

# LEARNING AND TEACHING STYLES OF STUDENT TEACHERS IN THE NORTHWEST

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## Abstract

*Learning style refers to the predominant and preferred manner in which individuals take-in, retain, process, and recall information. Teaching style is defined as the predilection toward behavior in the teaching-learning exchange that comes from attitudes, aspirations, and, personal and social histories and cultures. The purpose of this descriptive study was to describe the preferred learning style and teaching style of student teachers in agricultural education at the University of Idaho and Montana State University. The Group Embedded Figures Test (GEFT) and the VanTilburg/Heimlich Teaching Style Preference were administered to students majoring in agricultural education at the University of Idaho and Montana State University, who had student taught during 1992 and 1993. A high percentage of agricultural education majors who had student taught at Montana State University and University of Idaho were 25 years or older. The GEFT findings suggest that female agricultural education student teachers in this study are more field-independent than females in the general population. Overall, Montana State University and University of Idaho preservice agricultural education student teachers preferred the field-independent learning style. Montana State University and University of Idaho students prefer student-centered teaching styles.*

In the past decade, agricultural educators have spent countless hours in one-on-one conversations and among larger audiences discussing the future mission, purpose, and clientele of the agricultural education profession. Swanson (1991) offered focus to these concerns in one sentence: "The first and most important imperative for the future of agricultural education is to again focus on people." Has the profession lost sight of the fact that as agricultural educators, the most important people in the profession are the students?

In a study by Nichols and Mundt (1993), it was reported that a significant difference existed between agricultural educators and home economics educators in the importance placed on individual student differences; agricultural educators placed individual student differences very low on their list of teaching priorities. Yet, teaching and learning, which are highly influenced by individual differences, should be the heart of the

mission in agricultural education. Warmbrod (1992) wrote, "Teaching and learning are the core of the intellectual content of agricultural education as an academic endeavor..." (p.26). The focus of the profession must continue to be the deep, rich, complex study of teaching and learning.

"As teachers, we invest a great deal of time thinking about and preparing for what we should teach. Likewise, we should spend an equal amount of time thinking about and preparing for how we should teach" (Cox & Zamudio, 1993). How we teach should be directly correlated to the learning styles of the students in the class. Cano (1991) suggested that "...responsibilities of the instructor are to encourage all learners to learn, provide choices for learners, and above all else, adapt the teaching style to fit the learning style of the learners". If instructors are expected to adjust teaching styles to fit learning styles, some understanding of teaching styles and learning styles

is in order.

### Learning Styles of Students

Learning styles is not a new concept. However, because educational practitioners discovered learning style technology at about the time most psychologists were losing interest, progress in the area has been slow (Keefe & Monk, 1986).

Learning style refers to the predominant and preferred manner in which individuals take-in, retain, process, and recall information. "...Learning style is demonstrated in that pattern of behavior and performance by which an individual approaches educational experiences...Learning style represents both inherited characteristics and environmental influences" (Keefe & Monk, 1986, p.1-2).

According to Cano, Garton, and Raven (1992), two of the most widely studied learning styles are field-dependence and field-independence. Witkin, Moore, Goodenough, and Cox (1977) described the extremes of the aforementioned continuum as follows: when perception is strongly dominated by the prevailing field (a region, space, or sphere where mental or physical activity exists), that mode of perception is designated as "Field-Dependent," but when the person experiences items as more or less separate from the surrounding field, the perception is designated as "Field-Independent" (p. 7). Gaining an awareness of field-dependence and field-independence should add to teachers' and students' ability to use their learning style, appreciate the style differences of others, and to begin thinking about the best classroom methods for facilitating effective learning.

Cano, et al. (1992) indicated that teachers with field-dependent learning styles socially orient their students by encouraging them to work cooperatively. Field-independent teachers make it clear that "I am the authority" and "am responsible for guiding" the student. They are subject-centered and emphasize the importance of individual student

effort (Cano, et al., 1992).

