more influential in their decisions to participate in inservice educafion program. No significant differences were found in the remaining five dimensions. Since only one factor out of six was statistically significant, the investigator regarded this insufficient evidence to reject the null hypothesis.

Level of Education as an Independent Variable

Hypothesis Three: There is no significant difference in the learning orientations of post-secondary agriculture teachers with different levels of education.

Data analysis revealed that F test showed a significant variation on Escape/Stimulation factor. Teachers having qualifications of less than the Bachelor's degree were found significantly different from holders of the Bachelor's degree plus graduate credits, and holders of the Master's degree plus graduate credits. Those teachers with qualifications less than the Bachelor's degree rated Escape/Stimulation much higher than the two other groups. No other significant variations were found in the list of orientational factors. Since only one factor was significantly different out of six, there was insufficient evidence to reject the null hypothesis.

Length of Teaching Experience

> Hypothesis Four: There is no significant difference in the learning orientations of post-secondary agriculture teachers with varying years of teaching experience.

Data analysis indicated significant variations on two learning orientations: Escape/Stimulation and Social Welfare. Scheffe procedure indicated that the group of teachers with 4 years of teaching experience (or less) was significantly different in their scores on Escape/Stimulation from the 16-20 year-teaching experience group. The group of teachers with 4 years (or less) of teaching experience was most motivated by the Escape/Stimulation factor.

As for Social Welfare orientation found statistically significant, Scheffe procedure could not detect any pairs of groups that were statistically different at the .05 probability level. At a significance level of .05, the Social Welfare dimension could only be regarded as a borderline case which might, in part, have accounted for Scheffe method of multiple comparisons incapable of separating the pairs of groups. A casual observation would however reveal that teachers having 21-25 years of teaching experience were most influenced by this factor in contrast to the group having 16-20 years, the least influenced. Because only two of the six learning orientations were found statistically significant, the evidence was insufficient to reject the null hypothesis.

Level of Income as an Independent Variable

> Hypothesis Five: There is no significant difference in the learning orientations of post-secondary agriculture teachers with different levels of income.

Analysis of data revealed a significant variation on Escape/Stimulation factor. Although a statistically significant variation was observed with regards to Escape/Stimulation, Scheffe method of multiple range test could not detect pairs of groups that were statistically different at .05 probability level. However, an inspection of the mean scores reveals that teachers with lower incomes generally scored significantly higher than those with higher incomes. Teachers with lower incomes are therefore more influenced into inservice education participation by Escape/Stimulation than those with higher incomes.

No significant differences were detected in the remaining five motivating factors. The null hypothesis was not rejected since only one factor was found statistically significant.

Relationships Between Learning Orientations and Selected Personal Variables

> Hypothesis: It was hypothesized that there is no relationship between the post-secondary agriculture teachers' personal variables of age, educational level, teaching experience, level of income and their learning orientations of Social Relationships, Professional Advancement, External Expectations, Escape Stimulation, Cognitive Interest, and Social Welfare.

A statistically significant relationship was found between the age of post-secondary agriculture teachers and the dimension

of External Expectations. The trend of relationship, although not quite as clear, suggests that as the teachers grew older, they tended to become more motivated by the External Expectations factor.

A positive relationship was also suggested between age of the respondents and the Social Welfare factor. This was statistically significant at probability level of .05. As the post-secondary agriculture teacher grew older (and presumably became more professionally experienced) Social Welfare became an important factor motivating his/her inservice participation.

The level of education of the respondents and Escape/Stimulation factor are significantly negatively related. Apparently the higher the educational level of the post-secondary agriculture teacher, the less motivated he/she is by the Escape/Stimulation dimension.

A significant negative correlation was also found between the independent variable of teaching experience and the dependent variable of Escape/Stimulation factor. The post-secondary agriculture teachers are negatively motivated by Escape/Stimulation to participate in inservice education as they advanced in years of teaching experience. Teachers with the highest number of years of teaching experience were least influenced by the orientation.

