

Adult Learning Preferences: A Profile of Extension Educators

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Adult learning includes the acquisition of knowledge and skills essential to learning effectively in whatever situation is encountered. Recognizing these demands and requirements is the responsibility of the learner, the facilitator or instructor, the program designer, and the educational agency (Smith and Haverkamp, 1977). Programs in adult education should show adult learners how to diagnose their learning needs, plan their learning program, and evaluate their progress. In adult education, learners and teachers must share responsibility for their educational transactions (Knowles, 1970).

Adult educators attest to adult learners' diversity. Individual differences in motivation, goals, intelligence, cognitive development and academic preparation, employment background, experience, skill level, and initiative become increasingly differentiated as adults grow older (Haverkamp, 1983). If one accepts the premise that information processing skills are needed by educated adults, then education should focus on helping adults diagnose their own situation, organize and process information, and assess what and how much they have learned. Smith (1980) regarded educated persons as those who will "know how they learn, know what they want to learn, and where and how much" (p. 10). He believed "professional educators should be able to assess, plan, implement, and evaluate learning with the twin goals of sharing knowledge and teaching the learning skills to their students" (p. 11).

In Learning How to Learn: Applied Theory for Adults, Smith (1982) explained how learning itself is a synergistic process with learning how to learn. "As we learn, things happen that affect our motivation for further learning and our potential for learning more efficiently, effectively, and meaningfully" (p. 58). The personal effects of educational activities include an inquiring mind, an understanding of change, and an understanding of self as a learner and the learning process. These effects are more likely to accrue when educators take into account the characteristics of adult learners and the conditions under which they learn best. Adult educators must know how adults learn and how to modify the learning environment for differing adults for differing content areas. Application of what is learned must be encouraged by using established subject matter areas as entrees to understanding the nature and potential of knowledge itself and for acquiring the skills of inquiry.

Personal experiences of adults who perceive, think, and respond to stimuli and use a variety of resources and methods while learning develop personal tendencies and preferences, or learning styles. Learning styles are characteristic ways of processing information, feeling, and behaving in learning situations. An important element in facilitating learning is helping learners become aware of their own learning styles. Once learning styles are identified, adult educators may help learners determine which educational methods and learning activities are best suited to their styles of learning (Brookfield, 1990).

Kolb's (1984) experiential learning theory included the concept of learning styles and the more basic concepts of learning and individual development. Kolb's theory included major tenets of Dewey (1938) who emphasized the need for learning to be based on life experiences, Lewin (1951) who espoused an active role for the individual while learning, and Piaget (1952) who described intelligence as primarily the result of interaction between a person and the environment. Kolb presented two fundamental elements in the learning

process. The first element was accumulating experience or taking in information in concrete or abstract ways. The second element was transforming the experience or reflecting upon information essentially as it is or changing the information or oneself to fit one's thinking.

Research has demonstrated that learning style preferences and the consideration educators give to learning styles are closely related to learner achievement, dropout rates, and student satisfaction with instruction (Rollins & Scanlon, 1991; Rollins, 1990; Cox, Sproles & Sproles, 1988; Price, 1983). Although much of this research has not involved adults, the usefulness of learning-style diagnosis in postsecondary formal and nonformal education has been clearly demonstrated (Smith, 1982). Despite failing to discover any relationships between learning style preferences and educational techniques used by Kentucky extension agents, Pigg, Busch, and Lacy (1980) concluded that using a learning style inventory may be useful as a participatory approach in the development and the conduct of adult education programs. Diagnosing learning styles may help adult educators understand adults' assumptions about teaching and learning, and their behavior in instructional situations.

Purpose and Objectives

State-level extension staff desire to deliver in-service programs for county staff which incorporate the learning style preferences of agents as the programs and instructional activities and materials are designed. The problem is that no empirical assessment of agents' learning style preferences has been completed. State-level staff rely on their knowledge of the agents and make judgmental decisions regarding the agents' learning style preferences.

This study empirically documented the learning styles of The Pennsylvania State University Cooperative Extension county staff members. The two objectives were to:

Describe the learning style preferences of county staff members.

Examine the relationships between staff members' learning style preferences and variables associated with staff assignments.