### Teachers' Learning Style

Just as students have a preferred learning style, so do teachers, and that learning style influences the effectiveness of the teacher. Is it possible that students who perform better in a given class just happen to match the learning style of the instructor? Gregorc and Ward (1977) found that if the approach fit the preferred learning mode, the learners usually reacted favorably, while on the other hand, if styles were mismatched, the teachers reported that the students "worked hard to learn" or "tuned out". Gregorc and Ward asked: "How can a teacher endeavor to better match the learning preferences of the broad spectrum of students" (p. 24)?

One response was offered by Raven (1992) who suggested that, "...teachers that are aware of their learning style as well as the styles of their students, are better able to make sure that any differences between their learning styles will not impede learning" (p. 5). Thus, taking the time to measure learning style preferences of teachers and learners seems to be a key, and, according to Rollins and Yoder (1993) will pay dividends in achievement in the end. "Research has demonstrated that learning style preferences and the consideration educators give to learning styles are closely related to learning achievement..." (p. 19).

### Teachers' Teaching Style

Teachers possess a teaching style. Heimlich (1990) defined teaching style as the predilection toward behavior in the teaching-learning exchange that comes from values, beliefs, attitudes, aspirations, and, personal and social histories and cultures. He identified sensitivity and inclusion as the two domains of teaching style. "The sensitivity domain is based on the ability of the teacher to 'sense' the shared characteristics of the group learners. Inclusion domain is the teacher's willingness and ability to utilize techniques to

enhance the learning experience based on the group's characteristics" (Cano, et al., 1992, p. 48). Within these two domains, teachers can be labeled as "expert" (subject-oriented, seeking efficiency through lecture), "provider" (learner-centered, utilizing group discussion and demonstrations), "facilitator" (teacher-centered, focusing instruction more upon subject matter than learners), or "enabler" (learner-centered, encouraging learners to define both the activity and the process) (Cano, et al., 1992).

### Gender and Age

Agricultural education is a male-dominated field. Only in the past 15 years have a number of females entered the profession. Do the women that enter agricultural education have similar learning styles to women in the general population? Results from Cano, Garton, and Raven (1992) suggested that they may differ.

Many universities such as Montana State University and the University of Idaho label students that are 25 years or older as "non-traditional" age students. What are the learning styles of "non-traditional" age agricultural education student teachers? Witkin, et al. (1971), stated that at some point between 24 years and old age the process of increasing field dependence begins. Is this the case in the large populations of non-traditional age agricultural education student teachers that are enrolled in Idaho and Montana?

### **Purpose and Objectives**

The purpose of this descriptive study was to describe the preferred learning style and teaching style of student teachers in agricultural education at the University of Idaho and Montana State University. Prior to this inquiry, learning styles of agricultural education majors who had student taught had not been studied. Specific research questions were:

1. What was the gender and age classification of

the agricultural education student teachers?

2. What was the preferred learning style of agricultural education student teachers as measured by the Group Embedded Figures Test?
3. What was the preferred teaching style of agricultural education student teachers as measured by the VanTilburg/Heimlich Teaching Style Inventory?

### **Methodology**

#### Population

The population for this census study was students majoring in agricultural education at the University of Idaho and Montana State University, who had student taught during the previous three semesters (Fall, 1992; Spring, 1993; Fall, 1993). The population (N = 31) included 16 students at the University of Idaho (three females and 13 males) and 15 students at Montana State University (four females and 11 males). Considering that the total number of student teachers in the Northwest for the given time period was 50 (Idaho = 16, Montana = 15, Nevada = 0, Oregon = 6, Wyoming = 4 and Washington = 9), the population of this study (N=31) was 62% of all agricultural education student teachers in the Northwest region of the United States for 1992-1993.

