Bruner, J. S. *Toward a Theory of Instruction.* Cambridge, Mass.: Harvard University Press, 1966.
Bruner, J. S. *The Process of Education.* Cambridge, Mass.: Harvard University Press, 1965.
Cantor, N. *Dynamics of Learning.* Buffalo, N.Y.: Henry Stewart, 1946.
Chickering, A. W. *Experience and Learning.* New Rochelle, N.Y.: Change Magazine Press, 1977.
Combs, A. W. "Teacher Education: The Person in the Process." *Educational Leadership,* 1978, *35* (7), 558-561.
Dawson, G., and Sussman, J. "Personalizing Instruction in Business and Economics." *Alternative Higher Education,* 1977, *1* (2), 139-150.
Dewey, J. *Democracy and Education.* New York: Macmillan, 1916.
Dinkmeyer, D., and Carlson, J. "Group Methods for Adolescent Development." *Counseling and Human Development,* 1978, *10* (5), 1-11.
Doherty, A., Mentkowski, M. M., and Conrad, K. "Toward a Theory of Undergraduate Experiential Learning." In M. T. Keeton and P. J. Tate (Eds.), *Learning by Experience.* San Francisco: Jossey-Bass, 1978.
Elford, G., and others. *Handbook of Management Standards for Awarding High School Diplomas.* Boston: Massachusetts Advisory Council on Education, 1975.
Experience-Based Career Education. *Introductory Guide to Activity Sheet Preparation.* Charleston, W. Va.: Appalachia Educational Laboratory, Inc., 1976.
Fenton, E. *The New Social Studies.* New York: Holt, Rinehart and Winston, 1967.
Freedman, M., and Sanford, N. "The Faculty Member Yesterday and Today." In M. Freedman (Ed.), *Facilitating Faculty Development.* San Francisco: Jossey-Bass, 1973.
Gilbert, J. "Contract Learning." *Alternative Higher Education,* 1976, *1* (1), 25-32.
Havighurst, R. J. *Developmental Tasks and Education.* New York: McKay, 1972.
Homme, L. *How to Use Contingency Contracting in the Classroom.* Champaign, Ill.: Research Press, 1969.
Johnson, J. N., and Peterson, H. L. "Developing and Managing Individualized Studies Programs: Some Guidelines." *Alternative Higher Education,* 1978, *2* (4), 257-265.
Knapp, J., and Sharon, A. *A Compendium of Assessment Techniques.* Columbia, Md.: Council for the Advancement of Experiential Learning, 1975.
Knowles, M. *The Adult Learner: A Neglected Species.* Houston, Tex.: Gulf Publishing Co., 1978.
Kolb, D. A., and Fry, R. "Toward an Applied Theory of Experiential Learning." In G. Cooper (Ed.), *Theories of Group Processes.* New York: Wiley, 1975.
Lecky, P. *Self-Consistency: A Theory of Personality.* Hamden, Conn.: Shoe String Press, 1961.
Manaster, G. J. *Adolescent Development and Life Tasks.* Boston: Allyn & Bacon, 1977.
Pai, Y. *Teaching, Learning, and the Mind.* Boston: Houghton Mifflin, 1973.
Rogers, C. R. *Freedom to Learn.* Columbus, Ohio: Merrill, 1969.
Tyler, R. W. *Basic Principles of Curriculum and Instruction.* Chicago: University of Chicago Press, 1949.
Wald, R. "Confronting the Learning Contract." *Alternative Higher Education,* 1978, *2* (3), 223-231.
Willingham, W. W. *Principles of Good Practice in Assessing Experiential Learning.* Columbia, Md.: Council for the Advancement of Experiential Learning, 1977.

Harold Henderson is director and Steven Hyre is an educational development specialist in the experiential education division of the Appalachia Educational Laboratory, Charleston, West Virginia.

Experiential learning theory can be used to diagnose and understand both learners and learning environments. The results suggest guidelines for making liberal arts education more meaningful to learners by providing them an opportunity to develop adaptive competencies related to career success.

Experiential Learning Theory and Learning Experiences in Liberal Arts Education

Ronald Fry
David Kolb

For many years there has been an increasing trend toward specialization and vocationalism in higher education—a trend that has recently gained momentum from post "baby boom" demographics, a tight job market, and the multifaceted financial crises of institutions of higher learning. As these trends have developed, the liberal arts have been challenged by students, employers, and alumni to defend the value of a "liberal education." Increasing numbers of critics view education in the liberal arts as irrelevant to preparation for life and career.