This information is useful in designing and delivering in-service and professional development activities that enhance job performance, increase the capacity for teamwork, enhance the teaching and learning process, and increase individual ability for working with diverse clientele groups.

Procedures

The population for this study consisted of all 299 Cooperative Extension county staff members in Pennsylvania. County staff members included only those agents whose positions were funded by The Pennsylvania State University. In November 1991, all county extension directors were mailed a package containing personally addressed envelopes for distribution to each professional staff member. Staff members received a letter explaining the study, the Kolb Learning Style Inventory, and a brief questionnaire relating to their professional position. Each individual was asked to confidentially complete the questionnaire and return it in a stamped, return-addressed envelope. Total number of responses received by the final cutoff date of February 1, 1992 numbered 248 for a response rate of 83 percent. The number of usable responses (complete information provided for all variables) for data analysis purposes was 211 (71%). There was a single mailing with no follow-up. The results apply to the 211 people providing usable responses.

Instrumentation

The Learning Style Inventory (LSI) designed by Kolb (1985 R.) is a self-descriptive instrument used to assess an individual's preferred learning style for dealing with ideas and day-to-day situations. The Kolb LSI results provide information that assists learners to identify their learning style and how they absorb and deal with new information. Each of the 12 items requires respondents to rank-order four sentence endings in a way that best describes their learning style. One ending in each item corresponds to one of four learning styles. Scoring is accomplished by determining an individual's relative emphasis on four learning orientations which are more fully described below: Abstract Conceptualization (AC); Concrete Experience (CE); Active Experimentation (AE); and Reflective Observation (RO). Two combination scores are determined, one emphasizing abstraction over concreteness (AC-CE), and the other emphasizing action over reflection (AE-RO). These two combination scores are then used to identify the person's preferred learning style. Reliability estimates (Cronbach's alpha) for the four basic orientations and the two combination scores of the LSI range from .73 to .88.

Abstract Conceptualization (AC) is a conceptually-based, analytic approach to learning. People with an orientation toward abstract conceptualization focus on logic, ideas, precision, and concepts, emphasizing thinking and analyzing ideas, and not feeling. A person with this orientation is good at systematic planning, manipulating abstract symbols, and has a scientific as opposed to an artistic approach to problems.

Concrete Experience (CE) is an experience-based approach to learning. People with concrete experience preferences focus on being directly involved in experiences, dealing with human situations personally, are good at relating to others, and are good intuitive decision makers. They emphasize feeling as opposed to thinking, have an intuitive, artistic approach as opposed to a systematic, scientific approach to problems, and have an open-minded approach to life.

Active Experimentation (AE) is an action-based approach to learning. An orientation toward active experimentation includes practical applications, looking for what works and doing, as opposed to reflective understanding and observing. These people enjoy and are good at getting things accomplished, are willing to take some risk to achieve objectives, and value having influence on the environment around them.

Reflective Observation (RO) is an observation-based (watching), impartial approach to learning. Individuals with reflective observation style focus on understanding meanings of ideas by observing and describing them. They emphasize understanding as opposed to practical application, are concerned with truth or how things happen as opposed to what will work, and emphasize reflection over action. They appreciate different points of view, rely on their own feelings to form opinions, and value patience, impartiality, and thoughtful judgment (Kolb & Smith, 1986).

Findings

Program Responsibilities, Gender and Experience

Data from Table 1 indicated that 57 percent of the staff members participating in the study were male and the large majority of them (81%) had major program area assignments in agriculture. For purposes of this study, the major program area was defined as one of the four major extension program areas--agriculture, family living, 4-H/youth, or extension director--in which agents were assigned more than 50 percent of their time. Persons with responsibility as a county extension director were primarily males (70%). About 59 percent of the 4-H/youth agents were male, whereas 93 percent of the family living agents

were female. There was relative similarity in the years of extension experience for agents in the three program areas of agriculture, 4-H/youth and family living. County extension directors averaged about 21 years of total extension experience.

