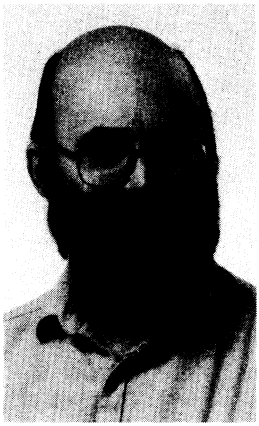
A HUMAN SCIENCE STUDY OF LEARNING ABOUT "LEARNING"



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Summary

Fourteen students in a graduate course on learning theories described their ideas about learning before and during the course. They were asked to comment upon the existential relevance of natural science and human science approaches to learning with particular reference to their intellectual and emotional reactions. Written protocols were thematically analyzed. The data indicated that all students shifted toward a more human science outlook on learning. Most found a theoretical home for the reservations, long held, about natural science learning. Most expressed surprise or unfamiliarity with existential-phenomenological ideas. The concept of coconstitutionality was the focus of considerable reflection. Most students reported that they experienced the learning process of the course in ways similar to those described in references studied in the course.

This article reports a descriptive study of a learning process experienced by graduate students in a learning course taught by the author. The study focuses upon natural science and human

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science conceptions of learning and the ways in which they were experienced within the course context.

The approach to learning taken in the course was to compare and/or contrast the natural science and human science (Giorgi, 1970) approaches to learning through critical examination of their respective philosophical presuppositions. The presuppositions of natural science psychology are extrapolations from natural sciences such as biology or physics. Giorgi (1970) lists three key presuppositions of psychology conceived as a human science. They are the study of the whole person, the study of that which characterizes the uniqueness of being human, and the coconstitutionality of person and world.

Students read and discussed a sample of papers expressing the two approaches to learning. The minutiae of natural science mechanisms of learning (e.g., Hullian theory, information processing models) were assigned a minor role because most students already had extensive exposure to behavioral and cognitive approaches to learning. The instructor's aim was to increase students' awareness of (a) the value orientation of their particular view of learning and (b) a significant alternative to the natural science orthodoxy to which most of them had been habituated.

Throughout the course, students were encouraged to discuss not just the ideas presented but the ways in which they experienced those ideas (e.g., the kinds of bodily sensations and feelings that the ideas prompted). To this extent, the pedagogical approach used in the course attempted to facilitate a physiognomic (Colaizzi, 1978a) rather than an exclusively conceptual understanding of the ideas presented. The lived-experience of the course was an important focus; students were encouraged to assess its existential relevance on a continuing basis.

The present study is both an examination of the learning process within the course and the extent to which the basic objective of understanding the presuppositions of natural and human science approaches to learning was accomplished. As such this study demonstrates an alternative approach to the teaching of "learning" and the mapping of the learning process as experienced by students within the course. Instructors who are looking for a change from or a supplement to the traditional catalog approach to learning theories (Hilgard & Bower, 1975) and are interested in questioning the value base of ideas about learning may find some useful ideas in this study. The study may

also appeal to those who would like to exemplify an interest in the lived-experience of human learning as they teach it. If learning is a process, should we not pay more attention to the nature of whatever process occurs when we attempt to teach learning? Unfortunately, there is often an inconsistency between pedagogical ends and means.

METHOD

The methodology is primarily phenomenological. However, the decision to look at certain aspects of the data rather than allow patterns to emerge spontaneously from the data gives the study of certain preconceptual flavor that is not wholly in keeping with some approaches to phenomenology. Nonetheless, phenomenology is a methodological value and not a listed procedure. Colaizzi (1978b) points out that there is no such thing as *the* phenomenological method. As Taylor (1971) also points out, interpretation is a part of human sciences both in the way data are gathered and then in the way they are interpreted. Even the decision as to what to study rests upon interpretation. In the present study the data are interpreted within a preconceived conceptual overlay, namely, the categories suggested by the question(s) in the exam. This kind of phenomenological research has been called phenomenography by Marton (1984). "The aim of phenomenographic analysis is a 'mapping' of the qualitatively different variations among people's conceptions for each phenomenon" (Aanstoos, 1986, p. 15). Marton (1984) explains the method as a "shift from the conceptions described to the categories used to describe them." In other forms of phenomenological research, the interpretations of the data are suggested by the nature of the data's structure. Nonetheless, the intentionality of the researcher's relation to the data is a major consideration in all research whether its effects are seen before or after data collection. The procedure used in the present study is a defensible form of phenomenological research.

Subjects

The participants (coresearchers) were 14 students in a graduate learning course taught by the author in the fall of 1985. Table

1 shows their gender and age. Most of them were either experienced professional educators or psychologists who had been trained in the natural science tradition. The mean age was 34.3 years.

Materials

The course content involved in the present study was based upon the following articles that are summarized for the reader: Brewer (1974) critically examines the evidence for the presence of classical and operant conditioning in human subjects and claims that it is unconvincing or, at best, equivocal. Greeno (1980) reviews the development of traditional (Hullian) learning theory, mathematical and computer models of learning. Greeno argues for increased educational applications of such approaches to human learning. Osborne (1982) criticizes Greeno's (1980) exclusively natural science approach to learning and his ingenuous enthusiasm for technologized approaches to learning. Greeno (1982) responds to Osborne's criticisms by attacking phenomenological methodology as being solopsistic. Aanstoos (1982) counters Greeno's (1982) response to Osborne's (1982) charges by arguing that Greeno's response is based upon an apparent misunderstanding of phenomenological psychology.