These challenges seem particularly frustrating and ironic to those of us who are committed to liberal arts education. We have seen in our own experiences and those of our associates that the basic competencies that can be acquired from liberal arts education are the most relevant for life in our rapidly changing world, a world requiring a continued commitment to lifelong learning and development. We see around us a world controlled by technological, scientific, and professional elites struggling with problems that exceed the boundaries of their specialties, searching for the very perspective, ethical prin-

ciples, and understanding of the human condition that we seek to develop in our students.

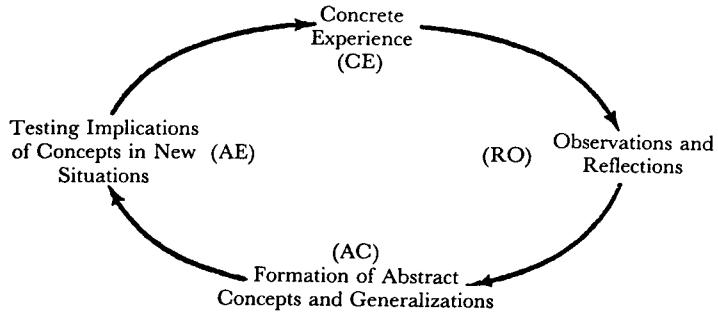
What has gone wrong? In part, we ourselves are victims of the scientific, professional specialization trends that surround us. Our criteria for valid knowledge, selection, and promotion of faculty, and choice of educational methods have become more specialized, scientific (some would add the pejorative *pseudo*), and abstract. We emphasize cognitive understanding and appreciation of ideas at the expense of the application of these ideas to the life situations and personal experiences of our students. Yet the mindless course proliferation and curricular anarchy of the late 1960s has shown us that relevance alone is not the answer. What is needed is an educational approach that integrates personal experience and practical application with perceptive appreciation and understanding of concepts, and in so doing requires the development of all these competencies.

The purpose of this chapter is to suggest a framework and method for developing such an approach. The framework evolves from a theory of experiential learning, and in turn the method focuses on key questions to be asked when designing or planning learning experiences in the course or classroom. Experiential learning theory will be applied first to the design of classroom environments. Here we address our colleagues' often raised concern, "How can I make this subject matter come alive? What options do I have to teach in a different way?" Next we will examine ways of viewing differences in learning styles among the students we teach. These ideas are useful in answering the question, "How can I make this topic more relevant and interesting to a larger number of students?" Finally we will focus on integrating the two areas above with outcomes or learning objectives related to lifelong learning and development. Here we hope to deal with the concerns of liberal arts educators: "How can we assess the impact we are having on our students? Where can we go from here? What is the role for field experience in the liberal arts?"

Experiential Learning Theory

Experiential learning theory provides an integrative framework for understanding the teaching-learning process. This theory, derived from the social psychology of Bruner and Piaget, has formed the basis for such diverse educational programs as the laboratory training (T-group) movement and the discovery learning programs in elementary science and mathematics. As formulated by Kolb (1976b), experiential learning theory depicts learning as a four-stage cycle, shown in Figure 1. In this cycle, immediate concrete experience is the basis for observation and reflection (for example, a child touches a gas stove while a burner is on and associates pain, displeasure, and fright with "touching when I see the colors"). The observations are assimilated into an idea or theory from which new implications for action can be deduced (for example, if the colors are there, touching makes me cry or hurt). These implications or hypotheses then serve as guides in acting to create new experiences (for example, what if I touch the object when there are no colors?). An effective learner needs four different abilities—concrete experience skills, reflective observation skills, abstract conceptualization skills, and active experimentation skills. That is, he or she must be able to get involved fully, openly, and without bias in new experiences (CE), to reflect upon and interpret these experiences from different perspectives (RO), to create concepts that integrate these observations in logically sound theories (AC), and to use these theories to make decision and solve problems (AE) leading to new experiences.