A statistically significant positive relationship was found between income of teachers and the Professional Advancement factor. Although not quite so clear, the trend seems to suggest that with

increase in income, the teachers tended to be more motivated by the Professional Advancement factor in their inservice education participation.

A significant negative relationship was also suggested between the teachers' incomes and Escape/Stimulation factor. The trend suggested by the relationship appears to be that with increase in income, teachers are less influenced by the Escape/Stimulation orientation.

The Learning Style of Wisconsin Post-Secondary Agriculture Teachers

Fourth Objective of the Study

The fourth objective of this study was to identify the learning styles of the post-secondary agriculture teachers, and to determine if significant relationships exist between the teachers' learning abilities and their learning orientations.

Analysis of data revealed that the teachers' most preferred learning ability is Active Experimentation, followed in order by Abstract Conceptualization, Concrete Experience, and lastly, by Reflective Observation.

A composite score computed by subtracting the mean scores on each axis, AC-CE and AE-RO, revealed that the teacher's learning style fell within the Accommodator quandrant, although their tendency toward this learning style could only be described as less than moderate. Apparently, the post-secondary agriculture teachers also

exhibit other learning styles if only to a lesser degree.

In Chapter IV, it was fully established that the post-secondary agriculture teachers expressed preferences for three learning orientations. They were: Professional Advancement, External Expectations and Cognitive Interest.

A null hypothesis was formulated to describe the relationship between the teachers' learning orientations and their learning abilities.

> Hypothesis: There is no significant relationship in the learning abilities of Wisconsin post-secondary agriculture teachers whose learning orientations are characterized by Professional Advancement, External Expectations, and Cognitive Interest.

Analysis of data revealed a significant variation in the relationship between the learning orientations and learning styles of the post-secondary agriculture teachers. The null hypothesis was therefore rejected. An inspection of the data reveals that the post-secondary agriculture teachers whose learning orientations are based on Professional Advancement and External Expectations are similar in the type of learning abilities they emphasize. The learning abilities emphasized ranked from most to least important: Active Experimentation, Abstract Conceptualization, Concrete Experience, and Reflective Observation.

The fact that the post-secondary agriculture teachers regarded Active Experimentation as the most important learning mode may have something to say for the nature and the character of the teachers'

profession. The post-secondary teachers are active individuals who rely heavily on experimentation; they dislike passive learning situations such as lectures characteristic of the Reflective Observation learning ability.

But teachers whose learning orientations are based on Cognitive Interest ranked their learning abilities differently from the other two categories of Professional Advancement and External Expectations, with a leading emphasis being placed on Abstract Conceptualization, followed by Active Experimentation. The difference in ranking occurred mainly with these two learning abilities (AC and AE), otherwise no difference occurred in the way the four learning abilities ranked against the learning orientations. It is quite understandable that individuals who are cognitively oriented should emphasize Abstract Conceptualization as opposed to Active Experimentation; this is perhaps the more reason why the post-secondary agriculture teachers' combination scores on the two axis of LSI did not put them strongly in the Accommodator quandrant.

Conclusions of the Study

The following conclusions are reached based on the highlights of the findings in this study:

1. The Wisconsin post-secondary agriculture teachers are mature men and women in their middle years and most of them are married. The teachers are on the

average well qualified educationally and experienced. They also appear to be reasonably well remunerated for the job they do.

2. The post-secondary agriculture teachers participate in inservice education programs motivated largely by the Professional Advancement and Cognitive Interest typologies, and to a lesser extent by the External Expectations factor. The respondents regard the Social Welfare, Social Relationships and Escape/Stimulation factors as generally having little or no influence on their participation decisions. The post secondary agriculture teachers participate in inservice education most influenced by the motives to secure professional advancement, attain a higher status in the jobs, increase job competence, and earn a degree, diploma or certificate. The Cognitive Interest dimension motivates the teacher because it helps him/her seek knowledge for its own sake, satisfy an enquiring mind, learn for the joy of learning, and learn for the sake of learning. External Expectations factor is motivating to the teacher to enable him/her carry out the recommendations of some authority, meet formal requirements, comply with someone's suggestions and instructions. Those dimensions that are social in nature -- Social Relationships and Social Welfare - and Escape/Stimulation are generally not regarded motivating in the teachers' decisions to

participate in inservice education.

