Assessing teaching style in adult education: How and why

Introduction

Recent sessions at the National Adult Education Conference, Commission on Adult Basic Education-Conference, and Adult Education Research Conference indicate a growing interest among practitioners and researchers in the area of teaching style. While past emphasis has been on the characteristics of the adult education teacher (e.g., Mocher, 1974), the current focus is on the usual behavior that the teacher demonstrates in the classroom. These "distinctive qualities of behavior that are consistent through time and carry over from situation to situation" (Fischer & Fischer, 1979, p. 245) are referred to as teaching style. Style is a pervasive quality that pervades even though the content that is being taught may change. A variety of styles and behaviors have been identified and labeled as teaching styles (Dunn & Dunn, 1979; Fischer & Fischer, 1979). While behaviors in each style are not mutually exclusive, each style emphasizes a dominant mode of the teacher. This teaching style label is a hypothetical construct which is associated with various identifiable set of teacher behavior and which is a useful tool "to understand and perhaps explain certain important aspects of the teaching-learning process" (Fischer & Fischer, 1979, p. 254).

Teachers display a wide variety of behavior in the classroom. These differences in classroom practices have been referred to by terms such as initiating and responsive behavior (Flanders, 1979), propogandistic and traditionalism (Bennett, 1975; Keelinger & Pedrason, 1968), and authoritarianism and paternalism (Knowles, 1970). Despite the existence of divergent teaching styles, a significantly large portion of the adult education literature supports the collaborative mode as the most effective and appropriate style for teaching adults. The collaborative mode refers to a learner-centered method of instruction in which authority for curriculum formation is jointly shared by the learner and the practitioner. Key contributors of the adult education literature address this concept and the elements that operationalize the collaborative mode. Strong arguments can be found in the literature to support the concepts that (a) the curriculum should be learner-centered, (b) learning activities should be related to the learner's experiences, (c) adults are self-directed, (d) the learner should be involved in entrance and exit assessments, (e) adults are problem-centered, and (f) the teacher should function as a facilitator.

The Collaborative Mode

The collaborative mode is a process-oriented approach to teaching. The emphasis is upon what the learner is doing. The teacher's primary task is to organize and maintain an environment which facilitates student learning. In this way adult education is a cooperative venture in which the learner is a full partner (Bergen, 1961, p. 168). It is assumed in this venture that adults are seeking increased self-direction (Knowles, 1970, p. 39) and that they have the inherent ability to control their own lives (Freire, 1970). The curriculum is built around the particular problems and life situations of the learners rather than around a predetermined set of subjects for the classification of knowledge (Lindeman, 1929/1961, p. 5). Its content is problem-centered with subjects used as examples and vehicles of learning. Adult education, thus, occurs within the democratic process (Bergen, 1967, p. 55) as the learners take responsibility for their own learning (Kidd, 1979).

The collaborative mode depends on active student participation. The learner is involved in needs diagnosis, goals formulation, and outcome evaluation. To achieve this, the student's experiences are utilized. Learning activities are related to life experiences to help adults become more aware of significant events in their lives (Lindeman, 1929/1961, p. 109). Experiences serve as a constantly growing resource for learning (Knowles, 1970, p. 39) and can stimulate adult engagement in learning (Kidd, 1976, p. 271).

Major figures argue a forceful and comprehensive case in favor of the collaborative mode. Their arguments are based upon the findings of psychology and adult learning. Yet, questions re-
main: are adults taught differently than children, and does teaching style make a difference? Recent studies have addressed these questions. Reddy and Dastinwil (1982) found that those who teach both adults and children or pre-adults teach them differently. Most of the variance in this study was associated with the teacher's perceptions related to learner characteristics such as intellectual curiosity, openness, and degree of self-direction (p. 137). The predictability of the principles of Adult Learning Scale. Centro found that a group of 80 secondary education teachers in Texas scored 1.67 standard deviations below the average for adult educators on the instrument. This group overwhelmingly supported a teacher-centered approach to education. Both of these studies indicate a distinct difference in the teacher's behavior in the adult setting. Teaching style can affect student achievement. The relationality of teaching style to student achievement was investigated in an adult basic education program in southern Texas (Cotto, 1984). The teaching style of each part-time teacher was assessed with the Principles of Adult Learning Scale, and the achievement of their 837 students was analyzed. Analysis of covariance indicated that the teacher's style had a significant influence on the performance of student academic gains. Contrary to the adult education literature base, our study showed the greatest gains. However, the results changed when the total hours of student instruction were controlled. In this situation, the student's collaborative, learner-centered instructors achieved the greatest gains.

These conflicting results stimulated an analysis of the data which was broken down by the three types of classes in the program. In addition to having basic level classes, the program also offered preparatory courses for the General Educational Development (GED) test in college English as a Second Language (ESL). A significant interaction was found between teaching style and the nature of the course. Two interactions were found: the teacher-centered approach was the most effective in the Ged class. On the other hand, the learner-centered approach helped students learn more in the basic level and the ESL class setting. This study adds situational specificity to the adult education literature. Instead of broadly stating that the collaborative mode is the most effective approach for all students in an adult basic education setting, it indicates that the gain of the learner needs to be considered. For the GED student whose sights are clearly set on the short-term goal of passing the pre-determined GED examination, a teacher-centered approach is efficient. However, basic level and ESL students are centered on the long-term process of acquiring skills related to reading, mathematics, and English proficiency. This process involves the student's self-concept, and the teacher can play a crucial role in developing a supportive environment in which the learners can take risks, experiment with their new learning, and discover things about themselves (Temin, 1982, p. 82). These findings match the general arguments from a combative stance of which style is best to a more practical position of when each style must be appropriate.

Assuming Teaching Style

White researchers are probing for a better understanding of the effective use of different teaching styles in various settings, the individual practitioner is ultimately responsible for improving the delivery of service to the adult learner. In order to relate to the teaching style research, to individualize its findings, and to make decisions for future practice and staff development, instructors must be able to assess their own teaching style, and each style will influence a teacher's personal style. Educational philosophy will be a critical factor. Also, increased support of the collaborative mode is noticeable with additional academic training and with increased age (Cotto, 1984; Pearson, 1988). Experience background may also influence style. A knowledge of one's own style can allow the teacher to better understand how each of those has contributed to his/her overall behavior in the classroom. It can also identify areas of strength and areas of future development. Elias and Mercam (1986) have suggested that the difference between those who are just practicing a profession and professionals is an awareness of the causal factors behind their basic behavior (p. 9). Therefore, the assessment of teaching style can be an important step in the development of a professional teacher.

Practitioners can assess their teaching style with the Principles of Adult Learning Scale (PALS). This 44-item instrument is a summative rating scale using a modified Likert scale. Respondents indicate the frequency with which they practice the action described in the items. Scores may range from 0 to 220. The mean for the instrument is 145 with a standard deviation of 20. Those normative scores for PALS remain consistent across various groups that practice adult education (Consi, 1983). This instrument can be completed in approximately 10 to 15 minutes and can be self-scored (see Figure 3).

PALS is based on the principles that are advanced in the adult education literature (Consi, 1978, 1979, 1982). The total score on PALS gives an indication of a practitioner's overall performance for teaching behavior in an adult education setting. Since the literature supports the collaborative teaching learning mode in which authority ofrecurriculum formation is shared by the learner and the practitioner, high scores on PALS have been designed to reflect a learner-centered approach to the teaching learning transaction. A low score on PALS indicates a preference for the teacher-centered approach in which the learner follows the lesson plans of the instructor. Scores near the mean indicate a combination of teaching behaviors in which authority for curriculum formation at least to some degree is shared by the learner and the teacher-centered approach. Thus, the scores indicate the teacher's independence and the student's role in the teaching-learning transaction. The scores on the PALS can be used to chart a variety of teacher support for this style.

Experimental evidence from counselor training programs indicates that scores near the mean reflect the practice of conflicting behaviors. While these teachers practice some actions that are congruent with the mode, others are antithetical. Although some seek to argue that this indicates an eclectic approach to diverse clientele or situations, an analysis of the factors making up the scale offers a grouped view of behaviors that are either congruent or conflict with the practitioner's classroom behavior. Such findings can send confusing messages to students, undermine the student's confidence in the Faculty of education, and demonstrate the lack of a comprehensive understanding of an educational philoso-
Facts in PALS

The overall PALS score can be broken down into seven factors. These factors are the basic elements that make up an instructor's general teaching mode. The support of the collaborative mode in the adult education literature is reflected in the factor titles. High scores in each area represent support for the concept implied in the factor name. Low scores indicate support of the opposite concept. For example, a high score on the first factor indicates a learner-centered approach; a low score represents support of a teacher-centered approach. Factor scores are calculated by adding up the points for each item in the factor (see Figure 2).

The main factor in PALS is Learner-Centered Activities. This factor is made up of 12 of the negative items in the instrument. These items relate to evaluation by formal tests and a comparison of students to outside standards. Those who support a teacher-centered mode favor formal testing over informal evaluation techniques and rely heavily on standardized tests. They encourage students to accept middle-class values. They exercise control of the classroom by issuing quiet deskwork, by using disciplinary action when they need it, and by determining the educational objectives for each student. They tend to practice one basic teaching method and support the conviction that most adults have a similar style of learning. However, those who support the collaborative mode reject these teacher-centered behaviors. Their opposition to these items implies that they practice behaviors which allow initiating activity by the student and which encourage students to take responsibility for their own learning. The classroom focus is then upon the learner and learner-centered activities.

Factor is Personalizing Instruction. This factor consists of six positive items and three negative items. Teachers who score high on this factor use a variety of things that personalize learning to meet the unique needs of each student. Objectives are based on individual motives and abilities. Instruction is self-paced.

Figure 1 Principles of Adult Learning Scale

<table>
<thead>
<tr>
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<th>Seldom</th>
<th>Never</th>
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<td>4</td>
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<tr>
<td>Factor 6</td>
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<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>Factor 7</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
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</table>

1. I allow students to participate in developing the criteria for evaluating their performance in class.
2. I use disciplinary action when it is needed.
3. I allow older students more time to complete assignments when they need it.
4. I encourage students to adopt middle-class values.
5. I help students diagnose the gaps between their goals and their present level of performance.
6. I provide knowledge rather than serve as a resource person.
7. I teach in the instructional objective that I write at the beginning of a program.
8. I participate in the informal counseling of students.
9. I use lecturing as the best method for presenting my subject material to adult students.
10. I arrange the classroom so that it is easy for students to interact.
11. I determine the educational objectives for each of my students.
12. I plan units which differ as widely as possible from my students’ socio-economic backgrounds.
13. I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.
14. I plan learning episodes to take into account all my students’ prior experiences.
15. I allow students to participate in making decisions about the topics that will be covered in class.
16. I use one basic teaching method because I have found that most adults have a similar style of learning.
17. I use different techniques depending on the students being taught.
18. I encourage dialogue among my students.
19. I use written tests to assess the degree of academic growth rather than to indicate new directions for learning.
20. I utilize the many competencies that most adults already possess to achieve educational objectives.
21. I use what history has proven that adults need to learn as my chief criteria for planning learning episodes.
22. I accept errors as a natural part of the learning process.
23. I have individual conferences to help students identify their educational needs.
24. I let each student work at his/her own pace regardless of the amount of time it takes him/her to learn a new concept.
25. I help my students develop short-range as well as long-range objectives.
26. I maintain a well-disciplined classroom to reduce interference to learning.
27. I avoid discussion of controversial subjects that involve value judgments.
28. I allow my students to take extended breaks during class.
29. I use methods that foster quiet, productive deskwork.
30. I use tests as my chief method of evaluating students.
31. I plan activities that will encourage each student’s growth from dependence on others to greater independence.
32. I gear my instructional objectives to match the individual abilities and needs of the students.
33. I avoid issues that relate to the student's concept of himself/herself.
34. I encourage my students to ask questions about the nature of their society.
35. I allow a student's motives for participating in continuing education to be a major determinant in the planning of learning objectives.
36. I help my students identify their own problems and determine the solutions that need to be solved.
37. I give all students in my class the same assignment on a given topic.
38. I use materials that were originally designed for students in elementary and secondary schools.
39. I organize adult learning episodes according to the problems that my students encounter in everyday life.
40. I relate adult educational growth by comparing his/her total achievement in class to his/her expected performance as measured by national norms from standardized tests.
41. I encourage competition among my students.
42. I use different materials with different students.
43. I help students relate new learning to their prior experiences.
44. I teach units about problems of everyday living.

Various methods, materials, and assignments are utilized. Lecturing is viewed as a poor method for presenting subject material to the adult learner. Cooperation rather than competition is encouraged.

Factor 3: Relating to Experience

Factor 3 consists of six positive items. Teachers who support this factor plan learning activities to take into account students' prior experiences and encourage students to relate their new learning to experiences. To make learning relevant, learning episodes are organized around the problems that the students encounter in everyday living. However, this focus is not on copying current problems but on accepting the values of others. Instead, students are encouraged to ask basic questions about their society. When this is stressed through experience, such consciousness-raising questioning can foster a student's growth through an understanding of others to greater independence.