Figure 1. The Experiential Learning Model



Developing all these skills in our students is no simple task! How can one be concrete and immediate but still theoretical? Can one be good at action taking on the one hand but able to reflect and observe on the other? This educational task is made more difficult by the fact that subject matter in the liberal arts is portrayed in symbolic and sometimes iconic forms requiring reflective and abstract skills to appreciate and understand its meaning. Where is there room for doing anything that might develop the concrete or active skills the model suggests our students need? We seem to be limited in the type of learning environments we can provide by the very nature of our liberal arts subject matter—or are we?

Learning Environments

Any course design or classroom session can be viewed as having degrees of orientation toward each of the four learning modes in the experiential learning model. In our formulation of this notion of learning environments, we have labeled each of the areas of orientation as affective, perceptual, symbolic, and behavioral to connote the overall climate they create and the particular learning skill or mode they require (Kolb and Fry, 1975). Thus an affective environment emphasizes the experiencing of concrete events; a symbolic environment emphasizes abstract conceptualization; a perceptual

environment stresses observation and appreciation; a behavioral environment stresses action taking in situations with real consequences. Again, the point to be stressed is that any particular learning experience we set up can have many or all of these orientations, to differing degrees, at the same time. A typical lecture obviously has perceptual and symbolic orientations because it requires students to listen to and interpret the presentation (reflective observation skills) and to reason and induce conceptual relationships from what they hear (abstract conceptualization skills). But there may be an affective orientation as well. Some students may be experiencing us as role models as we lecture to them. Or if we direct questions or pose dilemmas to the class, we are creating a behavioral orientation by urging them to take action by speaking up and testing their ideas out in public.

How can we know how our course or class sessions are oriented? Fry (1978) has found that each type of environmental orientation can be measured by observing the following variables in the context of a course: the purpose of the major activities, the primary source or use of information, the rules guiding learner behavior, the teacher's role, and the potential for feedback. These are useful cues because to a great extent they are controlled by the instructor, faculty, or administration—independently of the learner. Most decisions affecting these aspects of learning environments are made before learner-classroom interactions take place. Using these variables, the following pictures of different types of environments result.

An Affectively Oriented Environment. This is characterized by activities or tasks aimed at helping learners to realize and develop their personal attitudes toward the field or profession; information generated from the "here and now" feelings, opinions, and values of the learners; procedures and guidelines oriented to facilitate the free expression of personal needs, wants, and feelings; teachers functioning as friendly listeners and counselors; and personalized, immediate feedback to the learner.

An example might be a classroom debate on abortion in a political science course, where the participants must put themselves in a position to express and argue positions that will highlight their personal feelings and values toward the topic. Discussion after the debate is geared to critiquing the debaters' handling of themselves in that specific situation.

A Perceptually Oriented Environment. This is characterized by activities aimed primarily at understanding a concept or relationship between events, information sharing focused on how or why things occur or relate, methods that encourage the learner to try out new perspectives or ways of thinking about a subject, teachers who serve to direct and bound discussions, and learners who learn to use professional or discipline-based standards to evaluate performance or judgments.

An example might be a recitation section in a U.S. history course where the class is asked to discuss and analyze a recent presidential State of the Union address from the perspective of different historians. The discussion has

no right solution or predetermined end point, but the instructor serves to referee tangential commentary and to clarify how certain theorists may have viewed the address.

A Symbolically Oriented Environment. This would be characterized by activities oriented toward mastering a skill or concept by using it to solve a problem; information primarily based on abstract, "there and then," and objective data; learners being forced to use terms, rules of inference, protocols, and memory recall to communicate about the topic; the teacher functioning as the interpreter of a field of knowledge and a guide to direct the learner in the manipulation of terms, symbols, concepts, and so on; and learner output evaluated as correct or incorrect by objective criteria from axioms or rules in the field of study.

An example might be a lecture on the industrial revolution, where the learner must be able to conceptualize relationships among social, political, and technological forces, or an oral test in a French class where the learner is right or wrong and must rely on recall, rules, and terminology in order to answer.

A Behaviorally Oriented Environment. This is characterized by activities designed to have the learner apply knowledge and skills to solve real-life problems as a professional would; information sharing centered on what is necessary to plan, schedule, write, prepare presentations, and so on to get a task finished; learner autonomy, or minimal rules or guides that force learners to take responsibility for their action; teachers serving as coaches who guide by offering friendly advice based on personal experience but leave responsibility for the outcome to the learner; and learners left to judge their own performance by using professional criteria they accept as valid.