Table 1. Demographic Characteristics of Staff Members by Program Area Assignment

Program area	Gender				Mean Years Extension Experience
	Male		Female		
	N	%	N	%	
Agriculture (N=75)	61	81	14	19	15.29
Four-H/Youth (N=46)	27	59	19	41	15.57
Family Living (N=45)	3	7	42	93	13.31
County Director (N=33)	23	70	10	30	20.89
All Agents (N=199*)	114	57	85	43	15.84

*Other agents (12) did not have one major program area commitment

Learning Styles

A composite LSI score was computed by subtracting the two mean scores on each axis that produced the following average composite scores for all agents: AC-CE=3.16; and AE-RO=6.36 (All Agents in Figure 1). Although the composite score for All Agents in Figure 1 falls clearly within the Accommodator quadrant, it does not indicate a strong learning style preference in this area. Figure 1 also illustrates the distribution of county agents for Kolb's Learning-Style Grid quadrants by the four major program area assignments. The average composite scores for agriculture, 4-H/youth agents, and county directors placed each of the three groups within the Converger quadrant, although the average composite scores for each group did not indicate a strong tendency of any group of agents in this learning style. The average composite score for family living agents placed them as the single group of staff members in the Accommodator quadrant.

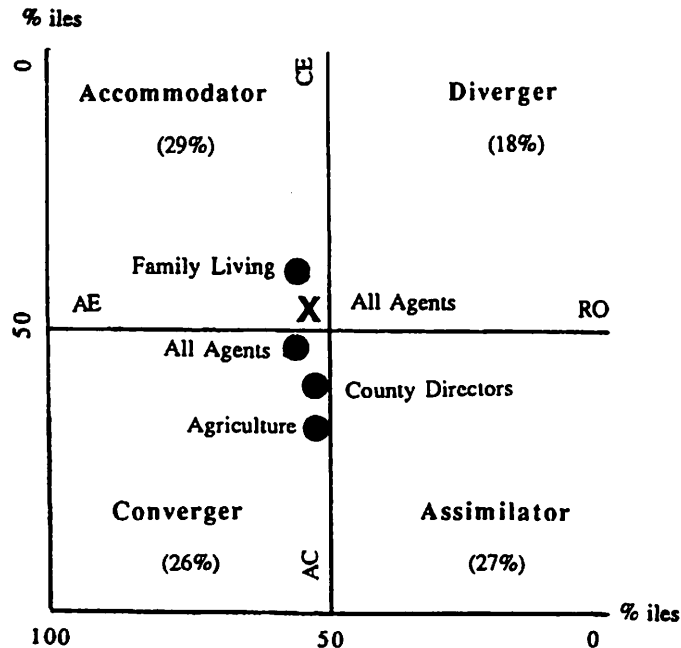


Figure 1. Kolb's Learning-Style Grid and Program Area Assignment of Staff Members

Data in Table 2 reveal the relative proportion of Extension county staff members for each learning style by program area assignment. Family living agents had the smallest percentage of staff members (16%) assessed as having a Converger learning style. Forty-four percent of family living agents had an Accommodator learning style, more than twice as many as in any of the other learning style categories. Agriculture agents were identified most frequently as having the Assimilator (31%) or Converger (32%) learning styles. County directors were almost evenly split between Converger (30%), Accommodator (27%), and Assimilator (24%) learning styles, with the Diverger (18%) learning style occurring the least. The 4-H/youth agents came closest to mirroring the collective group in terms of percentages of agents across the four learning styles.

Table 2. Distribution of Extension Personnel by Area of Assignment and Learning Style

Program area	Learning Style			
	Accommodator	Assimilator	Converger	Diverger
	%	%	%	%
Agriculture (N=75)	20	31	32	17
Four-H/Youth (N=46)	30	28	24	17
Family Living (N=45)	44	20	16	20
County Director (N=33)	27	24	30	18
All Agents (N=199*)	29	27	26	18

*Other agents (12) did not have one major program area commitment

Discussion

The Converger learning style was most frequently preferred by both agriculture agents (32%) and county directors (30%), but was the least preferred by family living agents (16%). The two dominant learning strengths of a convergent learner are abstract conceptualization (AC) and active experimentation (AE). The strengths of this learning style are individual problem-solving, decision-making, and the practical application of ideas. Hypothetical-deductive reasoning allows the person to focus on specific problems. Convergents are controlled in their expression of emotion and prefer dealing with technical tasks and problems rather than social and interpersonal issues.