3. Although Professional Advancement, Cognitive Interest and Externgl Expectations are relatively important to most post-secondary agriculture teachers as factors motivating their inservice education participation, certain groups of individuals within the profession regard the dimensions more influencing. Such individuals include older teachers (50 years or more), holders of the Bachelor's degree, teachers with the least number of years of teaching experience, and teachers with high incomes. External Expectations factor is an important influencing element to the teachers with low educational qualifications, just as Cognitive Interest dimension is important to teachers with low incomes.

With advancing age and increased income, (and beyond the mid-career point) the post-secondary agriculture teachers tend to gradually become more influenced into inservice education participation by the Professional Advancement, Cognitive Interest and External Expectations dimensions. Even though the Social Welfare dimension is generally not regarded by the respondents as having much influencing character, the older teachers and those with high incomes tend to have some orientation toward the dimension.

4. The post-secondary agriculture teachers are significantly different in their emphasis on Professional Advancement factor when split into age groups. The older groups are more motivated by this dimension than the younger groups are.

   The level of the teacher's education is an important element with regards to the degree to which he/she is influenced by the Escape/Stimulation factor. Teachers with the lowest educational qualifications are most influenced by this dimension. The number of years of teaching experience of the teacher is an important element whether or not the individual will be significantly motivated by Escape/Stimulation and Social Welfare dimensions. Teachers with the least number of years of teaching experience are most significantly motivated by the Escape Stimulation factor. With the Social Welfare factor, the distinction is not so clear. Groups of teachers with varying incomes differ significantly in the extent to which they are influenced by the Escape/Stimulation factor. Those teacher's with the lowest income appear most influenced by this dimension.

5. There are positive and negative significant relationships between the teachers' personal characteristics and the learning orientations with regards to their inservice

education participation. Positive relationships are found between the respondents' age and the External Expectations dimension; between age of the teachers and Social Welfare factor; and beetween income of the respondents and Professional Advancement factor. This in effect means, the older the teacher, the more sensitive he/she is to regulations set by the authorities and the attitudes reflecting broader humanitarian community service. With the Professional Advancement factor, the higher the teacher's income, the more influenced he is by the factor. The Escape/ Stimulation factor has a negative relationship with educational level of the respondents, years of teaching experience, and level of income of the teacher.

6. The most preferred learning mode for the post-secondary agriculture teachers is Active Experimentation, followed in order by Abstract Conceptualization, Concrete Experience and Reflective Observation. Although not so strong, the learning style of the post-secondary agriculture teacher is that of "Accommodator". Apparently the teachers also emphasize other forms of learning style if only to a lesser extent. There is a significant variation between the teachers' learning orientations and their learning abilities. Those teachers with the learning orientations of Professional Advancement and External Expectations

express preferences for exact types of learning modes, with Active Experimentation being the most important, and Reflective Observation the least important.

The group of teachers influenced by the Cognitive Interest on the other hand, emphasized most Abstract Conceptualization learning mode followed by Active Experimentation. The fact that the mean scores of these two learning abilities are so close together (AC = 17.08 and AE = 16.92) presents a problem of accurate interpretation of results. It is possible that equality of emphasis is maintained by the respondents on the two learning abilities.

Implications and Recommendations

On the basis of the findings in this study, the writer has identified several implications which should be considered for inservice education programming for the post-secondary agriculture teachers in Wisconsin.

The importance of developing programs that are compatible with the goals, desires, interests, and learning modes of the learner has for long been realized by educators. In 1976, Boshier,[6] an adult educator, stressed the importance of organizing continuing education around the participant's motives in order to enhance the quality of his/her participation. The findings of this study

indicate that the post-secondary agriculture teachers participate in inservice education for specific reasons which could be utilized as basis for planning their programs.