An example might be a term project in an experimental psychology course to design and conduct an experiment based on a topic or another experiment studied in the course. The learner is then asked to write up the results and evaluate their merits.

Learning environments vary in the degrees to which they are oriented to any of the four areas above. In a study of a landscape architecture department (Fry, 1978), ten courses were measured to determine the degree of environmental complexity or the tendency of a course to be oriented in one or more ways. The results indicated that all the courses had degrees of orientation in each area and that it was even possible for a given course to be very affectively and symbolically oriented at the same time. Consistent patterns of environmental orientation showed up in the following combinations: perceptual and symbolic—an "investigative" or "inquiry" climate with the emphasis on inductive theory building and on understanding why things happen (this was most characteristic of lecture and seminar course sessions in this setting); symbolic and behavioral—a "mastery" climate where emphasis was on mastering techniques by practice in problem solving (this was most characteristic of laboratory and recitation sections of courses in this study); behavioral and affective—a "simulative" climate where situations were created to put the

learner in the role expected of a graduate in a work setting (this was most characteristic of courses requiring field experience, site visits, and interaction with others outside the classroom in this setting).

So far, our discussion and research has focused primarily on the course-level units of learning environments. Questions remain to be asked regarding larger aspects such as what is the impact of curriculum, faculty mentors, social networks outside of classes, campus atmosphere, and the like? Some evidence suggests that these large-system phenomena may be particularly connected with the affective and behavioral orientations. For example, faculty in engineering have voiced their views to us that concrete experiencing and active experimenting skills in their students may not be developed as part of their formal curriculum of courses but rather in social groupings in fraternities, one-on-one relationships with faculty mentors, summer work experiences, and other extracurricular campus activities.

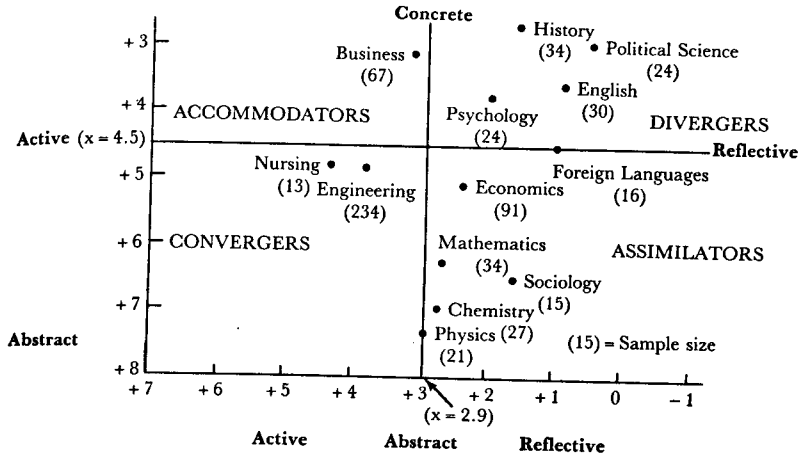
Differences in Student Learning Styles

To help in deciding what kind of learning environment to design or what mix of orientations to strive for, one needs to consider what kind of learner is to be taught. Experiential learning theory has been particularly useful in providing us with ways of understanding how our students differ from one another and why, for example, some "turn on" to a lecture while others show enthusiasm only in their independent project work.

As a result of our hereditary equipment, our particular life experience, and the demands of our present environment, most of us develop learning styles that emphasize some learning abilities over others. We come to resolve the conflicts between being active and reflective and between being immediate and analytical in characteristic ways. Some people develop minds that excel at assimilating disparate facts into coherent theories, yet these same people are incapable of or uninterested in deducing hypotheses from their theory; others are logical geniuses but find it impossible to involve and surrender themselves to an experience, an so on. A mathematician may come to place great emphasis on abstract concepts, while a poet may value concrete experience more highly. Each of us thus develops a learning style that has some strong and weak points vis à vis the four modes of learning in the experiential learning model.

The *Learning Style Inventory* (Kolb, 1976a) has been developed to measure these tendencies. This is a self-rating assessment of the learner's perceived preference for concrete versus abstract learning and for active versus reflective learning. Let us see where undergraduates fall along these dimensions. The relationships between learner styles and undergraduate majors are shown in Figure 2. What these data show is that one's undergraduate education is a major factor in the development of one's learning style. Whether this is because individuals' learning styles are shaped by the field they enter or because of

Figure 2. Average Learning Style Inventory Scores on Active/Reflective and Abstract/Concrete by Undergraduate Majors



selection processes that put people into and out of disciplines is an open question at this point. Most probably both factors are operating—people choose fields that are consistent with their learning styles and are further shaped to fit the learning norms of their field once they are in it.