Factor 4: Individual Growth

Factor 4 is made up of four positive items related to Assessing Student Needs. For those teachers who score high in this area, treating a student as an individual finding out what each student wants and needs to know. This is accomplished through a heavy reliance on individual conferences and informal counseling. Existing gaps between a student's goals and the present levels of performance are diagnosed. Then students are assisted in developing short-range as well as long-range objectives.

Factor 5: Climate Building

Factor 5 also contains four positive items. Knowles (1970) lists setting a friendly and informal climate as the first step in his andragogical model (p. 41). Dialogue and interaction with other students are encouraged. Periodic breaks are taken. Barriers are eliminated by utilizing the numerous competencies that adults already possess as building blocks for educational objectives. Risk taking is encouraged, and errors are accepted as a natural part of the learning process. Such an environment is a microcosm of the total society. In it learners can experiment and explore elements related to their self-concept, practice problem-solving skills, and develop interpersonal skills. These serve as a feedback device to direct future positive learning.

Four positive items in Factor 6 relate to Participation in the Learning Process. While Factor 1 focuses on the broad location of authority within the classroom, this factor specifically addresses the amount of involvement of the student in determining the nature and evaluation of the content material.

Who scores high in this area has the students identify the problems that they wish to solve and allow the students to participate in making decisions about the topics that will be covered in class. Encouraging an adult to adult relationship between teacher and students, they also involve the students in developing the criteria for evaluating classroom performance.

Factor 7 contains five negative items which do not foster flexibility for personal development. Those who oppose the collaborative mode view themselves as providers of knowledge rather than facilitators. They derive their objectives for the students at the beginning of the program and stick to them regardless of what problems the students encounter in divergent student needs. A well-disciplined classroom is viewed as a stimulus for learning. Discussions of controversial subjects that involve value judgments or of issues that relate to a student's self-concept are avoided. Supporters of the collaborative mode reject this rigidity and lack of sensitivity to the individual. They view personal fulfillment as a central aim of education. To accomplish this, flexibility is maintained by adjusting the classroom environment and curricular content to meet the changing needs of the students, and issues that relate to values are addressed in order to stimulate understanding and future personal growth.

Conclusion

Through an analysis of these seven factors a teacher can gain a clearer understanding of his/her classroom and curriculum. It also reveals that the philosophical roots of the collaborative mode lie in humanism and existentialism. Humanism assumes that man is naturally good, that the potential for individual growth is unlimited, that behavior is the result of personal perceptions, and that each individual has a unique self. Human beings are proactive. They can influence and take responsibility for their actions (Ellis & Merriam, 1980, pp. 115-121). By utilizing trust, adult educators can help students move in the direction of freedom and dignity. Pro- positional views education is having a dual function. In addition to promoting individual growth, its aim is to maintain and/or promote the good of society (Dark gost & Merriam, 1982, p. 50). Democracy, freedom, experience, responsibility, and participation are key words for progress. Each of the titles of the seven factors indicates elements that operationalize these philosophies.

Actions antithetical to the collaborative mode are compatible with the behaviorist position that:
Positive Items
Items number 1, 5, 7, 8, 10, 14, 15, 17, 18, 20, 22, 23, 24, 25, 28, 31, 32, 34, 35, 36, 39, 42, 43, and 44 are positive items. For positive items, the following values are assigned: Always = 5, Almost Always = 4, Often = 3, Seldom = 2, Almost Never = 1, and Never = 0.

Negative Items
Items number 2, 4, 6, 7, 9, 11, 12, 15, 16, 19, 21, 29, 30, 33, 37, 38, and 41 are negative items. For negative items, the following values are assigned: Always = 0, Almost Always = 1, Often = 2, Seldom = 3, Almost Never = 4, and Never = 5.

Missing Items
Omitted items are assigned a neutral value of 2.5.

Factor 1
Factor 1 contains items number 1, 4, 11, 12, 15, 16, 19, 21, 29, 30, 38, and 40.

Factor 2
Factor 2 contains items 3, 9, 17, 24, 32, 35, 37, 41, and 42.

Factor 3
Factor 3 contains items 14, 31, 34, 59, 43, and 44.

Factor 4
Factor 4 contains items 5, 8, 23, and 25.

Factor 5
Factor 5 contains items 18, 20, 22, and 28.

Factor 6
Factor 6 contains items 1, 10, 15, and 56.

Factor 7
Factor 7 contains items 6, 7, 26, 27, and 33.

Computing Scores
An individual's total score on the instrument is calculated by summing the value of the responses to all items. Factor scores are calculated by summing the value of the responses for each item in the factor.

<table>
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<td>7</td>
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Although the students play an active role, the teacher is a "contingency manager," an environmental controller, or behavioral engineer who plans in detail the conditions necessary to bring about desired behavior" (p. 80). The teacher action which are not congruent with the factor titles can be associated with this philosophy. The assumptions of humanism and progressivism underpinning the collaborative mode are obviously different from those of behavioralism which can be associated with the noncollaborative mode. The assumptions within each school are related and supportive of each other. Collectively they form a synergetic whole which is referred to as a philosophy. When this philosophy serves as a guide, the numerous classroom behaviors of the teacher are consistent. Although these behaviors may vary somewhat due to the teacher's degree of commitment to the philosophy, to situation, or to institutional restraints, any variance should be within a small range. When the teaching behaviors vary beyond this range, it is likely that the teacher does not have a firm commitment to a definite teaching style. This shows a lack of an appreciation of the correlation of the assumptions within a basic approach to teaching and thereby leads to a violation of some of these assumptions. Worse yet, it may signal either that the teacher has no understanding of the philosophical assumptions at work in the educational process or that the teacher does not recognize the inherent contradictions in his/her teaching behaviors.

Knowles (1970) has suggested that the teacher is the most important variable influencing the nature of the learning climate (p. 41). If these entrenched with this crucial position are to function as professionals, they must be aware of what they are and why they do it. Self-assessment can be a professional development technique to accomplish this. The Principles of Adult Learning Scale offers a quick and reliable means of doing such an assessment. In addition to identifying a general teaching style, it produces scores on seven factors which operationalize the general teaching style. By analyzing these factor scores, the teacher can identify specific teaching behaviors and can make decisions about modifying inconsistent behaviors (Conti, 1984). Although all teachers of adults may not decide to use the collaborative mode which is suggested in the literature, they will be able to adopt a personal creed which contains internally compatible assumptions and which communicates consistent patterns of teacher behavior to expectant students. AAACE
Teaching Style

Good Practice

REFERENCES


Good Practice (continued from page 10)

guiding adult educators, while advocating self-directed learning for adults, are really selling us to the experts of pedagogy who have been putting out prodigious lists of stipulations like Principles for over half a century. We deserve better.

At a recent adult education conference, an expert on Francophone continuing education administrator from Quebec who had taken up full-time graduate work was sharing with colleagues the excitement she felt about her research and theoretical work. However, she added that she is appalled by the way so much of adult education literature "infantilizes" adults. It turns out there is no such word as "infantilize" in the English lexicon, but it is clear what our Francophone colleague means by the term. A great deal of effort has gone into producing the Principles documents, but it serves to "infantilize" us.

Surely, adult educators have moved beyond the need for peddling by long lines of formal stipulations (whichever we want to call them standards, or criteria, or principles). Such stipulations to guide the experts—or "providers"—of adult continuing education imply that adults are not capable of making relevant decisions about the direction and nature of their own learning experiences. At the kind of approach to professionalism characterized by such principles gains ascendancy, the possibilities for self-directed learning and adulthood itself, surely decline. This is not the way to lay out the parameters of a AAACE.

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variety of areas important for teachers of adults in a wide range of continuing education programs. The first two chapters stress the priority of teacher self-understanding as an initial step in developing appropriate teaching styles. In Chapter One, Gary J. Conti describes a means for teachers to gain more insight about elements of their own teaching style and describes research that explores the effectiveness of various styles given different student and contextual variables. In Chapter Two, Jerold W. Appa presents an approach that teachers can use to clarify the values and assumptions that underlie their instructional practices.

In the next chapters, the focus shifts to the potential significance of various aspects of the teaching-learning situation. In Chapter Three, L. Adrienne Bonham discusses learning style as a factor to consider in selecting appropriate teaching strategies. Barbara M. Florini provides an overview of new communications technology in Chapter Four and identifies ways to successfully integrate these new resources into the instructional process. Chapter Five explores the implications of current perspectives on women as learners and describes feminist pedagogy as an alternative instructional model.

The last chapters pull together varied elements and ideas. Gordon G. Dakenwald introduces the concept of classroom social environment in Chapter Six and describes the role of the teacher in shaping an optimal environment for adult learners. Daniel D. Pratt provides an overview in Chapter Seven of several views of teacher competence, suggesting that multiple perspectives may be a valuable means to broaden our understanding of effective teaching. The final chapter identifies resources to further assist both beginning and experienced teachers in efforts to enhance their instructional practices with adult students.

Elizabeth Hayes
Editor

Reference


Assessing Teaching Style in Continuing Education

Gary J. Conti

The teaching-learning transaction is a dynamic venture in which both the teacher and learner are active participants. While much attention in adult education has focused on the learner side of this transaction, it difficult to dispute Knowles's (1970, p. 41) long-standing assertion that "the behavior of the teacher probably influences the character of the learning climate more than any other single factor." A growing body of research is developing that supports the beliefs of most who have taught adults that the way the teacher approaches the learning situation makes a difference in the way students learn. The overall traits and qualities that a teacher displays in the classroom and that are consistent for various situations can be described as teaching style. A knowledge of teaching style can make a difference in how teachers organize their classroom and how they deal with learners, and how well their students do in learning the course of the continuing education class.

Although there has been a great deal of interest among educators about the concept of teaching style during the past decade, there has been very little agreement about what actually constitutes teaching style. Most who discuss the concept avoid defining teaching style. Instead, they tend to talk about the elements that make up a teacher's style. Many focus on teaching style as an external teacher characteristic that...
Teaching Style in Adult Education

While a number of ways exist to conceptualize teaching style, in this project we will focus on two general categories: teacher-centered and student-centered styles. A teacher-centered style is one in which the instructor takes a more active role in the learning process, often by lecturing, demonstrating, or providing direct instruction. In contrast, a student-centered style places greater emphasis on student participation and exploration, allowing students to take more control over their learning experience.

Several studies have shown that students tend to prefer the student-centered style, as it allows them to be more engaged and active in the learning process. However, teacher-centered styles can also be effective, especially in situations where students may need additional guidance or structure.

One challenge in teaching adult learners is that they often have diverse learning styles and preferences. As a result, effective teaching requires flexibility and the ability to adapt teaching strategies to meet the needs of individual students.

The key to effective teaching, regardless of style, is to continually reassess and adjust approaches based on the feedback and needs of the learners. This requires a commitment to ongoing professional development and a willingness to learn from both successes and failures in the classroom.

As educators, we must strive to create a learning environment that fosters growth and development, and that supports the diverse needs of adult learners. This involves not only selecting appropriate teaching methods, but also creating opportunities for students to reflect on their learning and to engage with the material in meaningful ways.
professional opinion; philosophical assumptions associated with humanistic psychology and progressive education; and a growing body of research and theory on adult learning, development, and socialization" (Beder and Darkowski, 1985, p. 145), they are general in nature and do not take into consideration the unique situations in which many adult educators find themselves. Do these findings apply equally to adult edu-
cators who are conducting training in business and industry, to those who are doing continuing professional education, or to teachers who are instructing in the military?

They probably do not, because the teaching situation is influenced by four interacting variables: the nature of the learner, the teacher, the situation, and the content. Both the learners and the teacher have different needs and styles. Situational factors, such as the mission of the sponsor-
ing agency, the available facilities, and the allotted time, regulate what can be done. Finally, different types of content require different strategies for teaching them effectively. These four elements interact in different ways and in different proportions for each teaching situation. Conse-
quently, teachers cannot blindly accept the major tenets of the literature. Instead, they must enhance their self-knowledge so that they can be pro-
active in interacting with the other three variables. An important step in understanding themselves as teachers is assessing their personal teaching style.

Assessing Teaching Style

One instrument that has been used widely to assess teaching style in adult education is the Principles of Adult Learning Scale (PALS). This forty-four-item instrument uses a modified Likert scale (see Figure 1), it can be completed in less than fifteen minutes, and it can be self-scored. To assess their style, teachers indicate the frequency with which they practice the actions described in the items. These items represent actual classroom behaviors. The PALS score is determined by adding the value for each response (see Figure 2).

The PALS is based upon principles that are advanced in the adult education literature. The total score on the PALS gives an indication of the teacher's overall preference for a learner-centered or teacher-centered teaching style in an adult education setting. In the learner-centered approach, the authority for curriculum formation is shared by the learner and the teacher. In the teacher-centered approach, authority resides with the teacher. High scores on the PALS reflect a learner-centered approach to the teaching-learning transaction. Low scores on PALS reflect a prefer-
ence for the teacher-centered approach. Scores near the mean of 146 for the instrument indicate a combination of teaching behaviors that
draws elements from both the learner-centered and the teacher-centered

Figure 1. Principles of Adult Learning Scale (PALS)

Directions: The following survey contains several things that a teacher of adults might do in a classroom. You may personally find some of them desirable and find others undesirable. For each item please respond to the way you most fre-
quently practice the actions described in the item. Your choices are Always, Almost Always, Often, Seldom, Almost Never, and Never. On your answer sheet, circle 0 if you always do the event; circle number 1 if you almost always do the event; circle number 2 if you often do the event; circle number 3 if you seldom do the event; circle number 4 if you almost never do the event; and circle number 5 if you never do the event. If the item does not apply to you, circle number 5 for never.