Since the Professional Advancement factor appears to have the strongest influence on the teachers' participation, this would imply that inservice education leaders need to stress the marketing strategy, the practicality and relevance of program content.

The researcher therefore recommends that the post-secondary agriculture teachers must be the focal point of all curriculum activities planned to enhance their competence and professional growth. This is saying, in other words, that the inservice program must be organized and implemented to reflect at each stage of development the participants' motives, interests and needs.

Program implementation strategy will require that inservice program leaders thoroughly evaluate the alternative arrangements open to them for grouping their clients. The prevailing conditions should serve as a good guide for doing this. It is logical, for example, to expeet teachers with similar learning orientations and/or similar learning modes to be in the same group for the various inservice activities. Two or three distinct groupings are a possibility - (a) teachers influenced by the Professional Advancement factor, (b) teachers influenced by the Cognitive Interest factor, and (c) teachers inflenced by the External Expectations factor. Alternatively the clients influenced by PA and EE factors (teachers with similar learning ability) could be grouped together, while those

influenced by the CI factor could form a separate group. Other permutations of grouping based on the teachers' similar personal characteristics are possible, but since resources are always scarce, any grouping arrangement contemplated must be economically feasible.

The Cognitive Interest factor influences the teachers' inservice education participation. This implies that inservice education leaders need to be very conscientious about providing serious intellectual and academic challenges in their programs. Watered-down seminars geared to the lowest academic denominator in the hopes of not scaring away participants may in fact be discouraging participants rather than encouraging it. Although participants may grumble about having to work too hard in a course or seminar, it really may be that they want to be challenged.

It is recommended that before an inservice program is launched, a thorough needs assessment should be carried out by the program leader and appropriate resources should be utilized to deliver the inservice materials.

For the purpose of program implementation for the cognitively influenced teachers, if as the findings of this study seem to indicate, the motive of "learning for learning sake" is a predominant influence on participation decisions, then professionals may be more willing to undertake and participate in self-directed study. One would, recommend that in such a case the use of video tape material, Cable TV lessons, and other prepackaged learning modules must be available at some central point for the teachers to help

themselves at will.

One would however caution that the desire of the willingness to engage in self-directed study does not come into conflict with the need of professionals to be seen by other professionals in the act of continuing their education. If the tenets of professionalism influence the need to be involved in inservice education, the need to be physically seen engaging in this activity may be as important as the actual activity itself.

The notion that the post-secondary agriculture teachers participate in inservice education motivated by social reasons must be discountenanced. The findings of the investigation have clearly shown the contrary to be the case. Teachers are monivated largely by the PA and CI factors. Attendance at meetings and quality of participation may therefore depend on the extent to which inservice edulation leaders can accommodate these dimensions in their plans.

It is therefore recommended that materials of inservice programs be geared to meeting these teachers' primary motives, and less emphasis put on social activities geared to entertaining the teachers. Inservice education programs must be of a serious nature and found challenging by the teacher participants.

The findings in this study indicate that over time, the learning orientations of teachers do change. If the reasons for participating vary, this will imply that programs should vary.

It is recommended that in view of the non-static nature of the teachers' orientations to learning, there is a need to carry out needs assessment each time an inservice meeting/seminar is being proposed.

The non-static nature of the participants' orientations to learning also implies designing current evaluation tools suitable for determining the effectiveness of inservice programs.

The researcher therefore recommends that since the curriculum content will normally always be drawn based on the participants' motives, it is important that the post-secondary teachers should assume part of the responsibility for evaluating their programs individually and collectively during and after inservice education meetings. Likewise, in designing the evaluation tool, the programmer must be sensitive to his clients' changing motives and this should always be reflected in his/her evaluation approaches.

As learner motivation is a pre-condition for learning, so also is mode of instruction and learning style of the learner.

The post-secondary agriculture teachers exhibit the Accomodator type of learning style with greater emphasis on Active Experimentation and Concrete Experience learning modes.

The implication of this for inservice programming is that more effective learning and better participation will be attained if curriculum contents and instructional techniques are arranged to fall in line with the teachers' modes of learning.