The Diverger learning style was least preferred by the total group of staff members (18%) and least preferred within program assignment areas by agriculture agents, 4-H/youth agents, and county directors. This learning style has the opposite learning strengths from the Converger. A Diverger emphasizes concrete experience (CE) and reflective observation (RO) and adaptation by observation rather than action. A Diverger is feeling oriented, interested in people, and imaginative enough to view concrete situations from many perspectives to generate alternative ideas and implications.

An Assimilator learning style was the second most-preferred learning style (27%) by the total group of staff members and accounted for almost one-third (31%) of the agriculture agents' learning styles. These individuals prefer abstract conceptualization (AC) and reflective observation (RO), using inductive reasoning and creating theoretical models. An Assimilator's orientation is less focused on people and more concerned with judging ideas by theoretical precision, not by practical value.

The Accommodator has the opposite strengths from assimilation--doing things, carrying out plans and tasks, and getting involved in new experiences. Accommodators emphasize concrete experience (CE) and active experimentation (AE). This adaptive orientation provides an opportunity for risk taking and action and for those situations that require changing immediate circumstances. Accommodators tend to solve problems in an intuitive, trial-and-error manner and rely on others for information who may see

them as impatient and pushy. This learning style was most-preferred by the total group of staff members (29%), 4-H/youth agents (30%), and by 44 percent of the family living agents. It was not as preferred by agriculture agents (20%) or county directors (27%).

How do the current results compare to earlier studies of Extension personnel? In a study of Kentucky county Extension agents who were administered Kolb's learning style inventory, the relative positions of the agriculture and 4-H/youth agents were similar; however, they were placed in the Accommodator quadrant rather than in the Converger quadrant (Pigg, Busch, and Lacy, 1980). Kentucky home economics agents occupied the same relative position but in the Diverger quadrant. In the Pennsylvania study, the locations of each of these groups was such that agriculture and 4-H/youth agents are in the Converger learning style quadrant and the family living agents are in the Accommodator quadrant. In both studies the populations of Extension agents (all agents) from each state occurred within the Accommodator learning style. County directors were not identified in the Kentucky study.

Table 3. Distribution of Agents in Various Program Area Assignments by Learning Style Types^a

Program area	Learning Style Type			
	Accommodator	Assimilator	Converger	Diverger
	%	%	%	%
Agriculture (N=112)	37	17	24	22
Four-H/Youth (N=105)	51	8	15	26
Home Economics (N=110)	46	8	15	31
All Agents (N=327)	44	11	19	27

^aTable adapted from Pigg, Busch, and Lacy (1980)

Implications and Recommendations

All four groups of agents identified in this study--agriculture, 4-H/youth, family living, and county directors--preferred to learn by doing, or active experimentation (AE). More than half (55%) of the agents in these groups were either Convergers (26%) or Accommodators (29%) who preferred a learning situation where the teacher is a role model to show them how to do things. Despite being risk takers and extroverted, they prefer small group discussions and individualized, self-paced, learning activities and projects with opportunities to practice and receive feedback while getting things accomplished.

Almost two of every three (64%) family living agents, on the other hand, who were Accommodators (44%) or Divergers (20%) were more inclined to learn from concrete experience (CE). They see the teacher as a coach or helper for learning by intuition and, being sensitive to peoples' feelings, prefer role playing, learning from new experiences and like personalized feedback and discussion. Almost one-half (47%) of the 4-H/youth agents prefer this learning situation.

Although one-half (48%) of the agriculture agents were Assimilators (31%) or Divergers (17%), less than half (45%) of the total staff members were in these two groups. Individuals in these groups learn by perception or reflective observation (RO), by looking inward for meaning from many different perspectives before making considered judgments. They prefer lectures from a teacher who is both a guide, or task master, and will observe different perspectives of an issue.

The majority of agents in each of three groups--agriculture, 4-H/youth, and county directors--preferred to learn by thinking or using abstract conceptualization (AC). They chose systematic learning situations, such as reading about theories, with an instructor or teacher to can communicate clear, well-structured information allowing them to analyze

ideas in a systematic method. Almost two of every three agriculture agents (63) were either Assimilators (31%) or Convergents (32%) and almost equal percentages of county directors (54%) and 4-H/youth agents (52%) had the same learning styles. Although there are differences in the proportion of agents with various assignments across the learning styles, from a practical perspective the authors do not consider these to be substantial differences.