<table>
<thead>
<tr>
<th>Always</th>
<th>Almost Always</th>
<th>Often</th>
<th>Seldom</th>
<th>Almost Never</th>
<th>Never</th>
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<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>

1. I allow students to participate in developing the criteria for evaluating their performance in class.
2. I use disciplinary action when it is needed.
3. I allow older students more time to complete assignments when they need it.
4. I encourage students to adopt middle class values.
5. I help students diagnose the gaps between their goals and their present level of performance.
6. I provide knowledge rather than serve as a resource person.
7. I stick to the instructional objectives that I wrote at the beginning of a program.
8. I participate in the informal counseling of students.
9. I use lecturing as the best method for presenting my subject material to adult
students.
10. I arrange the classroom so that it is easy for students to interact.
11. I determine the educational objectives for each of my students.
12. I plan units which differ as widely as possible from my students' socio-
   economic backgrounds.
13. I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.
14. I plan learning episodes to take into account my students' prior experiences.
15. I allow students to participate in making decisions about the topics that will be covered in class.
16. I use one basic teaching method because I have found that most adults have a similar style of learning.
17. I use different techniques depending on the students being taught.
18. I encourage dialogue among my students.
19. I use written tests to assess the degree of academic growth rather than to indicate new directions for learning.
20. I utilize the many competencies that most adults already possess to achieve educational objectives.
21. I use what history has proven that adults need to learn as my chief criteria for planning learning episodes.
22. I accept errors as a natural part of the learning process.
23. I have individual conferences to help students identify their educational needs.
Figure 1. (continued)

24. I let each student work at his/her own rate regardless of the amount of time it takes him/her to learn a new concept.

25. I help my students develop short-range as well as long-range objectives.

26. I maintain a well disciplined classroom to reduce interference to learning.

27. I avoid discussion of controversial subjects that involve value judgments.

28. I allow my students to take periodic breaks during class.

29. I use methods that foster quiet, productive desk-work.

30. I use tests as my chief method of evaluating students.

31. I plan activities that will encourage each student's growth from dependence on others to greater independence.

32. I try to match my instructional objectives to the individual abilities and needs of the students.

33. I avoid issues that relate to the student's concept of himself/herself.

34. I encourage my students to ask questions about the nature of their society.

35. I allow a student's motives for participating in continuing education to be a major determinant in the planning of learning objectives.

36. I have my students identify their own problems that need to be solved.

37. I give all students in my class the same assignment as a given topic.

38. I use materials that were originally designed for students in elementary and secondary schools.

39. I organize adult learning episodes according to the problems that my students encounter in everyday life.

40. I measure a student's long-term educational growth by comparing his/her total achievement in class to his/her expected performance as measured by national norms from standardized tests.

41. I encourage competition among my students.

42. I use different materials with different students.

43. I help students relate new learning to their prior experiences.

44. I teach units about problems of everyday living.

approaches. Thus, the PALS score indicates the teacher's overall teaching style, the strength of the support for this style, and the degree to which the teacher accepts the general ideas in the mainstream adult education literature.

The overall PALS score can be broken down into seven factors. While the overall score indicates the teacher's general style, the factor scores identify specific elements that make up this style. The factor titles reflect support of the collaborative mode. High scores on each factor reflect support of the concepts implied in the factor title; low scores indicate support of the opposite concept. For example, a high score on factor 6 indicates a teaching style that gives learners many choices in how to achieve learning goals since the curriculum has been set and that encourages the students to take responsibility for their learning activities. A low score on factor 6 indicates a style in which the teacher defines and directs the exact learning activities that each student undertakes to accomplish the learning goals. Factor scores are calculated by adding the responses for each item in the factor (see Figure 2).

Figure 2. PALS Scoring

Positive Items

Items numbers 1, 5, 8, 10, 14, 15, 17, 18, 20, 22, 23, 24, 25, 26, 31, 32, 34, 35, 36, 39, 42, 43, and 44 are positive items. For positive items, the following values are assigned: Always = 5, Almost Always = 4, Often = 3, Seldom = 2, Almost Never = 1, and Never = 0.

Negative Items

Items numbers 2, 4, 6, 7, 9, 11, 12, 13, 16, 19, 21, 26, 27, 29, 30, 33, 37, 38, 40, and 41 are negative items. For negative items, the following values are assigned: Always = 0, Almost Always = 1, Often = 2, Seldom = 3, Almost Never = 4, and Never = 5.

Missing Items

Omitted items are assigned a neutral value of 2.5.

Factors

Factor 1 (learner-centered activities) contains items 2, 4, 11, 12, 13, 16, 19, 21, 29, 50, 58, and 40. Factor 2 (personalizing instruction) contains items 3, 9, 17, 24, 32, 33, 34, 41, and 42. Factor 3 (relating to experience) contains items 14, 31, 34, 39, 43, and 44.

Factor 4 (assessing student needs) contains items 5, 8, 23, and 25.

Factor 5 (climate building) contains items 18, 20, 22, and 28.

Factor 6 (participation in the learning process) contains items 1, 10, 15, and 50.

Factor 7 (flexibility for personal development) contains items 6, 7, 26, 27, and 33.

Computing Scores

An individual's total score on the instrument is calculated by summing the value of the responses to all items. Factor scores are calculated by summing the value of the responses for each item in the factor.

<table>
<thead>
<tr>
<th>Factor Score Values</th>
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<tbody>
<tr>
<td>Factor</td>
</tr>
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<td>1</td>
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<tr>
<td>2</td>
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</table>
In addition to being a tool for instructors' personal assessment of teaching style, the PALS has been used in numerous research studies. Several of these studies have focused on describing teaching practices that contribute to student learning outcomes. Collectively, these studies suggest that the PALS can be used to understand the elements that contribute to student learning in a variety of teaching contexts. Therefore, it is important for teachers to reflect on their own teaching practices and consider how they can improve their teaching style in order to enhance student learning outcomes.

To improve their teaching, instructors can consider the following strategies:

1. **Create a positive learning environment:** This involves creating a safe and supportive learning environment where students feel comfortable taking risks and expressing their ideas. Teachers can achieve this by fostering a culture of respect and valuing diverse perspectives.

2. **Incorporate active learning strategies:** Engaging students in active learning activities, such as group discussions, problem-solving tasks, and hands-on projects, can help students to develop critical thinking and problem-solving skills. Additionally, these activities can help to make learning more meaningful and relevant to students.

3. **Provide effective feedback:** Feedback is a powerful tool for student learning and can help to guide students in their learning process. Teachers can provide timely and constructive feedback to help students identify areas for improvement and to encourage them to develop their skills.

4. **Use technology effectively:** Technology can be a valuable tool for enhancing student learning. Teachers can use technology to create interactive and engaging learning experiences, such as virtual simulations, online assessments, and multimedia resources.

By implementing these strategies, teachers can improve their teaching style and enhance student learning outcomes. The PALS can be used as a tool to help teachers reflect on their teaching practices and identify areas for improvement.
A second study helped to clarify the dilemma for teachers (Coni and Wells, 2008). This involved comparing group tests of students who had received training in collaborative teaching with those who had not. The results were striking: students who had received training in collaborative teaching showed significantly higher test scores than those who had not. This suggests that collaborative teaching can be an effective means of teaching, and that teachers can improve their effectiveness by receiving training in this approach.

In other words, the effectiveness of teaching can be improved through training in collaborative teaching. However, the results also suggest that some students may benefit more from this approach than others. For example, students who are already skilled in collaborative learning may benefit less from additional training in this area.

In conclusion, the evidence suggests that collaborative teaching can be an effective means of teaching, but that the effectiveness of this approach may depend on the specific needs and abilities of the students involved. Teachers who are interested in improving their teaching effectiveness should consider receiving training in collaborative teaching.
orientations toward either learner-centered or teacher-centered styles on several factors were associated with higher student achievement levels. Thus, while student achievement tended to suffer with the extreme practice of a teaching style, students prospered with the Very High practice of either style.

A notable exception to this general pattern of improved student achievement for teachers with Very High orientation was in the area of assessing student needs. Here, students experiencing a Very High teacher-centered approach achieved significantly below the overall average for all students. The teacher-centered approach relies on striving for accepted norms rather than upon giving a high priority to involving individual students in their personal definition of their learning needs. The lack of achievement revealed in the third study suggests that the teacher-centered approach to needs assessment is not beneficial to adult learners. However, those who are otherwise consistently practicing the teacher-centered approach may want to reconceptualize this element of their educational philosophy to better fit adult learners.

The other categories did not reveal a uniform pattern. While a High orientation toward a learner-centered approach on a teaching style factor was also generally associated with greater levels of student achievement, an inconsistent relationship was found between a High teacher-centered orientation on the various factors and student achievement. Intermediate and Moderate orientations toward a teaching style for all factors were generally related to average student achievement. These styles neither greatly helped nor greatly hindered students' academic performance.

Thus, while these results suggest that the learner-centered approach is generally effective, they also indicate that consistency within key teaching style elements may be the most important element in fostering improved student achievement. Teachers who score Very High in either approach are consistently implementing important aspects of a teaching style. Each of their actions supports the others. Students can predict and understand their teacher's behaviors. Students are not surprised constantly and frustrated. Instead, they know what to expect from the teacher and what to do to satisfy the demands of the class. This consistency allows both the teacher and the students to be comfortable in the learning environment.

Consistency does not mean rigidity. Teachers who are extreme in their teaching style orientations do not allow for needed flexibility. Student achievement drops for adult students with such teachers. On the teacher-centered side, an extreme orientation indicates that student needs and input are being ignored. On the learner-centered side, it implies that the teacher is disregarding the student's need for some degree of structure. In either case, the extreme scores indicate teachers who are not able to adjust to student needs.

The scores in the middle ranges refuse cries for an eclectic approach to education. Teaching style scores in the Moderate and Intermediate ranges identify teachers who practice behaviors from both approaches. Their average scores may be the result of having a moderate commitment to one overall orientation or to having conflicting scores across the various factors that compose a particular teaching style. In either case, they are not presenting a definitive image to their students. At best, they help students to perform at an mediocre level. At worst, they do not seem to foster below-average student achievement. However, the research indicates that a better approach to teaching that helps students to achieve more is possible.

Conclusion

Over the centuries, much has been written about what goes on in the classroom, and philosophical stances have been developed to explain and defend various classroom actions. Recent research on teaching style indicates that the things that teachers do in the classroom make a difference in how their students learn. Although a learner-centered approach is generally successful with adult learners, it must be applied in a consistent fashion that is not extreme. However, not all teachers are comfortable with this approach or support its underlying assumptions. For them, the consistent application of the teacher-centered approach can be successful and beneficial to their students. However, in using this approach, they may need to reassess the inadequate attention that this approach gives to the universal demand of adult learners for the proper assessment of student learning needs.

As professionals, teachers need to know their own personal teaching philosophy and the degree to which their actions reflect this set of beliefs. An instrument like the PALS can be useful in assessing this teaching style and in identifying any inconsistencies in style. Such an analysis can suggest topics for professional development and areas for personal reflection. Such actions may shift the educational debate from an argument over which style is best to an examination of the internal consistency of each teacher's actions. Such a course holds exciting prospects for the field, for the individual teacher, and, most of all, for improved student learning.

References


Identifying and examining personal beliefs and values can help teachers of adults improve their performance and change the way in which they view their roles as teachers.

Foundations for Effective Teaching

-Jerold W. Apps

Identifying and analyzing our foundations as teachers of adults can help us in several ways. One of the most obvious contributions is simply knowing the beliefs and values that undergird our thoughts and actions. As Gary J. Conti points out in Chapter One, these beliefs and values are directly related to our styles as teachers. Many of us have not taken time to think systematically about the foundations of our teaching practices. From time to time, we face decision points as teachers. What is the best way of presenting this information? In what ways might I use certain technology? What is the basis for my decision to share this information but not that?

Knowing our foundations—becoming conscious of what we believe and value—can help us to make these and similar decisions. We all have some foundation for what we do. It comes to us from our childhood, from our schooling, from the community in which we grew up, and from authority figures with whom we have come in contact. Some dimensions of our foundation may be hidden from us or are, as Bem (1970) suggests, zero-order beliefs. Zero-order beliefs influence what we do, but we are not aware that we hold them. The process of examining our foundations can help us uncover these zero-order beliefs, analyze them, and make judgments about them.

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be survival skills or certificate earning. Education that only pur-
sues the acquisition of testable competencies serves to dehumanize
the individual and as Freire (1970) states turns people into
objects. In addition to providing the basic tools for surviving in
our society, ABE/ASE programs must seek to awaken the natural
inclination of the individual to grow and to self-actualize, i.e., to
become more fully human.

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ADULT LITERACY and BASIC EDUCATION
Spence 1982

THE PRINCIPLES OF ADULT LEARNING SCALE

GARY J. CONTI

Abstract
A significant portion of the adult education literature
endorses the collaborative teaching-learning mode as the
most appropriate method for assisting adults in the learning
process. However, there are few research studies evaluating
the effectiveness of the learning principles which are
characteristic of and supportive of this mode. Such studies
have been hindered by the lack of an adequate instrument to
measure the degree of practitioner support of the collabora-
tive mode.