When there is a mismatch between the field's learning norms and the individual's learning style, a student will either change or leave the field. Plovnick's (1971) research indicated that the latter alternative is the more likely case. He studied a major university physics department and concluded that the major emphasis in physics education was on convergent (active and abstract) learning. He predicted that physics students who had convergent learning styles would be content with their majors, whereas physics majors who were divergent (concrete and reflective) in their learning style would be uncertain of physics as a career and would take more courses outside of the physics department than their convergent colleagues. His predictions were confirmed. Those students who were not fitted for the convergent learning style required in physics tended to turn away from physics as a profession.

This poses an interesting dilemma for educators and speaks to the usefulness of experiential learning theory as a framework for viewing learner and environment relationships. In the case of the humanities and liberal arts undergraduates, in Figure 2, it appears that to contribute to those fields (history, psychology, English, political science) one needs to develop "divergent" skills (concrete experience and reflective observation). This may mean developing the divergent ability of a learner with strengths in other areas (active experimentation or abstract conceptualization). Would it not be simpler to preselect people who already possess the divergent capabilities these disciplines

seem to promote? Perhaps, but in such a process—legalistic and moral issues aside—one would lose the creative tension between convergence and divergence or the chemistry that can be ignited when two such diverse learners are helped to work together. So given that liberal arts educators are likely to continue to be faced with a mixture of incoming learner styles, yet turn out predominantly divergent learners, it is important to be able to understand their curriculums in these terms. Thus one might be able to begin to say which events and activities (environmental orientations) can help a diverger become even more specialized in his or her abilities, while helping another type of learner acquire new skills in the divergent area.

Learner-Environment Interactions

When experiential learning theory is used to view the learner and instructional environment in the terms discussed above, useful relationships begin to emerge concerning the design of learning situations. Studies of the preferences of MBA students and graduate students in architecture (Fry, 1978) suggest that what we considered to be characteristics of affective, perceptual, symbolic, and behavioral orientations in the environment do, in fact, relate to and require learner skills in concrete experience, reflective observation, abstract conceptualization, and active experimentation, respectively.

The students who scored high in concrete experience as a preferred learning mode indicated that their ability to learn was enhanced by affectively related factors such as personalized feedback, sharing feelings, teachers behaving as friendly helpers, activities oriented toward applying skills to real-life problems, peer feedback, and the need to be self-directed and autonomous. An environmental factor that reportedly hindered their learning ability was theoretical reading assignments.

The learners scoring highest in reflective observation reported perceptually related environmental factors as being helpful. These included teachers providing expert interpretations and guiding or limiting discussions, output being judged by external criteria of field or discipline, and lecturing. Things seen as hindering this style of learner included task-oriented situations where information generation was focused on getting some job done.

The learners scoring highest in abstract conceptualization cited symbolically related factors such as case studies, thinking alone, and theory readings as contributing to their ability to learn. They also felt that several elements of affectively and behaviorally oriented environments hindered their ability to learn. These included group exercises and simulations, the need to be self-directed or autonomous, personalized feedback, teachers being models of the profession, sharing personal feelings about subject matter, dealing with "here and now" information, and activities oriented toward experiencing being a professional in the field.

Finally, the learners with the strongest active experimentation tendencies identified several factors as helpful that one would associate with a behaviorally oriented environment. These included small group discussions, projects, peer feedback, homework problems, the teacher behaving as a model of the profession, being left to judge one's work by oneself, and activities designed to apply skills to practical problems. Things these students reported as hindrances to their ability to learn included lectures, teachers serving as task masters, and having their work evaluated as simply right or wrong.

Thus we can begin to see certain matches between learner styles and instructional environment designs. But does this mean we just alter our course designs to accommodate the type of learner that comes into it or to force all our students to develop the divergent skills of concrete experiencing and reflective observation that appear to be typical of liberal arts undergraduates? We need to consider for what purpose we would be matching learner styles and environmental orientations. As mentioned above, if the goal of liberal arts education is the acquisition of a body of knowledge and the recall of facts, then our reliance on lectures, reading, and essays (symbolically and perceptually oriented environments) is probably appropriate, and we should perhaps work to help students develop their conceptualizing and reflective observation skills. If we are, however, to endeavor to make liberal arts relevant to lifelong learning and development, then other learning outcomes need to be considered.