The researcher therefore recommends that inservice education leader should endeavour to match the participants' learning orientations with their appropriate learning modes through a well reasoned instructional procedure. Teachers with the learning modes of Active Experimentation and Concrete Experience, who invariably are influenced by the motives of Professional Advancement and External Expectations dimensions must have full opportunity to get involved in the act of "doing". Lectures/talks which often characterize most inservice deliveries should be proportionally balanced with practical activities. Organized visits to places of interest - farms, industrial centres - should be encouraged. Experts invited to deliver inservice materials should be encouraged to strike a good balance between theoretical deliveries and practical activities. Opportunities should be provided for participants to engage in projects, group discussions and experimentation.

Those teachers influenced on the other hand by the Cognitive Interest should have the opportunity for self-learning. This set of teachers influenced by the Cognitive Interest are likely to feel comfortable with inservice sessions utilizing the lecture method of instructional delivery.

Recommendations for Further Research

Clearly, one of the implications of this study is the need for further research. The following recommendations are made for further study:

1. Replication of this study, this time, including samples of post-secondary teachers in other vocational areas such as, business and office education, distributive education, home-economics, and technical education. The study should generate useful information across board regarding similarities and dissimilarities of inservice education participation motives.

2. Further study is also required to determine the relationship between the post-secondary agriculture teachers' learning orientations and their preferred educational techniques including lectures, seminar, discussion group, audio-visual, workshop, demonstration, project, self-study, and experimentation. Such a study is required to enable programmers to devise means of targeting participants' motives with appropriate educational experiences.

3. Psychographic techniques group people according to psychographic variables, such as, learning orientations, directly associated with the programming needs of target audiences. Benefit segmentation as applied to adult continuing education attempts to identify types of learners with similar needs, interests, and demographic characteristics for the purpose of designing program offerings in response to peoples' preferences on components of the program offering. As a strategy to promote increased attendance and participation of the post-secondary agriculture teachers in inservice education in Wisconsin, this is an area where further research is recommended.

4. In the instrument utilized for conducting this study, it is possible that the Cognitive Interest dimension might have been overloaded with a consequent loss of power to discriminate between the respondents who "learn for learning sake" and those motivated by acquisition of higher degrees. Further investigation should explore generating more EPS items and seven rather than six factors; the seventh factor being "Acquisition of Credentials" to explore the learning orientations of vocational teachers.

5. Lastly, it is a fact that certain vocational areas are largely dominated by teachers of one particular sex. This is true with vocational areas such as home economics both at high school and post-secondary school levels. But certain vocational areas exist where the two sexes - male and female - are propotionately well represented. As of now, not much is known about the factors motivating teachers to participate in inservice education based on sex differences. A study at the post-secondary level to throw light on this dark area would be valuable.

FOOTNOTES

1. U. Haag. "Psychological Foundations of Motive for Participation in Adult Education." Unpublished M.A. Thesis, Adult Education Research Centre, University of British Columbia, 1976.

2. David A. Kolb. Learning Style Inventory Technical Manual. Boston: McBer and Company, 1976.

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4. C. O. Houle. The Inquiring Mind. Madison: University of Wisconsin Press, 1961.

5. R. Boshier. "Motivational Orientations of Adult Education Participants: A Factor Analytic Exploration of Houle's Typology". Adult Education, 21, 2, 1971, pp. 3-26.

6. Ibid.

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APPENDICES

APPENDIX A

QUESTIONNAIRE

Learning Orientations and Learning Styles of Wisconsin Post-Secondary Vocational Agriculture Teachers

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PART I PERSONAL BACKGROUND DATA

(Please, answer each of the following questions by placing a circle around the statement that is most appropriate to you).