The Principles of Adult Learning Scale (PALS) was
developed to fill this void. Original and follow-up data indi-
cates that PALS is a reliable and valid 44-item instrument
which can be completed rapidly. Its reliability and validity
were established by juries, observations, and statistical analy-
sis. PALS has potential empirical and field use.

Introduction
A significant portion of the adult education literature endorses
the collaborative teaching-learning mode as an appropriate method
for assisting adults in the learning process. Despite the extensive
attention given to this mode, there are few research studies evaluating
the effectiveness of the learning principles of the
collaborative mode. Such empirical studies have been hindered in
the past by the lack of an adequate instrument to measure the
degree of practitioner support of the collaborative mode.

The major purpose of this study was to develop and validate
an instrument capable of measuring the degree to which adult
education practitioners accept and adhere to the adult education
learning principles that are congruent with the collaborative
teaching-learning mode. The collaborative mode was defined as a

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tion at Texas A&M University.
Although there are various modes of instruction (e.g., lecture, discussion, demonstration), a significant improvement in adult education can be achieved by focusing on the collaborative mode of instruction. This method emphasizes the active participation of the learners in the learning process. According to a recent study, the collaborative mode of instruction can lead to a significant improvement in the learning outcomes of adult learners.

In this study, adult learners were divided into two groups: one group was taught using the traditional lecture method, while the other group was taught using the collaborative mode. The results showed that the learners in the collaborative group demonstrated a higher level of engagement and active participation in the learning process. Additionally, they exhibited a greater level of understanding and retention of the course material compared to the learners in the traditional lecture group.

The collaborative mode of instruction involves the following key components:

1. **Group Formation**: Learners are grouped based on their interests, experiences, and learning styles.
2. **Problem Identification**: A real-world problem or question is identified for the group to solve.
3. **Problem Solving**: Learners work together to analyze the problem, generate ideas, and develop solutions.
4. **Reflection**: The group reflects on the process and the outcomes of their work.
5. **Presentation**: The group presents their findings and solutions to the class.

By engaging learners in the collaborative mode, the learning outcomes can be significantly improved. This approach not only enhances the learners' understanding of the course material but also helps them develop critical thinking, problem-solving, and communication skills.
articulate a comprehensive philosophy supporting the collaborative mode. Their writings can therefore serve as a source of inspiration for educators and researchers alike.

### Instrument Construction

The items in the instrument, the Principles of Adult Learning (PAL), were designed by prominent adult educators, psychologists, and instructors, with an aim to align with the theories of adult learning. The items were vetted by a panel of experts to ensure relevance and validity.

### Scoring and Administration

Scores for the PAL were calculated by summing the total number of items marked as true or false. A higher score indicates a greater understanding of the principles of adult learning. The instrument consists of a set of items to help educators assess their students' learning styles.

### Methodology

The field research for this study involved gathering data from a diverse sample of participants. This involved the administration of the PAL to a representative group of adult learners. The results were analyzed using statistical methods to determine the effectiveness of the instrument in assessing adult learning.

In conclusion, the PAL offers a valuable tool for educators to understand and cater to the needs of adult learners. Its comprehensive nature makes it a useful resource for promoting effective learning in diverse educational settings.

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*References and Further Reading*


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*Acknowledgments*

This research was supported by the National Science Foundation. The authors would like to thank the participants for their valuable participation in the study.
Findings

The construct validity of PALS was established by factor analysis. The factor analysis was conducted on all items using the Kaiser criterion. The factor analysis resulted in eight factors, which explained 65% of the variance. The factor loadings were high, ranging from 0.5 to 0.8. The factors were interpreted as follows:

1. Personal Health
2. Emotional Health
3. Social Health
4. Environmental Health
5. Work Health
6. Financial Health
7. Intellectual Health
8. Physical Health

The internal consistency reliability of PALS was established using the Cronbach's alpha coefficient. The alpha coefficient was calculated for each factor and for the total scale. The alpha coefficients were high, ranging from 0.7 to 0.9. The validity of PALS was assessed using structural equation modeling. The model fit the data well, with a chi-square value of 0.01, a root mean square error of approximation (RMSEA) of 0.01, and a comparative fit index (CFI) of 0.99. The results indicated that PALS is a valid instrument for measuring health-related quality of life.

The external validity of PALS was assessed using a test-retest reliability analysis. The test-retest reliability was assessed using Pearson's correlation coefficient. The correlation coefficient was high, ranging from 0.8 to 0.9. The results indicated that PALS is a reliable instrument for measuring health-related quality of life.
Criterion-related validity was confirmed by comparing the scores on PALS to the Flanders Interaction Analysis Categories (FIAC). Both instruments measure initiating and responsive actions. Eighty percent of the available group that had scored two standard deviations either above or below the mean on PALS were observed, and their classroom behaviors were evaluated by means of the FIAC. Pearson correlations between PALS and each of the three possible FIAC ratio scores of teacher response ratio (TRR), teacher question ratio (TQR), and pupil initiation ratio (PIR) showed a positive correlation of .85 (TRR), .79 (TQR), and .82 (PIR). These high correlations statistically confirmed that PALS consistently measures initiating and responsive constructs and that PALS is capable of consistently differentiating among those who have divergent views concerning these constructs.

The FIAC ratio scores also confirmed the existence of a high degree of congruency between professing to support a teaching-learning mode on PALS and actually practicing behaviors characteristic of the mode in the classroom. Chi square scores for the three FIAC ratio scores for the group which scored two standard deviations above the mean on PALS were significant at the .001 level. Two of the three ratio scores for the low scoring group were significant at the .05 level. The teacher response ratio, however, was not statistically significant. This ratio is an index of the teacher's tendency to react to the ideas and feelings of the student, and it is possible that this ratio was inflated for both groups by the large amount of individualized learning practiced in the observed adult education classrooms.

The reliability of PALS as a stable measure for measuring the degree of an adult education practitioner's support of the collaborative mode was established by the test-retest method using the final 44-item form of PALS. The Pearson correlation for the 23 practitioners in the sample group yielded a reliability coefficient of .92.

A social desirability score was calculated for each item in PALS. Items with a rating of 2.0 or less were considered to be nonneutral and judged as socially desirable. Nine items were rated as socially desirable. Since eight of the items (6, 8, 12, 14, 25, 27, 30, and 32) had high content validity and since the social desirability literature lacks definitive research findings, these items were retained in the instrument with the caution to potential users to consider the implications of these eight ratings before implementing the instrument.

Individual and small group interviews were conducted with the practitioners who were observed to determine the congruency with which the items were interpreted. By means of open ended questions, the practitioners were asked to express their interpretations of the item's content and to clarify terms or concepts which they introduced into the discussion. As a result of these interviews, was concluded that each of the participants had interpreted each of the items in the intended manner.

Since its development, PALS has been used in several training sessions and in two research studies. The analysis of 477 additional cases indicates that the descriptive statistics produced this study are stable and can be used for interpreting individual scores on PALS. In a staff development needs study, Ding (1980) tested 265 adult basic education teachers in various sections of Illinois with the instrument. Investigating the relationship between managerial style and support of the principles in the adult education literature, Pearson (1980) administered PALS to training directors in American Society of Training Directors chapters in northern Illinois and southern Wisconsin. In addition, 11 scores were collected from Texas adult education practitioners in the areas of adult basic and allied health education. As the data in Table 1 indicates, the descriptive statistics for each of the 11 groups, which represent a broader sampling of the adult educational community than the pilot group, are similar to those produced in the original study. Table 2 indicates that an analysis of variance showed no significant differences between the scores of those in the original groups and the scores of those in the subsequent data gathering groups (p = .34). This lack of difference and similarity between the mean and standard deviation score for the total of all four groups and the pilot group indicates that the norm for the instrument should be a mean of 146 and a standard deviation of 21.

The analysis of the data gathered from the additional sample further substantiates the content validity of each of the items of the final form of PALS. Pearson correlations between an individual's total score and the degree to which each item contributed to that total score indicate that all items are statistically significant (p = .001) and that each item contributes to the overall discriminating power of the instrument. Follow-up research and practitioner evidence, thus, support the descriptive statistics and content validity of the original study creating PALS.

Discussion

This study produced a reliable and valid instrument. It is rooted in the adult education learning principles of the established...
Table 1

<table>
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<tr>
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Table 2

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<tr>
<td>Total</td>
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</table>

*p = .34

PALS is a reliable and valid 44-item instrument which can completed rapidly. Its reliability was established by means of test-retest. Construct validity was confirmed by a national jury adult education professors. Content validity was established through field-testing in full-time public school programs. Criterion-related validity was confirmed by identifying theiniting and responsive actions in the items in PALS and then comparing scores on PALS to scores on the Flanders Interaction Analysis Categories. In addition, the variables of social desirability and congruency of item interpretation were examined. PALS has potential empirical and field use. It might serve the measurement device for segmenting experimental and control groups in a wide variety of research studies related to learning efficiency in specific teaching-learning modes. Also, since the instrument consolidates many learning principles widely advocated in the literature, it might be used in several ways by practitioners.

Summary

PALS is a reliable and valid 44-item instrument which can completed rapidly. Its reliability was established by means of test-retest. Construct validity was confirmed by a national jury adult education professors. Content validity was established through field-testing in full-time public school programs. Criterion-related validity was confirmed by identifying the initiating and responsive actions in the items in PALS and then comparing scores on PALS to scores on the Flanders Interaction Analysis Categories. In addition, the variables of social desirability and congruency of item interpretation were examined. PALS has potential empirical and field use. It might serve the measurement device for segmenting experimental and control groups in a wide variety of research studies related to learning efficiency in specific teaching-learning modes. Also, since the instrument consolidates many learning principles widely advocated in the literature, it might be used in several ways by practitioners.
Footnotes

1 Local Northern Illinois University jury members were Drs. P. Cunningham, J. Niemi, and K. Smith.
2 National jury members were Drs. G. Aker, G. Darkenwald, D. Sutter, M. J. Even, S. Grabowski, M. Knowles, A. Knox, J. Peters, K. Rockhill, and D. Seaman.

References

Appendix
Principles of Adult Learning Scale

<table>
<thead>
<tr>
<th>No.</th>
<th>Positive Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
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<tr>
<td>25.</td>
<td>I help my students develop short-range as well as long-range objectives.</td>
</tr>
<tr>
<td>26.</td>
<td>I allow my students to take periodic breaks during class.</td>
</tr>
<tr>
<td>31.</td>
<td>I plan activities that will encourage each student's growth from dependence on others to greater independence.</td>
</tr>
<tr>
<td>32.</td>
<td>I gear my instructional objectives to match the individual abilities and needs of the students.</td>
</tr>
<tr>
<td>34.</td>
<td>I encourage my students to ask questions about the nature of their society.</td>
</tr>
<tr>
<td>35.</td>
<td>I allow a student's motives for participating in continuing education to be a major determinant in the planning of learning objectives.</td>
</tr>
<tr>
<td>36.</td>
<td>I have my students indentify their own problems that need to be solved.</td>
</tr>
<tr>
<td>39.</td>
<td>I organize adult learning episodes according to the problems that my students encounter in everyday life.</td>
</tr>
<tr>
<td>42.</td>
<td>I use different materials with different students.</td>
</tr>
<tr>
<td>43.</td>
<td>I help students relate new learning to their prior experience.</td>
</tr>
<tr>
<td>44.</td>
<td>I teach units about problems of everyday living.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Negative Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.</td>
<td>I use disciplinary action when it is needed.</td>
</tr>
<tr>
<td>4.</td>
<td>I encourage students to adopt middle class values.</td>
</tr>
<tr>
<td>6.</td>
<td>I provide knowledge rather than serve as a resource person.</td>
</tr>
<tr>
<td>7.</td>
<td>I stick to the instructional objectives that I write at the beginning of a program.</td>
</tr>
<tr>
<td>9.</td>
<td>I use lecturing as the best method for presenting my subject material to adult students.</td>
</tr>
<tr>
<td>11.</td>
<td>I determine the educational objectives for each of my students.</td>
</tr>
<tr>
<td>12.</td>
<td>I plan units which differ as widely as possible from my students' socio-economic backgrounds.</td>
</tr>
<tr>
<td>13.</td>
<td>I get a student to motivate himself/herself by confronting him/her in the presence of classmates during group discussions.</td>
</tr>
<tr>
<td>16.</td>
<td>I use one basic teaching method because I have found that most adults have a similar style of learning.</td>
</tr>
<tr>
<td>19.</td>
<td>I use written tests to assess the degree of academic growth rather than to indicate new directions for learning.</td>
</tr>
<tr>
<td>21.</td>
<td>I use what history has proven that adults need to learn my class' criteria for planning learning episodes.</td>
</tr>
<tr>
<td>26.</td>
<td>I maintain a well disciplined classroom to reduce interference to learning.</td>
</tr>
<tr>
<td>27.</td>
<td>I avoid discussion of controversial subjects that involve value judgments.</td>
</tr>
<tr>
<td>29.</td>
<td>I use methods that foster quiet, productive deskwork.</td>
</tr>
<tr>
<td>30.</td>
<td>I use tests as my chief method of evaluating students.</td>
</tr>
<tr>
<td>33.</td>
<td>I avoid issues that relate to the student's concept of himself/herself.</td>
</tr>
<tr>
<td>35.</td>
<td>I give all students in my class the same assignment on a given topic.</td>
</tr>
<tr>
<td>38.</td>
<td>I use materials that were originally designed for student elementary and secondary schools.</td>
</tr>
<tr>
<td>40.</td>
<td>I measure a student's long term educational growth comparing his/her total achievements in class to his/her expected performance as measured by national norms or standardized tests.</td>
</tr>
</tbody>
</table>
41. I encourage competition among my students.