Liberal Arts Education for What?

Our final application of experiential learning theory to the understanding of teaching-learning experiences is in posing an alternative to the above dilemma. Rather than considering the traditional cognitive learning outcomes that tend to be topic- or subject-matter-related, our experience and research suggests there is a need for a more holistic approach to defining learning outcomes. The notion of adaptive competencies or skills, behavioral patterns, and cognitive choice-making abilities (which help people relate to, act on, and succeed in the work, social, or other environments they find themselves in) has proven to be useful in this regard. A current research effort to understand lifelong learning and career development in two professions (engineering and social work) has produced a common set of competencies that relate to learner style and job demands or environmental needs. Table 1 lists those competencies that are correlated with a particular learning mode in the Experiential Learning Model.

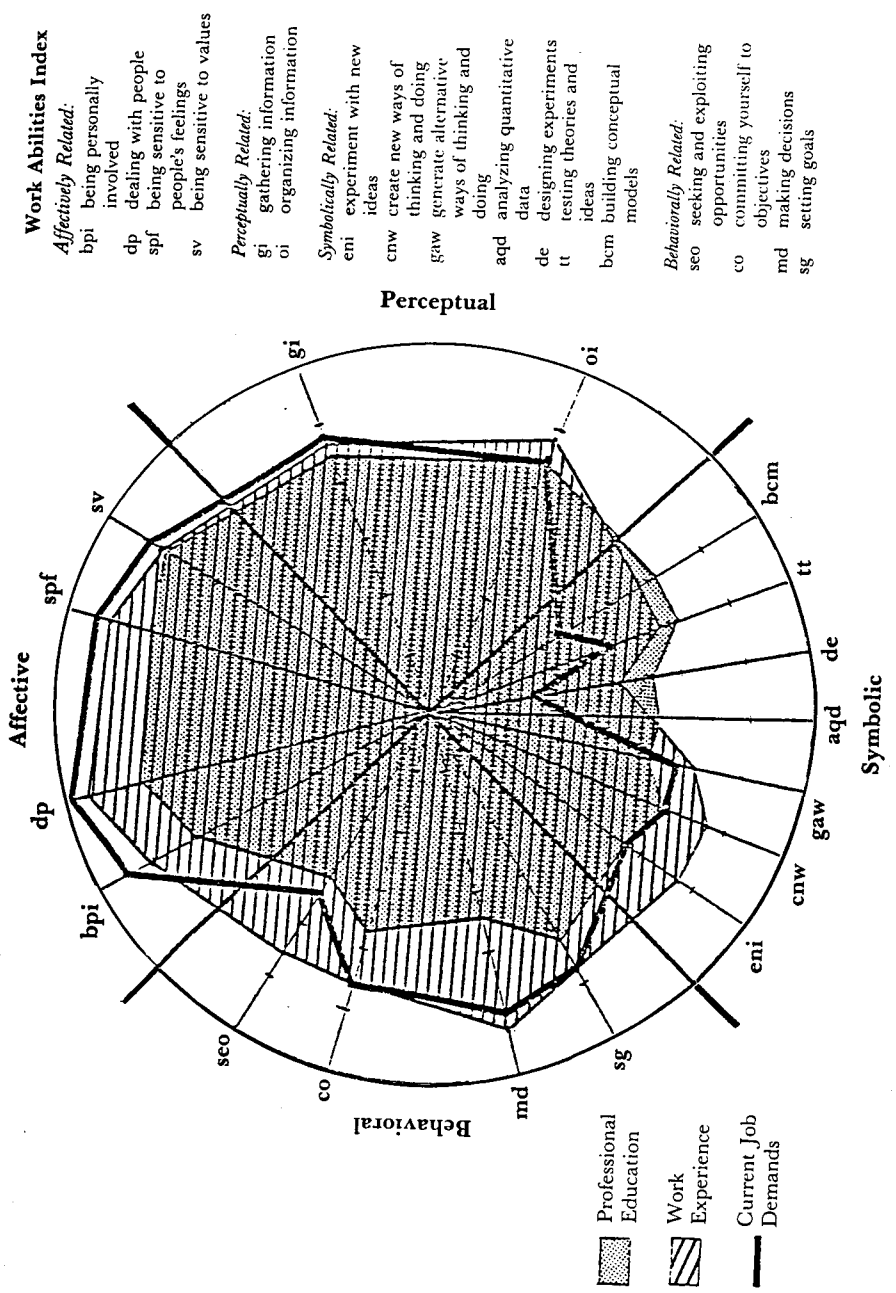
The result of linking adaptive, competency-based output to our previous notions of learner style and instructional method is a powerful diagnostic description of the impact of a learning environment on those who go through it. By measuring the job or career demands of graduates in competency terms and by either measuring the current learning environment or perceived con-