#### Instrumentation

The Group Embedded Figures Test (GEFT) (Oltman, Raskin, & Witkin, 1971) and the VanTilburg/Heimlich Teaching Style Preference (VHTSP) (Heimlich, 1990) were administered to students during class sessions of the methods of teaching courses. The GEFT was used to determine whether the learning style of the preservice student teachers was field-independent or field-dependent. The national mean of the test was used to determine field-dependence or field-independence. The VHTSP contains 22 items designed to determine

the preservice student teachers preference for sensitivity or inclusion as it relates to teaching. The GEFT is a standardized instrument that has been tested for validity and reliability by the authors. The VHTSP has been tested for validity and reliability by the authors.

### Data Analysis

The SAS computer package was used to analyze the data. The instruments were hand-scored by the researchers and the aggregate data were analyzed. Frequencies and percentages were used to describe the population.

## **Findings**

### Characteristics of Participants

The results indicated there were 58% males (18) and 42% females (13) in the study. Sixty-seven percent of the males were non-traditional age students (25 years or older) while 71% of the female students were traditional age (less than 25 years of age) (Table 1). Overall, nearly 60% of the agricultural education student teachers were non-traditional age students while 40% were traditional age.

### Learning Styles of Participants

Data showed that 74% (23) of the agricultural

education student teachers were field-independent learners and 26% (8) were field-dependent learners (Table 2). One-third of the males (8) were field-dependent, while all of the females (7) were field-independent. The mean GEFT scores for the agricultural education student teachers was approximately 13 which is higher than the national norm of 11.4. The tendency for female agricultural education student teachers to be more field-independent than their male counterparts is opposite to what the literature would suggest (Witkin, et al., 1971). GEFT scores ranged from 2 to the maximum of 18.

The majority (18) of agricultural education student teachers were non-traditional age students (Table 1). Forty-two percent (13) of the student teachers were under 25 years of age. Examination of the GEFT scores by age classification of agricultural education student teachers revealed that approximately three-fourths of non-traditional and traditional age students tended to be field-independent (Table 3).

Teaching style results indicated that agricultural education student teachers preferred a learner-centered approach to teaching (Table 4). The data showed that 87% (27) of the student teachers preferred the "enabler" teaching style. However, 13% (4) preferred the "provider" and "facilitator" teaching styles. The majority of subjects at both institutions were field-independent;

Table 1. Age and Gender of Student Teachers (N=31)

Age	Male		Female		All Cases	
	f	%	f	%	f	%
Traditional	8	33.3	5	71.4	13	41.9
Non-traditional	16	66.7	2	28.6	18	58.1
Total	24	100.0	7	100.0	31	100.0

Table 2. Learning Styles of Student Teachers by Gender (N=31)

Learning Style	Male		Female		All Cases	
	f	%	f	%	f	%

Field-Dependent	8	33.3	0	0.0	8	25.8
Field-Independent	16	66.7	7	100.0	23	74.2
Total	24	100.0	7	100.0	31	100.0

Table 3. Learning Styles of Student Teachers by Age Classification (N=31)

Age	Traditional		Non-traditional		All Cases	
	f	%	f	%	f	%
Field-Dependent	3	23.1	5	27.8	8	25.8
Field-Independent	10	76.9	13	72.2	23	74.2
Total	13	100.0	18	100.0	31	100.0

Table 4. Teaching Styles of Student Teachers by Gender (N=31)

Teaching Style	Male		Female		All Cases	
	f	%	f	%	f	%
Enabler	22	91.6	5	71.4	27	87.0
Facilitator	1	4.2	1	14.3	2	6.5
Provider	1	4.2	1	14.3	2	6.5
Expert	0	0.0	0	0.0	0	0.0
Total	24	100.0	7	100.0	31	100.0

however, the field-independent characteristics of being subject-centered was not evident in the student teachers' preferred teaching styles.

### Conclusions

The following conclusions are based upon the researchers' interpretations of the results of this study.

1. A high percentage of agricultural education majors who had student taught at Montana State University and University of Idaho were 25 years or older.
2. The GEFT findings suggest that female agricultural education student teachers in this study are more field-independent than females in the general population.
3. Overall, Montana State University and University of Idaho preservice agricultural education student teachers preferred the field-

independent learning style.