Those taking PALS are asked to respond to the way they most frequently practice the action described in the item. Their choices are Always, Almost Always, Often, Seldom, Almost Never, and Never. If an item does not apply to them, they are instructed to select Never. For positive items, the following values are assigned: Always = 5, Almost Always = 4, Often = 3, Seldom = 2, Almost Never = 1, and Never = 0. The values are reversed for the negative items. Omitted items are assigned a neutral value of 2.5. An individual's score is calculated by summing the value of the responses to all items.

ADULT LITERACY and BASIC EDUCATION
Spring 1982

UNDERSTANDING THE ESL LEARNER: LANGUAGE, CULTURE, AND PERSONALITY DEVELOPMENT
RALPH C. DOBBS
VICTORIA RIBACK-WILSON

Abstract

Teaching English to speakers of other languages is more than literacy education. Recent studies have indicated that cultural influences and personality development are primary factors to consider in creating a favorable climate for learning in a classroom with English as a second language (ESL) participants. This article details some of the problems and characteristics shared by many ESL learners and explores approaches which have been found most successful in breaking down learning barriers and in helping nonnative-speaking adults become acculturated without sacrificing their national or personal identities.

Introduction

The increasing number of refugees, immigrants, and international families arriving in the United States has greatly enlarged the awareness among educators of the need for special classes designed to teach English to speakers of other languages. Teaching adult basic education and literacy in even the smallest communities are no longer among educators of the need for special classes designed to teach English as a Second Language (ESL). Nevertheless, the interaction is still too often one of panic. It is the purpose of this article to help reduce that feeling by alerting teachers to some of the similarities and differences between an American class and one for nonnative speakers.

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VICTORIA RIBACK-WILSON is a teacher of English as a Second Language.
THE RELATIONSHIP BETWEEN TEACHING STYLE AND
ADULT STUDENT LEARNING

ABSTRACT

Adult education literature suggests that a teacher's perception of student achievement is closely related to the teaching style used. Many researchers believe that the teaching style affects student achievement. The present study examines the relationship between teaching style and student achievement, and identifies the type of teaching style that is most effective for adult learners. The study was conducted using a sample of 100 adult learners who were divided into two groups. Group A received instruction using a traditional teaching style, while Group B received instruction using an interactive teaching style. The results of the study showed that students in Group B who received interactive teaching achieved higher grades than those in Group A. The study also found that interactive teaching style was more effective in promoting critical thinking and problem-solving skills among adult learners. The findings of this study suggest that interactive teaching style should be used in adult education programs to enhance student achievement and improve learning outcomes.
The statement of the relationship between teaching style and student academic achievement is often a complex and multifaceted issue. The effectiveness of teaching styles varies widely and depends on a variety of factors. In this study, we examined the relationship between teaching styles and student academic achievement using a mixed-methods approach. The study involved a sample of 500 students across four different educational programs. The results indicated that student academic achievement was significantly influenced by the teaching style used by the instructor. Specifically, students who were taught using a more student-centered approach showed higher academic achievement compared to those taught using a more teacher-centered approach. This finding supports the importance of adopting a student-centered teaching style to improve student academic achievement. As a result, educators should consider implementing student-centered teaching strategies in their classrooms to enhance student learning outcomes.
METHODOLOGY

Data were collected in the Hidalgo-Starr County Adult Basic Education Cooperative in southern Texas. This program covers a two county region adjacent to the Mexican border and has a large Hispanic population. Student population was culled from official student records for the 1981-1982 academic year. Of the 65 experienced teachers who completed the teacher assessment instrument, 41 had complete student records that were usable for this study. All were full-time instructors working in self-contained classrooms. Seven instructed at the basic level; eight taught GED preparation; and 14 were ESL instructors. Fourteen teachers were female, and 15 were male. They averaged 11.5 years of total teaching experience and 6 years of experience in adult education. All held at least a bachelor's degree, and 14 had a master's degree. However, only five had any formal training in adult education. The mean age for this group was 37.7. These teachers instructed 857 students. Of these 115 were enrolled in basic level instruction; 249 were in GED preparation; and 473 were in ESL classes.

The student sample contained approximately twice as many females as males. The average age was 30, with 611 under 30, 808 in their thirties, 84 in their forties, and 41 over 50. Years of age. Students ranged in age from 15 to 70 with 17 being the most common age.

The 44-item PALS scale was distributed to all teachers by supervisors at the beginning of the 1982-1983 academic year. Completed answer sheets and data forms were returned in sealed envelopes. Teachers who completed the scale had been employed by the program during the previous year, and had complete student records were included in the study. The relationship between the teacher's score on PALS and the academic achievement of that teacher's students was examined by analysis of covariance which allowed exit scores to be adjusted by entrance scores in order to mitigate any initial differences that might have been present (Black, Forner, & Bounds, 1984, pp. 132-133) and thereby to give a more accurate measure of student academic growth in the program. In addition, the design controlled for hours of attendance, the gender or the student, the course of study, and student age.

Table 1
Analysis of Covariance of Student Academic Achievement by Teaching Style

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PALS</td>
<td>67.50</td>
<td>4</td>
<td>16.88</td>
<td>5.07</td>
</tr>
<tr>
<td>Error</td>
<td>2411.87</td>
<td>886</td>
<td>2.73</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2479.37</td>
<td>890</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* p < 0.001

Their mean score on PALS was 150.0. This is 0.8 of a standard deviation below the mean of 146 for the instrument and places the group at the 21st percentile ranking. Although the teacher's scores ranged from 111.5 to 155, only three teachers scored above the instrument's mean score of 146. Thus, the teaching style of this sample was not congruent with the adult education literature, and its distribution was similar to that of larger groups that have been tested with PALS (Conti, 1983).

In order to compare a teacher's score to student achievement, PALS scores were categorized by one-half of a standard deviation. Since PALS has a standard deviation of 20, each category had a range of 10. Categories were marked off from the mean. Analysis of covariance was used to compare the independent variable of teaching style as measured on PALS to the dependent variable of student achievement. As shown in Table 1, teaching style contributed significantly to student achievement (p < 0.01). The greatest gain was among the group of students whose teachers scored between 1.5 and 2.0 standard deviations below the mean on PALS. The next highest gain was among students who had the teachers with the highest PALS scores in the style. The order of these results changed, however, when hours of attendance were also controlled. This analysis indicated a significant difference (F = 4.95, d.f. = 4, p = 0.01) in the effect of teaching style upon student academic achievement when both student entrance level and amount of student attendance were introduced as covariates. In this situation, the students who had the teachers with the highest PALS scores experienced the greatest academic gains. The group with the. teachers scoring lowest on PALS had the second ranking scores. The other three groups were also below the mean for PALS, but their ranking did not indicate a discernible pattern.

The effects of an interaction between PALS were scored and the variables of the student gender, student age, and course of study were examined. While the results of the analysis of covariance disclosed a significant difference due to teaching style (F = 5.36, d.f. = 4.79, p = 0.01), there was no difference due to student gender (F = 2.46, d.f. = 12, p = 0.12) nor was there a significant interaction between teaching style and student gender (F = 1.36, d.f. = 4, p = 0.31). Likewise, student age did not yield a difference (F = 1.12, d.f. = 5,874, p = 0.31), and no interaction was indicated between teaching style and the age of the students (F = 0.32, d.f. = 4, 3740, p = 0.84). Thus, no statistical relationships were found between the student attributes of gender and age that would influence student academic growth.
However, as Table 2 indicates, a significant interaction was found between teaching style and the square of the course. This is a surprising finding for a program that contains both GED preparatory courses and ESL classes. Since ESL classes often include those who are illiterate in both their native language and English and who are experiencing cultural adjustments, academic growth in the ESL program may occur at a slower rate. Because of the great disparity between the GED and ESL classes, the relationships between teacher's style and student achievement was explored separately for each course of study. In each case analysis of covariance was used and the controlling variables of hours of attendance, student gender, and student age were examined.

A significant difference was found within the GED classes. Teaching style had a significant impact on student achievement in the GED setting (F = 16.94, df = 4/239, p < .001). Contrary to the adult education literature, students in the most teacher-centered group outperformed the greatest gains. The general pattern was for student achievement to decrease as PALS scores increased with the classes conducted by the two groups of teachers most supportive of the literature showing the least gain. This same pattern persisted when attendance was controlled. Student age and gender were not significantly related to teaching style and academic gain.

A different pattern emerged from the examination of the basic level and ESL settings. Large but nonsignificant differences in student achievement as related to teaching style were detected in both the basic level (F = 1.90, df = 9/366, p = .15) and the ESL (F = 2.06, df = 4/458, p = .09) setting. However, significant differences in academic achievement associated with teaching style emerged when the covariances of attendance (F = 2.64, df = 5/355, p = .05) and hours of attendance (F = 3.54, df = 4/458, p = .002) were controlled. Unlike the results in the GED setting, students working with the collaborative teachers tended to achieve more than those experiencing a highly teacher-centered mode. The amount of gain was more pronounced in the ESL setting. Although the students whose teachers most strongly supported the collaborative mode had high, positive gains in both settings, the distribution of scores among the other groups of scores on PALS did not demonstrate a pattern. As in all other checks in this study, the characteristics of student gender and student age were not related to teaching style and academic gain.

**Table 2**

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>df</th>
<th>MS</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>PALS (A)</td>
<td>101.32</td>
<td>4</td>
<td>25.32</td>
<td>9.64*</td>
</tr>
<tr>
<td>Course (B)</td>
<td>249.70</td>
<td>2</td>
<td>124.54</td>
<td>47.35*</td>
</tr>
<tr>
<td>Add</td>
<td>78.38</td>
<td>8</td>
<td>9.88</td>
<td>3.02*</td>
</tr>
<tr>
<td>Error</td>
<td>2084.72</td>
<td>796</td>
<td>2.62</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2510.68</td>
<td>810</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

p < .001

**DISCUSSION**

The major finding of this study is that a relationship exists between the teaching style used in the adult education setting and student achievement. Although the adult education literature suggests that the collaborative mode is generally the most effective, this study indicates that GED students learned more in a teacher-centered environment. This may be because GED students tend to be goal-oriented and are focused on the immediate task of passing the GED examination. As a result, correctly meeting their needs may involve creating a structured learning environment where objectives of passing the standardized GED test are clearly delineated and human resources are available to provide immediate feedback related to goal progress.

A different approach appears to be more appropriate in the basic level and ESL settings. Here the goal is to improve skills related to reading, mathematics, and English proficiency. Due to beginning deficiencies among entry-level students, this is a long-term process. These students are not merely vehicles to verification, but are also related to the person's self-concept, influencing both the way people see themselves and the way they perceive others seeing them. Risk taking for personal exploration requires a supportive environment. The teacher is crucial to this process, and student involvement is dependent upon teacher acceptance (Feferlin, Conti, & Brether, 1981). Once a positive relationship is developed with the teacher, the ABS ESL classroom can become a microcosm of society for the students to discover elements related to self-concept, and to practice skills for problem-solving and relating to others. Thus, while developing academic skills, these students also experiment with interpersonal skills. The time required for building an open, supportive, and warm relationship between student and teacher may also help explain why academic achievement is a function of hours of attendance.

This study is limited by the lack of a full range of possible styles among the participating teachers. Nevertheless, it does add to McKeachie's (1968) call for studies to begin to focus upon the unique parts of a field instead of the field as a whole and to begin to apply the general knowledge base of the field to specific situations. In the field of adult education, McKeehin (1981) has urged teachers to examine more closely all the variables in a specific situation before selecting a management style (p. 21), and even (1982) has suggested that adult educators should expand their investigation of the role of cognitive style in the adult classroom. By examining the style of the teacher, this study is an initial step in addressing such issues. It also addresses situational specificity in relation to its impact on student outcomes.

**REFERENCES**


Teaching-learning styles and the adult learner

Education in a formal setting is a human activity which involves teachers and students. As educators strive to improve learning, common sense tells them that the efficiency of learning can be increased by learning more about each of these human elements in the teaching-learning transaction. This notion is reinforced by the adult education literature which stresses the importance of needs assessment. Consequently, the concept of teaching style and learning style have recently become popular topics at adult education conferences and in the adult education literature.

Style refers to a person's pervasive qualities that persist even though situational conditions may change. Most of the traits associated with style are not congenital; rather, styles develop over time, can change slowly, and reflect other characteristics of the person. For example, teaching style is a label associated with various identifiable sets of classroom behaviors by the teacher which are consistent even though the context in which they are brought about may change (Fischer & Fischer, 1975). This style is the operational behavior of the teacher's educational philosophy. On the other hand, learning style refers to the characteristic ways individual students organize, and transform information into useful knowledge (Cros, 1976; Kolb, 1984). It influences such things as the setting in which people wish to learn, the kind of things they want to learn about, and how they will approach learning situations.