1. Age: What is your age?

   1. Under 30 years
   2. 31-35 years
   3. 36-40 years
   4. 41-46 years
   5. 46-50 years
   6. 51 years and above.

2. Marital Status:

   1. Never have been married
   2. Married
   3. Separated
   4. Divorced
   5. Widowed
   6. Partnered

3. Education: What is the highest educational level you have achieved?

   1. Less than Bachelor's degree
   2. Bachelor's degree
   3. Bachelor's degree + graduate credits
   4. Masters degree
   5. Masters degree + graduote credits
   6. Doctorate
   7. Others (Please specify: _____

4. Teaching Experience: How many years of teaching experience have you?

   1. Less than 4 years
   2. 5-19 years
   3. 11-15 years
   4. 16-20 years
   5. 21-25 yearw
   6. 26-30 years
   7. Over 30 years

5. On average, how many contact hours do you have per week? (Please specify) __

6. Income: What is your grosw income as a teacher per year?

   1. Less than $10/000
   2. $10,001-$15,000
   3. $15,001-$25,000
   4. $20,001-$26,000
   5. $25,001-$30,000
   6. Over $30,000

PLEASE TURN TO PAGE 2

PART II

Direction

Think back on your past inservice education activities and indicate the extent to which each of the reasons listed below influenced you to participate.

Circle the category which best reflects the extent to which each reason influenced you to enroll.

There are 40 reasons listed. Circle one category for each reason.

Sometimes the "Much influence" category is on the right-hand side of the page; sometimes it is on the left.

No reason for enrolling is any more or less desirable than any other reason. Please be frank. There are no right or wrong answers.

START HERE:

1. To seek knowledge for its own sake	Much Influence	Moderate Influence	Little Influence	No Influence
2. To share a common interest	No Influence	Little Influence	Moderate Influence	Much Influence
3. To secure professional advancement	Much Influence	Moderate Influence	Little Influence	No Influence
4. To become more effective as a citizen	No Influence	Little Influence	Moderate Influence	Much Influence
5. To get relief from boredom	Much Influence	Moderate Influence	Little Influence	No Influence
6. To carry out the recommendation of some authority	No Influence	Little Influence	Moderate Influence	Much Influence
7. To satisfy an enquiring mind	Much Influence	Moderate Influence	Little Influence	No Influence
8. To overcome the frustration of day to day living	No Influence	Little Influence	Moderate Influence	Much Influence
9. To be accepted by others	Much Influence	Moderate Influence	Little Influence	No Influence
10. To give me higher status in my job	No Influence	Little Influence	Moderate Influence	Much Influence
11. To supplement a narrow previous education	Much Influence	Moderate Influence	Little Influence	No Influence

12. To stop myself becoming a "vegetable"	No Influence	Little Influence	Moderate Influence	Much Influence
13. To acquire knowledge to help with other educational courses	Much Influence	Moderate Influence	Little Influence	No Influence
14. To fulfill a need for personal associations and friendships	No Influence	Little Influence	Moderate Influence	Much Influence
15. To keep up with competition	Much Influence	Moderate Influence	Little Influence	No Influence
16. To escape the intellectual narrowness of my occupation	No Influence	Little Influence	Moderate Influence	Much Influence
17. To participate in group activity	Much Influence	Moderate Influence	Little Influence	No Influence
18. To increase my job competence	No Influence	Little Influence	Moderate Influence	Much Influence
19. To gain insight into my personal problems	Much Influence	Moderate Influence	Little Influence	No Influence
20. To help me earn a degree, diploma or certificate	No Influence	Little Influence	Moderate Influence	Much Influence
21. To escape Television	Much Influence	Moderate Influence	Little Influence	No Influence
22. To prepare for community	No Influence	Little Influence	Moderate Influence	Much Influence
23. To gain insight into human relations	Much Influence	Moderate Influence	Little Influence	No Influence
24. To have a few hours away from responsibilities	No Influence	Little Influence	Moderate Influence	Much Influence
25. To learn just for the joy of learning	Much Influence	Moderate Influence	Little Influence	No Influence
26. To become acquainted with congenial people	No Influence	Little Influence	Moderate Influence	Much Influence
27. To provide a contrast to the rest of my life	Much Influence	Moderate Influence	Little Influence	No Influence