Several questions are raised by this study related to the inservice education of extension staff. Will educators responsible for staff development take into account the complexities associated with learning style preferences of agents? Will subject matter be designed and presented to accommodate agents' preferences for learning? What will be the most educationally efficient method to teach to state-level staff how to use individual learning style preferences of agents? Regardless of vastly different teaching responsibilities with diverse learners, professional educators must be able to recognize and be sensitive to individual clients with various learning styles. It would seem incumbent upon adult educators to incorporate into their style of teaching information regarding their clients learning styles. From a total organization perspective, individual learning style preferences need to be aggregated in a meaningful manner to enhance the organization's capacity and effectiveness.

One of the goals for using information from this study was to increase the capacity for teamwork from an organizational viewpoint. When individuals bring different learning styles to a team, advantages, as well as problems, may be created. Problems attributed directly or indirectly to these differences in learning style do not occur randomly. Much the same way as one's body has evolved specialized organs for special purposes, organizations relate to the environmental contest much the same way by specializing into units that deal with that external environment. Careful observation of the strengths inherent in each of the four learning styles leads one to conclude there are major differences. But agriculture agents do what they do for many of the same reasons that family living agents do what they do--they just do "their things" in different ways and accomplish their mission along different routes. There is, indeed, strength in diversity.

From a philosophical management perspective, although these agents need to remain differentiated when relating to their clientele, at some point in time they need to be integrated into and coordinated with the internal organizational environment. Unfortunately, one way this can happen is through the domination of one learning style over another in less adaptive, inflexible organizations. The preferred method is to integrate and adapt to various learning styles which results in an organization that is greater than the sum of its parts. For an organization to pass the test of time and remain flexible and adaptable, all of the diverse, yet subtle, differences in learning styles--action and reflection, concrete and abstract--are needed, if not desired.

References

- Brookfield, S. D. (1990). Understanding and facilitating adult learning. San Francisco: Jossey-Bass.
- Cox, D., Sproles, E. & Sproles, G. (1988). Learning style variations among vocational agriculture students. Journal of the American Association of Teacher Educators in Agriculture, 29(1), 11-19.
- Dewey, J. (1938). Experience and education. New York: McMillan & Co.

- Haverkamp, K. (1983). The orientation experience for the adult learner. In R. M. Smith (Ed.), Helping Adults Learn How to Learn: New Directions for Continuing Education, 19, pp. 3-11.
- Knowles, M. S. (1970). The modern practice of education: Andragogy versus pedagogy. New York: Association Press.
- Kolb, D. A. (1984). Experiential learning: Experience as the source of learning and development. New Jersey: Prentice-Hall, Inc.
- Kolb, D. A. (1985 R.). Learning-Style Inventory. Boston: McBer and Co.
- Kolb, D. A. & Smith, D. M. (1986). User's guide for the learning style inventory. Boston: McBer and Co.
- Lewin, K. (1951). Field theory in social sciences. San Francisco: Jossey-Bass.
- Piaget, J. (1952). The origins of intelligence in children. New York: International University Press.
- Pigg, K. E., Busch, L. & Lacy, W. B. (1980). Learning styles in adult education: A study of county extension agents. Adult Education, 30(4), 233-244.
- Price, G. (1983). Diagnosing learning styles. In R. M. Smith (Ed.), Helping Adults Learn How to Learn: New Directions for Continuing Education, 19, pp. 49-55.
- Rollins, T. J. (1990). Analysis of theoretical relationships between learning styles of students and their preferences for learning. Journal of Agricultural Education, 31(1), 64-70.
- Rollins, T. J. & Scanlon, D. C. (1991). The cognitive, perceptual, and instructional preferences of agricultural education students. Journal of Agricultural Education, 32(3), 48-54.
- Smith, P. P. (1980). The new professional: Professor or facilitator? In B. Heermann, C. Enders, & E. Wine (Eds.), New Directions for Community College, 29, 9-12.
- Smith, R. M. & Haverkamp, K. K. (1977). Toward a theory of learning how to learn. Adult Education, 28, 3-21.
- Smith, R. M. (1982). Learning how to learn: Applied theory for adults. Chicago: Follett.