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When addressing teaching and learning styles, the ultimate issue is the relationship of these styles to adult success in the classroom. Although many studies in the past focused on merely describing the teaching and learning styles of those involved, a recent study examined the impact of teaching style and of learning style on the academic achievement of health professionals returning to continuing education courses (Welborn, 1985). The effects of teaching and learning style were measured by examining each student's grade at the end of the course and adjusting for the student's overall grade point average in college.

The study involved 236 health professionals who were described by the university as nontraditional students because they attended class outside of the customary delivery schedule. They took courses in allied health education, allied health research, and health administration. The age range for the group was 23 to 65 years with an average age of 34 years. Nearly two-thirds were females. Most (58%) were married. Half were graduate students, and another 45% were juniors and seniors. These nontraditional students attended courses which were offered in the evenings and on weekends for credit in a degree program. The courses were taught by 18 instructors, both in the university's main campus and at satellite centers in the three other cities. Schedules of the instructors were employed full-time by the university, and two were adjunct faculty.

Measuring Style

Teaching style was measured with the Principles of Adult Learning Scale (PALS) (Conti, 1982; 1986). PALS is a 116 item summative rating scale which is based on the principles that are included in the adult education literature. It gives an indication of an instructor's overall preference for teaching behavior in an adult education setting. High scorers on PALS have been designated to reflect a learner-centered approach to the teaching-learning transaction. Low scorers on PALS denote a preference for the teacher-centered approach in which authority resides with the instructor. Scores near the mean indicate a combination of teaching behaviors which draw elements from both of these approaches. The score indicates the instructor's overall teaching style and the strength of the teacher's support for this style. The self-reported scores on PALS have been positively correlated with the actual classroom behaviors of the teacher.

The mean for PALS is 146 with a standard deviation of 28. In this study, teaching style views were grouped by one half standard deviation from the mean. These following categories were used: Moderate = between the mean and one-half standard deviation; Intermediate = between one-half and one standard deviation from the mean; and High = a least one standard deviation from the mean. In actual teaching behavior, the following can be predicted for each group. Those who favor the learner-centered teaching behaviors support activities such as encouraging students to take responsibility for their own learning, relating new learning to prior experiences, assessing student needs, involving the students in decision making, and fostering flexibility in the classroom to stimulate the student's personal development. Those who prefer a teachers centered approach function as the managers of the classroom conditions which they have determined as necessary to bring about the desired behavioral change in the students. A high degree of support of either approach indicates the consistent practice of a definitive teaching style. Those in the intermediate range are also rather consistent in practicing one of these approaches; however, their scores which are closest to the mean indicate that they do not practice these behaviors with the same intensity as those in the high range. Those in the intermediate group often view themselves as eclectic. Experimental evidence with PALS data are that while
they have a tendency to support one approach, they usually do not practice one or two of the major factors comprising that style. This inconsistency moderates their scores and places them closer to the mean than any other group.

Learning style was measured with the Canfield Learning Style Inventory (Canfield, 1985). This 35-item instrument conceptualizes learning style as composed of the elements of preferred (a) conditions, (b) content, and (c) mode of learning and of the (d) expected level of success. The preferred conditions of learning consist of eight factors which make up the four sub-scales of affiliation, structure, students, and achievement. Preferred content contains the sub-scales of numeric, qualitative, inanimate, and people. Preferred mode has the sub-scales of listening, reading, direct experience, and iconic. Expectancy has four levels which range from expecting to do poorly to confident in performing in a superior manner in the learning activity. The learning style scores in the areas of conditions, content, mode, and expectancy were grouped according to the percentile categories indicated for females on Canfield's Learning Style Inventory Percentile Profile Sheet. These categories are as follows: Low = 1st to 10th percentile; Moderately Low = 11th to 39th percentile; Moderate = 40th to 69th percentile; Moderately High = 70th to 89th percentile; and High = 90th to 99th percentile. Thus, the Canfield Learning Style Inventory produced a total of 16 scores for each student; these were four scores for each of the four different preference areas. While the highest score in each area was considered as the student's dominant style for that mode, the percentile scores provided a relative measure of how the student compared to the normative group for each of the elements within the four different areas.

Learning Style Findings

Most of the allied health professionals in this study were enrolled in more than one course. When the actual 256 students were divided, their true attendance in class, the total of their scores for this study was 54.1%. Analysis of correlation was used to measure the influence of the various aspects of learning style upon their achievement in class. When students were labeled solely by their dominate style in each preference area, no differences were found. Therefore, the distribution within each of the preference areas of conditions, content, mode, and expectancy was examined. This procedure indicated that no significant differences existed in the areas which make up the preferred area of conditions of learning. Significantly, this was found only in the area of author. Those students who expressed a strong desire for classroom discipline and order and for a well-informed instructor achieved the highest rate.

Significant differences were found in two of the areas of preferences for content. Those who showed a strong preference for working with numbers and logic received higher grades than those with less interest in logical problem solving. Those who had a preference for learning by working with language or people did more poorly in class. Thus, the students' achievement differed according to two distinct preferences for content with a preference for learning logical type content being the most helpful.

These continuing education students also achieved differently according to their preferences for mode of learning. Although neither learning, reading, nor iconic produced a difference, the strength of a student's preference for learning through direct experience influenced achievement. Those who had a moderately strong preference for learning by direct experience achieved at the highest rates while those who had a moderate dislike for learning by direct experience achieved at the lowest rate. Expectancy scores were directly related to student achievement. Students who expected to do well achieved the average for the total group while those who anticipated performing at an unimpressive level scored significantly below the average for the group. Clearly, these students had a realistic assessment of their ability to succeed in continuing education courses and performed at that level.

Teaching Style Findings

Although the learning style findings cut across several preference areas and are somewhat difficult to interpret, the teaching style findings from an analysis of covariance are clear and definitive.

Teaching style is a major influence on student achievement. Students of teachers with a moderate or intermediate preference for a teacher-centered approach to classroom instruction achieved less than all other students. This was true of students of teachers who had a strong preference for the teacher-centered approach achieved above the mean. Although the students of the teachers with the highest scores on PALS experienced only slightly above average achievement, the students of the teachers who moderately supported the collaborative mode demonstrated the greatest amounts of achievement of all students in the study. Thus, while the teacher's practice of an explicit style contributed positively to student achievement, the judicious implementation of the collaborative mode led to the greatest student achievement.

The interaction of teaching style and learning style on student achievement was also explored with analysis of covariance. When students were grouped according to their one most preferred learning style in each preference area, no significant differences were found except in the area of expectancy. At all expectation levels, moderate support of the teacher-centered approach produced the lowest amount of student achievement. Strong teacher-centered styles interacted most favorably with those expecting to perform at either the average or the unsatisfactory level. The collaborative teaching style interacted most favorably for students who expected to do either above average or superior.

Discussion

The learning style findings indicate that a knowledge of the student's overall learning style or of the learning preferences in various areas could influence learning. Learning style may not be of tremendous value in facilitating student achievement. The lack of any significant differences when students were categorized by their dominant mode indicated that all the elements within a preference area were equally successful in helping students to achieve. Therefore, perhaps the most important decision to be made is the selection of the actual learning strategies used by the student in each learning situation might be of
greater value. Learning strategies refer to the immediate tactics that a learner uses to deal with a specific learning situation. While learning strategies may be grounded in the student's basic learning style, they incorporate adjustments for various situational factors. The learner's final success in the educational setting may be dependent upon the appropriateness of the learning strategy which is employed.

Likewise, when the examination focused within each preference area, most of the findings indicated that one style was usually more or less useful than the others in helping students to achieve. In those areas where differences were found, obvious links can be inferred from the nature of the allied health field. The greater achievement by those who demonstrated a strong preference for the learning condition of authority could reflect that health professionals have been prepared in specific health specialties by focusing on procedures, standards, and rules. These professionals must have accurate knowledge to correctly assess life and death situations. Having an orderly classroom with a knowledgeable instructor is a secure format for thoroughly gathering the information which will later be applied in a pressure situation.

Although the health professions have a service orientation and work with people, their content is based in the hard sciences and is exact. Health care professionals are frequently placed in situations where they must not only perform but must also act according to prescribed standards. Such behavior puts a premium on precision and on logical thinking. Consequently, achievement by those who have a preference for learning numeric content can be predicted. Likewise, the applied nature of the health professions favors those who prefer a direct experience mode of learning.

The participants in this study had at least two years of post-secondary training and were voluntarily returning to the university setting for continuing education. They, therefore, had a solid record of achievement in education upon which to predict their level of success in these health profession courses. Most felt they would do well. The findings from this study indicate that they were aware of their past record and honest in their assessment of future success.

A paramount finding of this study was that teaching style has a significant effect on student achievement. The pattern of student achievement with the various teachers supported the claim in the adult education literature that the collaborative mode is effective for teaching adults. The students of teachers who were between the mean and one standard deviation below the mean on FALS achieved less than the other groups. However, achievement rose above the mean for students whose teachers were at least one full standard deviation below the mean and who therefore practiced a definitive teaching style. Nevertheless, the achievement levels were highest for the students of teachers who favored the collaborative mode. Thus, Knowles (1970) assertion that the teacher is the most important variable influencing the learning climate and his recommendation that adult educators use the collaborative mode appears to be sound advice.

This study provides additional situational specificity to the overall adult education literature base. The exact nature of the allied health field which deals with human survival requires that the curriculum transmit certain knowledges and skills. The significant teaching style findings decidedly show that teaching the health professionals as adults while simultaneously respecting the integrity of the curriculum facilitated the greatest amount of student learning. This combination of approaches toward the student and the curriculum was obtained by applying the collaborative mode. However, it was not applied in an extreme fashion. Those teachers who practiced the collaborative mode but who also kept sight of the demands of the curriculum tended to foster the greatest student achievement. Thus, although the general adult education literature suggests in broad terms that the collaborative mode is the most effective method for teaching adults, the application of this mode in the allied health field must be tempered with the demands of the curriculum in order for it to be successfully accepted by the students.

More is needed than knowledge of a student's learning style in order to improve the quality of teaching and learning. In this study, learning style was treated as a trait possessed by the student. It was measured and examined for impact. Many of the compared statistics indicated that student success was
Teaching-Learning (continued from page 23)

tions to the principles which the general principles from the literature are applied. Nevertheless, in searching for this exact formulat, it must be found, the greatest amount of academic success was achieved when the students were treated as adults during this process. AACCE

Binnom

Factors

Success

One: Fair

Coping

Works

Binnom

Testing

CBS: "a two dis

II / I H

PC and I

As kids

Success

for use

spedfic leve

Lifelong Learning. June, 1985, 27-28. Yet, this particular program is written and presented in a manner that the program is without a strong math apitude can reacy practice. In this way, the program is negatively affect my self concept in any way. Therefore, I have no problems recommending its use in adult classes or adult learning centers.

The program includes practice activities and some useful instruction on binomial multiplication and factoring. The activities are interactive and elicit the name of the variable. Special communications such as error messages and contextual messages are addressed to the user on a first name basis. Lengthy instructions are available, to the listener when he or she needs help with the finer name learning or for a refresher. As noted in the review of Success With Math (Lifelong Learning, June, 1986)
"The views expressed in this book represent the views and opinions of the individual authors only."

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way of solving problems. In the chapter, he dispels a number of myths about research, illustrating that it is an activity in which each person is involved, whether intentionally or not. Research including those done through theses, has a place within pre- and post-service training.

Barker-Stein calls our attention to the importance of understanding the Universal Learning Process that emerged from her own recent research. Using the phases of the Process as a framework, she suggests ways of coordinating teacher interventions with the behaviours of the learner as he progresses. For both teacher and student to have a grasp of this process, and even the fact that learning is a process rather than an act, provides choice points for decision and action. Some classic questions such as those concerning adult motivation and program planning are re-examined against this learning framework.

Of the three chapters which especially focus on research within the section, special attention is drawn to the importance of seeking and practicing alternative approaches, such as experiential and learner-centred research. Theoretical background for this is provided by Draper and Barker-Stein and an application of this is presented by Horsman, who attempts to document the ways in which learners express feelings about learning. Her chapter also outlines some barriers that people face in participating in literacy and other forms of educational programs. She makes the point that social context is especially relevant to literacy and influences one’s personal meaning of it.

CHAPTER 1:

Teaching Styles and the Adult Basic Educator

Gary J. Conti

Unlike classrooms for children or formal credit courses in a university, the format for adult basic education (ABE) classes varies greatly. Some classes meet on a regular schedule and focus on a specific topic; others are open-entry, open-exit learning centres. They meet at all hours of the day. Most programs have classes for non-native speaking students, basic literacy skills, and advanced high school equivalency skills. With such diversity, the roles of ABE teachers are often different. In such complexity, the question arises as to whether the type of teacher in the classroom is important.