PLEASE TURN TO PAGE 4

28. To get a break in the routine of home or work	No Influence	Little Influence	Moderate Influence	Much Influence
29. To improve my ability to serve mankind	Much Influence	Moderate Influence	Little Influence	No Influence
30. To keep up with others	Much Influence	Moderate Influence	Little Influence	No Influence
31. To improve my social relationships	Much Influence	Moderate Influence	Little Influence	No Influence
32. To meet formal requirements	No Influence	Little Influence	Moderate Influence	Much Influence
33. To maintain or improve my social position	Much Influence	Moderate Influence	Little Influence	No Influence
34. To escape an unhappy relationship	No Influence	Little Influence	Moderate Influence	Much Influence
35. To provide a contrast to my previous education	Much Influence	Moderate Influence	Little Influence	No Influence
36. To comply with the suggestions of someone else	No Influence	Little Influence	Moderate Influence	Much Influence
37. To learn just for the sake of learning	Much Influence	Moderate Influence	Little Influence	No Influence
38. To make new friends	No Influence	Little Influence	Moderate Influence	Much Influence
39. To improve my ability to participate in community work	Much Influence	Moderate Influence	Little Influence	No Influence
40. To comply with instructions from someone else.	No Influence	Little Influence	Moderate Influence	Much Influence

PART III

This inventory is designed to assess your method of learning. As you take the inventory, give a high rank to those words which best characterize the way you learn and a low rank to the words which are less characteristic of your learning style.

You may find it hard to choose the words that best describe your learning style because there are no right or wrong answers. Different characteristics described in the inventory are equally good. The aim of the inventory is to describe how you learn, not to evaluate your learning ability.

Instruction

There are nine sets of four words listed below. Rank order each set of four words assigning a 4 to the word which best characterizes your learning style, a 3 to the word which next best characterizes your learning style, a 2 to the next most characteristic word, and a 1 to the word which is least characteristic of you as a learner. Be sure to assign a different rank number to each of the four words in each set. Do not make ties.

1.	___discriminating	___tentative	___involved	___practical
2.	___receptive	___relevant	___analytical	___impartial
3.	___feeling	___watching	___thinking	___doing
4.	___accepting	___risk-taker	___evaluative	___aware
5.	___intuitive	___productive	___logical	___questioning
6.	___abstract	___observing	___concrete	___active
7.	___present-oriented	___reflecting	___future-oriented	___pragmatic
8.	___experience	___observation	___conceptualization	___experimentation
9.	___intense	___reserved	___rational	___responsible

THE END. Thank you for your cooperation.

Please return to: M. I. Ayeni, 112 Teacher Education Building
225 North Mills Street, Department Office
Madison, Wisconsin 53706

APPENDIX B

COVER LETTER TO WISCONSIN POST-SECONDARY

AGRICULTURE TEACHERS

University of Wisconsin—Madison
DEPARTMENT OF CONTINUING AND VOCATIONAL EDUCATION

264 Teacher Education Building, 225 North Mills Street, 263-4630
276 Teacher Education Building, 225 North Mills Street, 263-4640
208 Agriculture Hall, 1450 Linden Drive, 262-1361
120 Home Economics Building, 1300 Linden Drive, 262-2660
*112 Teacher Education Building, 225 North Mills Street, *Departmental Office*, 263-2422
Madison, Wisconsin 53706

September 3, 1981

Dear Post-Secondary Ag Instructor:

This research is designed to help Wisconsin's post-secondary vocational agriculture leaders in planning and organizing inservice education. It is believed that the research will help them to design inservice programs that are not only attractive but most rewarding to the post-secondary vocational agriculture instructors in Wisconsin. Your support is needed in providing information about the reasons which motivated you to participate in inservice programs.

As a vocational agriculture instructor in a post-secondary institution, you are one of those chosen to respond to this questionnaire. Please be assured of complete confidentiality. The number on the questionnaire is only to be used for follow-up mailing to non-respondents. Your name will never be placed on the questionnaire.

Please complete the questionnaire and return it in the enclosed self-addressed postage paid envelope by Friday September 18, 1981. It should take you not more than 20 minutes to complete.