4. Montana State University and University of Idaho students prefer student-centered teaching styles.

### Implications

The data from this study were used to teach the participants in the study, thus these student teachers graduated with an awareness of student individual differences regarding learning styles, teaching styles and personality types. These graduates were placed in seven states where the average number of secondary agriculture programs is 80 (Idaho = 78, Montana = 69, Nevada = 22, Oregon = 105, Utah = 61, Washington = 190 and Wyoming = 41). With a large number of new teachers filtering into states with small numbers of programs, the opportunity to have an impact upon improving the relationship of learning styles and teaching styles is increased.

For preparing teachers this data is useful. For example, the researchers will now explore and use alternative teaching techniques which match and do not match their own style. They will then lead discussions with the preservice teachers that demonstrate the value of mixing techniques in order to reach various students. Discussions will pinpoint certain techniques that are valued by students of a given style and will make application to secondary education and other settings. Teacher educators can use this research to make similar improvements.

Furthermore, is there a consortium of researchers in agricultural education in the United States who could work cooperatively to examine, in depth, this line of inquiry? Studies such as this are needed to entice and encourage regional and national programmatic research efforts regarding learning styles and teaching styles.

The data of this study supports the findings of an Ohio State University study (Cano et al., 1992) which suggested that preservice student teachers, individually, do differ in learning styles and teaching styles. However, students in these two western universities were quite different from students in Ohio on many variables. Why the differences? More important, in light of the differences, what should teacher educators be doing differently? More data needs collected to further study the similar variables in one region and the differing variables between regions to determine support or lack of support for generalizing preservice student/teacher characteristics from region to region, and therefore generalizing teaching techniques between regions.

Why do Montana State University and University of Idaho enroll so many nontraditional aged students? Not only is the why important, but the fact that such a large percentage of students at these universities are above 25 years of age influences the college classroom setting. These students have different needs than 18 year old students; they tend to have spouses and children, they have jobs and they want immediate results and

answers. What does this information tell us about the clientele being served and the potential audiences to be served?

Female agricultural education student teachers in this study tended to be more field-independent than the national norm for the GEFT (could have been by chance based on the N of this study, but the data support previous findings). Students at both institutions tended to prefer student-centered instruction. Based on the literature, one would not usually associate these characteristics. Cano et al. (1992) wanted to know why students, specifically the field-independent learners, place a high value on being learner-centered. Further investigation is needed to determine why field-independent learners place such a high value on student-centered instruction (Raven et al., 1993).

Why do the females in this study and females in previous learning styles studies of women in agricultural education at these western universities tend to be different from the national norms and from literature of female statistics? Which of their characteristics make them field independent? Are these the women who have broken down an initial barrier to entering the profession? These variables need to be studied longitudinally such that trends and associations can be found.

The mean GEFT scores for student teachers in agricultural education at both western universities in this study were above the national norm. What are the factors which influence students to score above the national average, thereby possessing a more field-independent learning style than students nationally? More research needs to be conducted to compare other preservice student teachers.

#### What should teacher educators do?

Teacher educators know that preservice students are different; merely meeting the new class makes this claim evident. Is it appropriate to ignore this naturally occurring phenomenon? It is absolutely wrong.

There is a need for teacher educators to explore the different types of students and to discover the learning styles and thus teaching styles associated with those students. By collecting data regarding the learning styles and teaching styles of preservice teachers in agriculture, and then using the data to teach about these individual differences, the teaching has meaning to the students and the learning comes to life in the classroom.

If a preservice student's learning style is field-dependent, and the same student has a preference for the "enabling" style of teaching, what do these characteristics tell teacher educators about the teaching techniques and methods preferred by that student? What does this information tell teacher educators about the way in which that student learns best, and therefore about the way that the student will want to teach?

There is much to learn about preservice student teachers with regard to learning styles and teaching styles. Research should be continued in this complex area of teaching and learning.

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