Table 1. Adaptive Competencies Related to Learning Style

Concrete Experience	*Reflective Observation*	*Abstract Conceptualization*	*Active Experimentation*
Affective:	Perceptual:	Symbolic:	Behavioral:
Dealing with people	Gathering information	Testing theories and ideas	Making decisions
Being sensitive to values	Organizing information	Analyzing quantitative data	Seeking and exploiting opportunities
Being sensitive to people's feelings	Listening with an open mind	Experimenting with new ideas	Setting goals
Being personally involved	Seeing how things fit in the big picture	Designing experiences	Committing self to objectives
Working in groups	Developing comprehensive plans	Generating alternative ways of doing	Able to adapt to changing circumstances
	Imagining implications of ambiguous situations	Building conceptual models	Influencing and leading others

tribution of that environment to these competencies, a graphic representation of educational impact can be derived. Figure 3 illustrates one such example from a social work population (made up primarily of people who majored in the liberal arts). The circular portrayal of competencies indicates their empirical relationships to one another and to a type of environmental orientation. The shaded areas indicate the perceived contribution of formal education (an MSW program) versus on-the-job experience to developing these competencies. When compared with the solid line indicating job or career demands, the relative impact of different learning environments becomes apparent. In this case, the formal educational program was seen to have overprepared in certain symbolic and perceptual competency areas and underprepared in some of the affective and behavioral areas.

Given such an analysis, we are now in a position to suggest design changes in the environment—given certain types of learners, and if one concluded the formal program or course should be doing more in one competency area or another. For example, if an instructor determined that his course should be more affectively or behaviorally oriented to develop competencies in those areas, then learning situations could be developed to require or make use of concrete experiencing and active experimentation skills in the students and to emphasize the aspects characteristic of affective and behavioral environments—sharing of feelings, self-direction, personalized feedback, application of knowledge to real problems, teacher as a coach versus expert, and so on. Some sort of field experience or group project where students had to manage themselves and interact with the real world would serve such a purpose.



Implications for Liberal Arts Education

What if profiles such as the one in Figure 3 were done for liberal arts courses, curriculums, or even colleges? One hypothesis is that they, like most formal education, would tend to underprepare, or deemphasize affective and behavioral competency development relative to perceptual and symbolic competencies. One could then infer from this that the environments themselves would probably not be as affectively or behaviorally oriented as they would be symbolic and perceptual. Our continuing reliance on the lecture mode would support such a belief. This is particularly confounding in the case of the liberal arts because, from our previous discussion, one would expect the learners who tend to major in these fields to be more predisposed to concrete learning or affectively oriented environments and competency development. No wonder students are turning away from or questioning the practical relevance of liberal arts education!

From what we have learned about the preferences of concrete, active, and reflective learners (concrete-reflective learners tend to major in liberal arts), it would appear that environments designed to offer opportunities to take on professional roles, get immediate and personalized feedback, take on multiple perspectives, share personal feelings, work on real problems, deal with "here and now" data, and the like would be not only desirable to the liberal arts student but also useful to developing more behavioral and affective competencies. Field experience education (field projects, cooperative work programs, internships, apprenticeships, and so on) appears to be a category of environments that fits this bill.

A final note on implications is that changing the environment is only one of many alternatives. One might use a Figure 3-type analysis to argue for more continuing education as opposed to trying to teach everything at once to an undergraduate. What may be important in this regard is the extent to which environments for undergraduates cause them to "unlearn" skills they originally had. Conceivably, too much of an imbalance between contribution to one type of competence outcome over another may result in learners being unable to learn or develop underemphasized competencies later on in their careers.