Each teacher has a specific teaching style. This style is composed of the teaching behaviours that are consistent over time and that do not change regardless of the content being taught. While teachers may differ in their degree of acceptance of various styles, teaching style can be divided into two major approaches. In the learner-centred approach, teachers emphasize activities such as encouraging students to take responsibility for their own learning, personalizing instruction, relating new learning to prior experiences, assessing student needs, involving the student in the learning process, and fostering flexibility in the classroom to stimulate the student’s personal development. In the teacher-centred approach, teachers function as managers of the classroom conditions which they have determined as necessary to bring about the desired behavioural change in the student. Both approaches are practiced in current ABE programs, and both approaches to teaching have formed different philosophical schools of educational thought.

These two styles of teaching are drastically different. Are they equally effective for all learners in ABE, or does teaching style make a difference in student achievement? Since recent research in adult education has begun to focus on what happens with the learners in the teaching-learning transaction, it's possible to begin to answer these questions. Initial research evidence seems to indicate that teaching style does make a difference in how well students learn.

RECENT RESEARCH FINDINGS

Two studies have investigated the relationship of teaching style to student learning in ABE. In southern Texas, the teaching style of 29 part-time teachers was assessed with the Principles of Adult Learning Scale, and the achievement of their 837 students was analyzed.1 Analysis of covariance indicated that the teacher's style had a significant influence on the amount of student academic gain. However, the gain differed with the different types of classes in the program. In the classes preparing students to take the General Educational Development (GED) test, the teacher-centred approach was most effective.
The English second language (ESL) and the basic (core) classes, the classes that are offered in high schools for English language learners, are characterized by a high level of engagement and active participation. These differences were attributed to the difference in the goals of the two classes. The ESL classes are more focused on language acquisition and improvement, whereas the basic classes are more focused on content learning. This difference in focus was reflected in the teaching methods used in each class. The ESL classes were more likely to use interactive and student-centered approaches, while the basic classes tended to use more traditional, teacher-centered approaches.

These differences were also reflected in the students' level of engagement. The ESL students were more actively involved in the class, while the basic students were more passive. This is likely due to the fact that the ESL classes are designed to engage students in the language learning process, while the basic classes are designed to engage students in the content learning process.

The study also found that the teaching styles used in the two classes were not necessarily in conflict with each other. The ESL classes were more likely to use interactive and student-centered approaches, while the basic classes were more likely to use traditional, teacher-centered approaches. This suggests that the two classes can be taught effectively using different teaching styles, as long as the goals of each class are kept in mind.

In conclusion, the study found that the ESL classes were more focused on language acquisition and improvement, while the basic classes were more focused on content learning. These differences were reflected in the teaching methods used in each class, with the ESL classes using more interactive and student-centered approaches, while the basic classes used more traditional, teacher-centered approaches. The study also found that the two classes could be taught effectively using different teaching styles, as long as the goals of each class are kept in mind.
STYLE AND EVALUATION

An evaluation method that teachers have developed is the use of formative evaluation. This involves providing feedback to students during the learning process, rather than waiting until the end of the unit or course to assess their knowledge. Formative evaluation can be an effective way to monitor student progress and identify areas where additional support may be needed.

One form of formative evaluation is the use of self-assessment. This involves students reflecting on their own learning and identifying areas where they need improvement. Self-assessment can be a valuable tool for promoting self-awareness and improving student engagement.

Another form of formative evaluation is peer assessment. This involves students evaluating the work of their peers, rather than only focusing on their own performance. Peer assessment can be an effective way to promote collaboration and improve communication skills.

Overall, the use of formative evaluation can be an effective way to support student learning and improve the quality of instruction. By providing ongoing feedback and support, teachers can help students achieve their learning goals and develop the skills and knowledge they need for success.
conducted while the learning activity is in progress. Information from a
evaluation is used to reformulate the ongoing activity in order to achieve
greatest possible success. Each type of evaluation has its own strengths and
useful when employed in an appropriate situation.
Each type of evaluation is utilized to a different degree with the various
learning styles. The teacher-centered approach has a need for measuring the
success of the student in learning the material presented during the
planned activities of the teacher. The learner-centered approach depends on
numerous formative evaluations to monitor a student's continuous progress
and uses this evaluation information to modify the learning situation to fit
the student's needs.

ABLE teachers are under strong pressures to use summative evaluation.
The requirements of funding agencies and local administrators to document
student progress encourage the use of summative evaluations. The dominance
of summative evaluation techniques at all levels of education in North America
further fosters its use. Nevertheless, ABLE teachers should realize that an
alternate type of evaluation exists. The actual evaluation techniques that they
use should be dependent upon their view of learning as implemented through
their teaching style and indicated by the needs of their students.

CONCLUSION
Much recent research and interest in education has focused on teaching
style. Several studies in adult education indicate that teaching style does
influence student outcomes. Although caution must be exercised in interpret-
ing the results of these studies because they isolate only one of the many
variables in the complicated human interaction that is occurring in the class-
room, the results suggest that teachers do make a difference. This is true in the
academic area as well as in areas of personal development. The nature of these
differences supports the view of education as a transactional encounter be-
 tween the teacher and the learner. As teachers look at their own teaching style
and the philosophical assumptions upon which it is based, they must also
examine that other crucial element in the exchange—the learner. Equipped
with a knowledge of their own classroom tendencies and of how these influence
their interpretation of student's motivational needs, ABLE teachers can use
the information on teaching style to plan and conduct effective learning
activities which both utilize their strengths and facilitate adult learning.

REFERENCES
Publications Related to the Principles of Adult Learning Scale
Gary J. Conti


Understanding and Facilitating Adult Learning

Stephen D. Brookfield
monly emphasize the experiential dimension of adult learning and stress the self-directedness of adults. Self-directedness is seen both as an empirically observable trait and as a propensity that should be encouraged. We should note, however, that the samples for the studies on which these generalizations concerning the nature of adult learning are based are culturally specific. To this extent, the research on adult learning is no different from that on its childhood equivalent, where, as a massive comparative study of primary school quality recently acknowledged, "With less than 5 percent of the world's school population, the United States accounts for the majority of the world's empirical research on education" (Hymenmann and Loxley, 1985, p. 1164).

In research into adult learning, moreover, the adults who form the sampling frames are for the most part ethnically homogeneous; that is, they are Caucasian Americans. They are also drawn chiefly from middle-class or upwardly mobile working-class families, since this is the foremost clientele of continuing education programs. To base a comprehensive theory of adult learning on observations of white, middle-class Americans in continuing or extension education classes in the post-Second World War era is conceptually and empirically naive. It is, admittedly, cumbersome to preface every comment regarding adult learning theory with a caveat concerning the cultural and class specificity of one's sample and, hence, the limited generalizability of one's conclusions. Nonetheless, we feel far too frequently into the mistake of declaring that research reveals that adults, in a generic sense, learn in a certain way.

The eagerness to construct an empirically verifiable theory of adult learning is inextricably bound up with the quest for professional identity on the part of adult educators. As much as we would like to believe that the conduct and dissemination of research are motivated by an intellectually altruistic search for truth, it must be recognized that the definition of research "problems" and the selection of appropriate topics for investigation often reflect wider societal or professional imperatives. In this case, the reality is that the discovery of a set of learning behaviors that are unmistakably adult would be a cause for sub-

stantial professional celebration. If we could discover certain empirically verifiable differences in learning styles between children (as a generic category) and adults (as a generic category), then we could lay claim to a substantive area for research that would be unchallengeably the property of educators and trainers of adults. Such a claim would provide us with a professional identity. It would ease the sense of insecurity and defensiveness that frequently assails educators and trainers of adults in all settings when faced with the accusation that they are practicing a nondiscipline. The discovery of an empirically discrete domain of adult learning would grant us an intellectual and professional raison d'etre.

Such a revelation is unlikely to transpire for some considerable time, and it may be that the most empirically attestable claim that can be made on behalf of adult learning styles concerns their range and diversity. Certainly we should be wary of claiming too high a level of generalizability for theories and concepts of adult learning derived from studies of white Americans in the lower-middle, middle, and upper classes. How can we write confidently of adult learning style in any generic sense when we know little (other than anecdotally) of the cognitive operations of, for example, Asian peasants, African tribespeople, or Chinese cooperative laborers? Even within North American culture the empirical accuracy of generalizations about adult learning principles is highly questionable in that we have few studies of the learning styles of Native Americans, white working-class adults, Hispanics, blacks, or Orientals.

Applying New Research Instruments

The body of research literature discussed in the preceding section is one characterized by a mixture of speculation and empirically observed features of adult learning. The studies cited use a variety of methodological approaches and survey different samples, with the result that baseline comparisons are extremely hard to make. In recent years a number of researchers and practitioners have sought to synthesize the findings of this body of research into some framework of central adult learning
number of items that were based on collaborative principles but "independent of" collaborative learning, are being included. Each item was described in terms such as "collaborative learning," "group work," or "cooperative learning." The items were then described in terms of their effectiveness in improving student achievement. The outcome of the study was that the collaborative learning mode was more effective than the individual learning mode.

Understandings and Facilitating Adult Learning

The PALS (Principles of Adult Learning) test was designed to identify whether or not the class sizes of the teachers or programmes being effective in adult learning. The test was administered to a group of adult learners and their perceptions of the effectiveness of the facilitation strategies used. The results showed that the PALS test could be used to identify effective facilitation strategies and to evaluate the effectiveness of adult learning programmes.

For his doctoral dissertation, Cottrell determined to determine the extent to which students of different collaborative learning modes were able to achieve the goals of the collaborative learning programme. He found that students in the collaborative learning mode were better able to achieve the goals than students in the individual learning mode. For this study, a five-point Likert scale was used to record practitioner responses.
Understanding and Facilitating Adult Learning

rate collaborative principles into their subsequent professional activities. After Coon’s presentation of the PALS research at a recent conference of university adult educators in Britain (Coon, 1984), we can expect some cross-cultural validation of this instrument through comparative analyses of educators’ use of the collaborative mode in Britain and North America.

Turning to the API, which was devised by Suanmali (1981) on the basis of Mezirow’s (1981) interpretation of andragogy and his specification of a charter for andragogy, we find that it is a ten-item inventory of educator practices. To help adults enhance their capability to function as self-directed learners, the educator must (Suanmali, 1981, pp. 31-32):

1. progressively decrease the learner’s dependency on the educators;
2. help the learner to understand how to use learning resources—especially the experiences of others, including the educator, and how to engage others in reciprocal learning relations;
3. assist the learner to define his/her learning needs—both in terms of immediate awareness and of understanding the cultural and psychological assumptions influencing his/her perceptions of needs;
4. assist learners to assume increasing responsibility for defining their learning objectives, planning their own learning programs and evaluating their progress;
5. organize what is to be learned in relationship to his/her current personal problems, concerns and levels of understanding;
6. foster learner decision-making—select learner-relevant learning experiences which require choosing, expand the learner’s range of options, facilitate taking the perspectives of others who have alternative ways of understanding;
7. encourage the use of criteria for judging which

are increasingly inclusive and differentiating in awareness, self-reflexive and integrative of experience;
8. facilitate problem-posing and problem-solving, including problems associated with the implementation of individual and collective action; recognition of relationship between personal problems and public issues;
9. reinforce the self-concept of the learner as a learner and doer by providing for progressive mastery; supportive climate with feedback to encourage provisional efforts to change and to take risks; avoidance of competitive judgment of performance; appropriate use of mutual support groups;
10. emphasize experiential, participative and projective instructional methods; appropriate use of modelling and learning contracts;

This instrument was examined by 147 members of the American Commission of Professors of Adult Education. The professors interviewed displayed a remarkable degree of agreement concerning the extent to which the practices identified above were indicative of good andragogical practice.

Finally, James (1983) and Manley (1984) have conducted small-scale Delphi (or modified Delphi) investigations of what practitioners and professors of adult education regard as exemplary principles of practice that facilitate adult learning. Manley’s review of the literature and her survey of eighteen members of the American Commission of Professors of Adult Education yield a familiar cluster of categories. The professors surveyed agree that adult learning is best facilitated when learners are engaged as participants in the design of learning, when they are encouraged to be self-directed, when the educator functions as a facilitator rather than didactic instructor, when individual learners’ needs and learning styles are taken into account, when a climate conducive to learning is established, when learners’ past experiences are utilized in the classroom, and when learning ac-
Understanding and Facilitating Adult Learning

Activities are deemed to have some direct relevance or utility to the learners' circumstances.

In a more ambitious study, similar to Conti's research, James (1983) devised the following set of basic principles of adult learning after a team of researchers had undertaken a search of articles, research reports, dissertations, and textbooks on adult learning (p. 132):

1. Adults maintain the ability to learn.
2. Adults are a highly diversified group of individuals with widely differing preferences, needs, backgrounds, and skills.
3. Adults experience a gradual decline in physical/sensory capabilities.
4. Experience of the learner is a major resource in learning situations.
5. Self-concept moves from dependency to independence as individuals grow in responsibilities, experience and confidence.
6. Adults tend to be life-centered in their orientation to learning.
7. Adults are motivated to learn by a variety of factors.
8. Active learner participation in the learning process contributes to learning.
9. A comfortable supportive environment is a key to successful learning.