Thank you for your cooperation.

Sincerely,

M. I. Ayeni
Ph.D. Candidate

John F. Thompson
Professor and Chairman

MIA:JFT/cjr
Enclosure

APPENDIX C

FIRST FOLLOW-UP LETTER TO WISCONSIN POST-SECONDARY

AGRICULTURE TEACHERS

University of Wisconsin—Madison
DEPARTMENT OF CONTINUING AND VOCATIONAL EDUCATION

264 Teacher Education Building, 225 North Mills Street, 263-4630
276 Teacher Education Building, 225 North Mills Street, 263-4640
208 Agriculture Hall, 1450 Linden Drive, 262-1361
120 Home Economics Building, 1300 Linden Drive, 262-2660
* 112 Teacher Education Building, 225 North Mills Street, *Departmental Office*, 263-2422
Madison, Wisconsin 53706

September 19, 1981

Dear Post-Secondary Vo-Ag Instructor:

Exactly two weeks ago, I mailed a questionnaire to you to request information about the reasons motivating you to participate in inservice programs. But up till today, I have not received your response.

I would appreciate your taking a few moments of your time to complete the questionnaire and mail it back to me. Your cooperation is very vital to the success of the study.

Thank you.

Yours sincerely,

M. I. Ayeni
Ph.D. Candidate

John F. Thompson
Professor and Chairman

MIA/JFT:cjr

APPENDIX D

SECOND FOLLOW-UP LETTER TO WISCONSIN POST-SECONDARY

AGRICULTURE TEACHERS

University of Wisconsin—Madison
DEPARTMENT OF CONTINUING AND VOCATIONAL EDUCATION

264 Teacher Education Building, 225 North Mills Street, 263-4630
276 Teacher Education Building, 225 North Mills Street, 263-4640
208 Agriculture Hall, 1450 Linden Drive, 262-1361
120 Home Economics Building, 1300 Linden Drive, 262-2660
* 112 Teacher Education Building, 225 North Mills Street, *Departmental Office*, 263-2422
Madison, Wisconsin 53706

October 15, 1981

Dear Post-secondary Vo-Ag Instructor:

It is exactly six weeks ago that I mailed a questionnaire to you, seeking information about the reasons that motivated you to participate in inservice education. This is the second follow-up letter sent to remind you that I have not yet received your completed questionnaire.

In the event that your questionnaire has been misplaced, a replacement is enclosed. Please take a few moments to complete and return it to me at your earliest convenience.

Your cooperation is greatly appreciated.

Sincerely,

M. I. Ayeni
Ph.D. Candidate

John F. Thompson
Professor and Chairman

TITLE OF THESIS LEARNING ORIENTATIONS AND LEARNING STYLES OF WISCONSIN POST-SECONDARY AGRICULTURE TEACHERS TOWARDS INSERVICE EDUCATION.

MAJOR PROFESSOR JOHN F. THOMPSON

MAJOR DEPARTMENT CONTINUING AND VOCATIONAL EDUCATION

MINOR(S) AGRICULTURAL ECONOMICS

NAME MICHAEL IDOWU AYENI

PLACE AND DATE OF BIRTH EJUKU, NIGERIA, June 10, 1935

COLLEGES AND UNIVERSITIES: YEARS ATTENDED AND DEGREES

St. John's College, York-England, 1959 to 1963. Certificate in Education

University of Wisconsin-Madison, 1971 to 1972. B.S.

Ahmadu Bello University-Zaria, 1976 to 1977. M.Ed.

University of Wisconsin-Madison, 1979 to 1982. Ph.D.

MEMBERSHIPS IN LEARNED OR HONORARY SOCIETIES Member of the Science Teachers Ass. of Nigeria; Member of the American Vocational Association.

PUBLICATIONS STAN. Nigeria Integrated Science Project (co-author) Texts: Books I and II, Workbooks I ans II, Teacher's Guides I and II, Ibadan: Heinemann Educational Book (Nig) Ltd.,1972.

DATE April 28,1982.