Summary: Some Unanswered Questions

The experiential learning theory has provided the basis for a framework to link whom we teach, how we teach, and for what purposes we teach in a teaching-learning situation. Individual learner styles can be related to preferred learning situations, and adaptive competencies can be related to both learner styles and environmental orientations. Together, these elements can then be analyzed in ways that provide descriptive impact profiles: of courses, programs, or specific education events. While this is a significant step forward from considering the educational event a "black box" (Dubin and Taveggia, 1968) and a useful source of new choice points in designing educational interventions, we are nonetheless confronted with new, more challenging issues raised in the pursuit of an integrating framework. These should not go unnoticed, and we mention them here in order to stimulate further thinking and research in these areas.

First is the question of "match or mismatch." So far, work done on describing and measuring person-environment interactions has been based on the "fit" or "match" notion. Yet the most effective learning may occur when the learner is confronted with new, uncomfortable environments that elicit the application or development of nondominant learning abilities. For example, rather than teach abstract learners via lecture, readings, and the like, we do not yet know the impact of encouraging them to learn in a more affectively oriented environment (peer group discussion, role play, and so on).

Related to the match question is the even more complex issue of the level of competency development. When one acquires a competency, perhaps a match between environment orientation and learner style is desirable. But in integrating this competency with others, the mismatch may be appropriate. If we believe that one's learning abilities are related to adult development processes (Kolb and Fry, 1975), then learning styles might be viewed as adaptive styles and identified in three developmental stages—acquisition, specialization, and integration. Typically, we view education as a problem of helping learners to acquire or specialize their learning styles and to attain performance-level competencies. Yet equally important is the role of educational programs in fostering lifelong learning and the integration of disparate learning modes to foster individual growth and development. Since these issues are more akin to certain of the liberal arts and humanities than to the sciences, maybe liberal arts education is the place to start delving into them.

References

Dubin, R., and Taveggia, T. *The Teaching-Learning Paradox.* Eugene, Ore.: Center for Advanced Study of Educational Administration, 1968.

Fry, R. "Diagnosing Professional Learning Environments: An Observational Framework for Assessing Situational Complexity." Unpublished doctoral dissertation, A. P. Sloan School of Management, M.I.T., Cambridge, Mass., 1978.

Kolb, D. A. *Learning Style Inventory: Technical Manual.* Boston: McBer and Company, 1976a.

Kolb, D. A. "On Management and the Learning Process." *California Management Review,* 1976b, *18* (3), 21-31.

Kolb, D. A., and Fry, R. "Toward an Applied Theory of Experiential Learning." In G. Cooper (Ed.), *Theories of Group Processes.* London: Wiley, 1975.

Kolb, D. A., and Wolfe, D. M. "Professional Education and Career Development in Social Work and Engineering: A Cross-Sectional Study of Adaptive Competencies in Experiential Learning." Unpublished paper, Case Western Reserve University, Cleveland, Ohio, 1977.

Plovnick, M. "A Cognitive Ability Theory of Occupational Role." A. P. Sloan School of Management Working Paper No. 524-71, M.I.T., Cambridge, Mass., April 1971.

Ronald Fry and David Kolb are currently engaged in research in career development and professional education in the fields of social work and engineering in the Department of Organizational Behavior, Graduate School of Management, Case Western Reserve University, Cleveland, Ohio.

Ideas presented in this sourcebook are reviewed and additional resources are provided.

Conclusion and Additional Resources

Stevens E. Brooks
James E. Althof

With the current awakening of interest in general education among liberal arts institutions, there seems to be little faculty consensus on what courses do in fact constitute a liberal arts curriculum (Shulman, 1979). As Shulman defines it:

> One method of achieving these goals is a new concept of core curriculum. As an arm of a general education program, core courses may still be "common and tightly knit" but they need not be content oriented. Instead, thse courses may focus on themes, values, problems, or essential skills that the college considers important for its graduates to confront or master. They are of necessity inter- or multidisciplinary. In this framework, the new core courses may be fluid in the materials they use, since educational goals are more concerned wth learning processes than with content (p. 6).

Implementing this core curriculum approach will, we believe, require experiential learning methods. This use of experiential learning will in turn expand its functions beyond those it has been thought to perform in the past, that is, of providing a career-related experience, a service-learning opportu-