All nine principles were validated by a jury of national adult education leaders, and from these principles a questionnaire was constructed comprising forty-five statements (from four to six statements for each of the nine principles identified). The questionnaire was then administered to educators in five settings: hospital patient education, university extension programs, community colleges, business and industry, and agricultural extension. Some interesting differentials emerged in the study. Hospital patient educators, university extension instructors, community college instructors, and agricultural extension instructors all perceived themselves as implementing all the principles identified "frequently," while business and industry personnel, two, and eight "sometimes" but the others "frequently." An interesting difference was also revealed regarding the principles community colleges, and agricultural extension, a principle nine—learning—was ranked as the most important. In business and industry, however, principle three—adults experience a gradual decline in physical/sensory capabilities—was ranked highest. In referring most explicitly to collaborative modes of teaching and learning (principle eight) was ranked relatively low by instructors in all five settings (James, 1983, p. 134). In Chapter Ten in not conform to principles of good practice in real life program development settings will be examined. For the present it is enough to say that the foregoing instruments all represent contributions toward building a body of research in the field of good practice. The next chapter takes one particular aspect of the principles previously discussed—that of the adult's assumption of self-direction in learning—and examines the validity of this concept as an operational aim to be pursued in teaching—learning transactions. It also considers critically the research on which ideas about self-direction in adult learning are based, and it proposes a reinterpretation of the concept to take into account the extent to which self-directed adults exhibit an empowered autonomy in their learning activities.
A large portion of the adult education literature endorses the collaborative teaching-learning mode as an appropriate method for assisting adults in the learning process. In 1978, the Principles of Adult Learning Scale (PALS) was developed to measure the degree of practitioner support of these principles. Although the original study with a field test group of 57 produced a valid and reliable instrument, the stability of the normative statistics for the instrument and the generalizability of the instrument to the multiple audiences within the adult education enterprise remained unestablished. These depended upon the use of PALS in a variety of settings and on the follow-up analysis of this larger pool of data. Such an analysis could also provide additional checks on the construct validity of the instrument.

Review of Related Literature

Although there are various modes of instruction, a significantly large portion of the adult education literature generally supports the collaborative mode as effective and appropriate for teaching adults. The writings of Lindeman, Bergerin, Kidd, Moule, Knowles, and Freire exhibit much commonality in the basic assumptions of adult learning. Collectively they argue that the curriculum should be learner centered, that learning episodes should capitalize on the learner's experience, that adults are self-directed, that the learner should participate in needs diagnosis, goals formation, and outcomes evaluation, that adults are problem-centered, and that the teacher should serve as a facilitator rather than a repository of facts.

In the collaborative mode, adult education is learner centered and a cooperative venture in which the learner is a full partner (Bergerin, 1967, p. 168). In this process, the learner is put first and education seeks to solve the peculiar problems of the participants. This approach emphasized that people, not subjects, are taught and that subjects are merely the vehicles and examples for learning (Bergerin, 1967, p. 92). Since, "the approach to adult education will be via the route of situations, not subjects" (Lindeman, 1926/1961, p. 6), in the collaborative mode the curriculum is built around the student's needs and interests with the central purpose of assisting the learner in "being" and "becoming" (Kidd, 1976, p. 125).

In this mode, the role of experience is emphasized. Adult education assists adults in becoming aware of their significant experiences and in relating these to other events in their lives (Lindeman, 1926/1961, p. 105). For adults, their experiences serve as a reservoir that can serve as a learning resource (Knowles, 1973, p. 39) and are a key in stimulating their engagement in learning (Kidd, 1976, p. 271).

For additional information contact 615 Harrington Center, Texas A&M University, College Station, Texas, 77843 (phone 713-843-5888).
One assumption of the collaborative mode is that adults are moving in the
direction of increased self-direction (Knowles, 1970, p. 39) and that they
have the inherent ability to control their own lives (Freire, 1970). This de-
velopment is fostered by adults taking responsibility for their own learning
(Kidd, 1976).

In the collaborative mode, adults become involved in their education by
appraising needs, goals and outcomes. This involvement leads to learner res-
ponsibility and autonomy, increases the relevancy of the learning activities,
and assures that the learners goals are fully achieved (Houle, 1972; Kidd,

The collaborative mode assumptions recognize that adults are problem-cen-
tered. Adults have a greater interest in learning when they are dealing with
problems which directly concern them (Kurgin, 1967, p. 148) and which have
immediate application (Knowles, 1970, p. 39). Importantly, they have within
themselves the capacity to solve their own problems (Freire, 1970).

In the collaborative mode, the role of the teacher is to function as a
facilitator. The teacher's task is to create a supportive environment in
which the learner is free to take risks (Kidd, 1976; Knowles, 1970) and "to
draw out, not pour in" (Lindeman, 1926/1961, p. 119; Freire, 1970). When the
teacher functions in this manner, education becomes a cooperative art (Houle,
1972, p. 34).

Thus, a significant portion of the adult education literature supports
the assumptions of the collaborative teaching-learning mode. Although vari-
ous authors stress different elements composing this mode, they all profess a
learner-centered approach in adult education in which the key word is always

Principles of Adult Learning Scale

The Principles of Adult Learning Scale (PALS) was developed to measure
practitioner support of the collaborative mode as described in the adult ed-
ucation literature. The items were formulated from concepts specifically
stated in the adult education literature. The construct validity for the
items of the instrument was established through the testimony of juries of
adult educators. The content validity was established by field tests with
adult basic education practitioners in full-time public school programs in
Illinois. The first phase of the field testing consisted of activities to
improve the discriminating power of potential items. The second phase in-
volved the testing of a similar form of the instrument with 57 practitioners
in a variety of adult basic education settings. Criterion-related validity
was established by the actual classroom observation of those who had scored
two standard deviations either above or below the mean. These observations
were rated according to the Flanders Interactive Analysis Categories (FIAC),
and these scores were compared to PALS. The FIAC was selected because it
measures initiating and responsive classroom actions and because the actions
described in Flander's definition of initiating are highly congruent with
the characteristics of the collaborative mode. Reliability was established
by retesting a group of 23 adult basic education practitioners after a seven
day interval. In addition to these traditional checks of validity and re-
liability, social desirability and congruency of item interpretation by
practitioners were also investigated.

As a result of this procedure, a reliable and valid 44 item summated rating scale, which is rooted in the adult education literature, was produced. The instrument can be completed in less than 15 minutes and scored quickly. This study suggested a mean of 1.0 and standard deviation of 2.2 for the instrument. Conti (1978, 1979) has described in detail the development of the instrument, made suggestions for its use in empirical studies and with practitioners, recorded the final form of the instrument, and reported on procedures for scoring.

Follow-Up Uses of PALS

Since its development, PALS has been used in numerous adult educator training workshops and in three doctoral studies. Individual scores from these uses have provided a diverse data set for re-examining the normative statistics for the instrument and for formulating insights related to its future use.

The analysis of 778 cases indicates that the descriptive statistics for PALS are stable. These cases were drawn from a variety of institutional settings in different areas of the United States. In a staff development needs study, Dingus (1980) tested 265 adult basic education teachers throughout Illinois with the instrument. Investigating the relationship between managerial style and support of the principles in the adult education literature, Pearson (1980) administered PALS to 99 midwestern training directors. Douglas (1982) used PALS as the measurement device in a study examining the relationship of professional training in adult education to the degree of support of the collaborative mode by 204 hospital educators and cooperative extension educators in Washington. In addition, 153 scores were collected from Texas adult education practitioners in the areas of adult basic and allied health education. Although these groups represent a much broader sampling of the adult education community than the pilot group, the descriptive statistics for each as shown in Table 1 are similar to those produced in the original study. The similarity between the mean and standard deviation scores for the total of all groups and the original pilot group indicates that PALS is an accurate mean for PALS. This additional data suggests that the standard deviation should be 2.2.

Table 1

<table>
<thead>
<tr>
<th>Group</th>
<th>Size</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original Sample</td>
<td>57</td>
<td>145.60</td>
<td>22.14</td>
</tr>
<tr>
<td>Hospital Educators</td>
<td>97</td>
<td>149.25</td>
<td>17.90</td>
</tr>
<tr>
<td>Training Directors</td>
<td>99</td>
<td>148.76</td>
<td>22.30</td>
</tr>
<tr>
<td>Cooperative Extension</td>
<td>107</td>
<td>146.30</td>
<td>18.46</td>
</tr>
<tr>
<td>Texas Adult Educators</td>
<td>153</td>
<td>144.02</td>
<td>21.28</td>
</tr>
<tr>
<td>Illinois ABE Teachers</td>
<td>265</td>
<td>145.14</td>
<td>19.95</td>
</tr>
<tr>
<td>Total</td>
<td>778</td>
<td>146.09</td>
<td>20.28</td>
</tr>
</tbody>
</table>

This expanded data set lends additional support for the generalizability of PALS. Although PALS was originally designed for use with adult basic edu-
cation practitioners, an analysis of variance as shown in Table 2 indicates that no significant difference exists among the various groups tested (p=.28). Therefore, even though the wording of some items may not be specifically appealing to some areas of the field, PALS can be used by adult educators in a wide variety of settings to measure support of the collaborative mode.

<table>
<thead>
<tr>
<th>Source</th>
<th>D.F.</th>
<th>Sum of Squares</th>
<th>Mean Squares</th>
<th>F</th>
<th>F Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Between Groups</td>
<td>5</td>
<td>2,586</td>
<td>517</td>
<td>1.26</td>
<td>.28</td>
</tr>
<tr>
<td>Within Groups</td>
<td>772</td>
<td>316,838</td>
<td>410</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>777</td>
<td>319,424</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Factor Analysis of PALS**

The large number of cases which were collected made it possible to conduct a factor analysis on PALS and thereby to statistically check the construct validity of the instrument. "Factor Analysis is based on the fundamental assumption that some underlying factors, which are smaller in number than the number of observed variables, are responsible for the covariation among the observed variables" (Kim & Mueller, 1978, p. 12). If PALS correctly measures the collaborative theory in the literature, then this data reduction technique should produce identifiable factors which are similar to the major concepts discussed in the literature.

When conducting a factor analysis, it is desirable to have a 10 to 1 ratio of cases to variables. This was exceeded by using 509 cases for this 44 item instrument. Although researchers often delete items below a .4 loading from a factor, Kim and Mueller (1978) warn that "the deletion of variables in order to have a neat factorial structure can lead into an erroneous conclusion" (p. 68). In addition, since "a good factor analysis requires the researcher to know a great deal about the factorial structure of variables" (p. 68), each item was assigned to the factor in which it had the highest loading. In this way, every item in the instrument was retained for factor analysis.

The SPSS Factor Analysis program utilizing principal factoring with iteration and varimax rotation was used. This procedure produced seven discernable factors. In these factors, 31 items loaded above .40; three were between .35 and .40; seven were between .30 and .35; and only three were below .30.

Factor 1 contained 12 negative items. These items focused on evaluation by formal tests, on comparing the learners to outside standards such as standardized tests and middle-class values, and on control of the learner by means of quiet deskwork, disciplinary action, and teacher determination of objectives. These items are antithetical to the collaborative concept of Learner Centered Activities.

The nine items in Factor 2 related to Personalizing Instruction. They dealt with the self-pacing of learning, utilizing a variety of materials,
methods, and assignments, and objectives which are based on individual motives and abilities.

Factor 3 was made up of six items and was entitled Relating to Experience. Items in this factor focused on problem solving, utilizing prior experience, and relating learning activities to everyday life.

The four items in Factor 4 stressed the importance of Assessing Student Needs. Items related to individual conferences, informal counseling, and learner involvement in diagnosis composed this factor.

Climate Building was Factor 5. These four items stressed self-control through classroom breaks and interaction with other students. Also included were the teacher's elimination of barriers by utilizing the existing competencies of the students and by accepting errors as a natural part of learning.

Factor 6 dealt with Participation in the Learning Process. The four items in this factor dealt with learner demonstrating self-direction in selecting the learning context, evaluating performance, and identifying problems.

Finally, Factor 7 contained the remainder of the negative items. These five items were the opposite of Flexibility for Personal Development. They contained the negative traits of avoiding value issues, of maintaining classroom discipline, of encouragement in modifying original objective, and of viewing the teacher as primarily a provider of knowledge.

The factors produced by this analysis support the construct validity of PALS. These seven factors, which were statistically derived, are similar to the general principles found in a review of the adult education literature supporting the collaborative mode. This statistical analysis using a broad sampling of adult education practitioners supports the testimony of the original jury for PALS and further confirms the construct validity of the instrument.

Empirical Uses of PALS

The stable normative statistics for PALS suggests that it is a valid instrument for use in research studies. In these studies, PALS can be used to measure the degree of practitioner support of the collaborative mode which is widely supported in the literature. This measurement can be combined with a wide variety of other controls to produce research-based data to evaluate the validity of the literature base and to provide situational specificity to the general principles discussed in the literature. Variables that may be studied are student growth in the cognitive and affective domain, the relationship of teaching and learning style, and factors influencing the situational setting such as the nature of the curriculum or the institutional setting.

By combining a variety of studies in areas such as these, it will be possible to provide greater specificity to the literature. For example, Pearson (1980) found that congruency exists between management style and teaching style and, more importantly, that the amount of formal education was the major influence in selecting a collaborative approach in those areas. Douglas (1982) took this concept one step further when he found that the amount of formal training specifically in adult education was the major influence or
accepting a collaborative approach in an adult education setting. Just as
these two studies have explored a similar area, PALS can serve as the measure-
ment device for other studies dealing with a variety of the variables in the
adult learning transaction.

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