Bixenstine (1976) argues that the distinction between facts and values is itself a value and that all human knowledge has an inescapable value component. Valle and King (1978) explain the basic ideas contained in existential-phenomenological psychology by comparison and contrast with natural science psychology. McConville (1978) stresses the radically empirical and physiognomic nature of the phenomenological approach to perception as contrasted to the preconceptual (a priori) approach of natural science. Colaizzi (1978) argues that "genuine learning" is existentially relevant, holistic, memorable, and qualitatively different from mere acquisition of information. Osborne (1985) also argues for a more life-process perspective on learning as a change in worldview. Gibbs (1979) critically surveys the objectivist and subjectivist fallacies in psychology as he argues for a more ecologically oriented approach to psychology.

The above articles were chosen as a means of exposing students not only to the natural science and human science approaches to

TABLE 1
Thematically Abstracted Descriptions of Experiences of Learning About "Learning"

NAME and AGE	BACKGROUND EXPERIENCE	PRESENT VIEW(S) ON LEARNING	LEARNING PROCESS	IDEAS ENGAGED
Paul 43	Teacher; uncritical acceptance of natural science ideas on learning; objectivity and results valued over process; emphasis on performance.	A nonquantifiable dimension to learning, more than acquisition of information; sometimes a long-term process; sympathetic to holistic approach; perception is an integral part of learning; "genuine learning" is a kind of unlearning.	Challenged by ideas in course; dissatisfaction with computer metaphors of learning (Greeno, 1980); felt the impact of "genuine learning", reflection on lack of "genuine learning" in academia, existential-phenomenological approach to learning led to rethinking of presuppositions about learning - part of experiencing personal transformation in return to university.	Meaning and personal relevance (Colaizzi, 1978); coconstitutionality - the role of human consciousness in learning; ambiguity of our relationship to our world; "genuine learning" (Colaizzi, 1978); "change in worldview" (Osborne, 1985).
Mary 40	A math educator; receptive to alternative views of education; convinced of importance of philosophy; process of self-reflection and bracketing in progress; awareness of hazards of personal growth.	Ongoing process of self-discovery.	Initial anxiety; course orientation as welcome surprise; intrigued but having difficulty understanding coconstitutionality; a change in "gaze" coming from past views.	Coconstitutionality; notion of "gaze"; value base of knowledge.
Tom 30	Special educator; trained in behavioral techniques; "simplicity" of Behaviorism appealing; some exposure to humanistic view.	A change in behavior.	Disorientation caused by existential-phenomenological approach; doubts about Behaviorism; gap between theory and lived-experiences; increased awareness of subject-object split; doubts about "objectivity."	Phenomenology as a method of exploring human complexity; coconstitutionality; holism; meaning uncertainty and relativity of knowledge; limitations of natural science.

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(Table 1 continued

NAME and AGE	BACKGROUND EXPERIENCE	PRESENT VIEW(S) ON LEARNING	LEARNING PROCESS	IDEAS ENGAGED
Jan 35	Special educator; natural science background (biochemistry, behaviorism); intuitive reservations about natural science.	Behavioral and cognitive accounts provide only part of the picture; learning as a more complex whole.	Apprehension of importance of meaning in human learning; concern for politics of knowledge.	Subjective base of values (Bixenstine, 1976); phenomenology as a method; existential orientation (meaning); equivocal nature of conditioning literature (Brewer, 1974).
Ron 30	Teacher; once a behaviorist now eclectic.	An ongoing life process, an inside-out as well as outside-in process.	A sense of "coming home" to Existential-Phenomenology; not fully understood, more felt than cognized.	Colaizzi's (1978) notion of "genuine learning" as the "unlearning of bullshit"; the "inside-out" perspective on learning.
Sam 32	Math teacher, committed Christian, youth worker, traditional natural science education.	True learning is more than acquisition of information or an emotional appeal to act; true learning is holistic, an ongoing process.	Felt split between "learning theory" and existence; initially lost and fearful with new concepts; vague glimpses of direction; resolution of the dichotomy between rational and experiential learning; integration of views of learning facilitated by "learning as a change in worldview" (Osborne, 1985).	Meaning, existential relevance (Colaizzi, 1978); intrinsic learning (Maslow, 1968); learning as a "change in worldview" (Osborne, 1985); opposed to a relativistic approach to knowing; found meaning in Christianity.
Colin 31	Actor; artistic home life; a state of unrecognized confusion relative to the process of learning; natural science background - schematic and computer paradigms for learning; soft-pedalled intuitive ideas on learning; role-played acceptance of behavioral and cognitive psychology - a split between academic psychology and personal relevance.	A process which is nonquantifiable (physiognomic and creative), a difference between memorizing learning; learning is not learning - forgetting - relearning; learning is a creative, nonlinear branching of thought.	Found a channel for his challenge to traditional natural science learning theory; some initial defensiveness due to the impact of Colaizzi's (1978) paper on "genuine learning"; some anxiety about the reaction of natural science establishment, feeling of relief - "I can breathe as MYSELF again."	We are "taught" so we may forget (Colaizzi, 1978); certainty is a matter of probabilities, learning and certainty don't mix; why isn't there more "genuine learning?"

Garry 36	Artist (painter); empathy for phenomenology; little "book learning" on learning; interest in Eastern philosophies and platonized Christianity.	Based upon personal experience, importance of existential relevance-personal meaning; most learning an "external" reality which is internalized; curiosity crucial.	Confirmation and elaboration of coconstitutionality (seeing "more of my 'self' as the world"); clarifying consciousness of being-in-the-world; taking responsibility for myself.	Coconstitutionality (relationship with world); radically human nature of consciousness (noematic complex); ultimate metaphysical secret - no boundaries; separate self as illusion.
Vicki 42	Therapist; negative feelings about rigidity of natural science approach to learning; gap between learning theory and experience.	Acquisition of new ideas; seeing things in a new way; excitement of being open; favors humanistic approach - holistic, physiognomic involvement, a physical (body) response.	Felt sense of urgency, immanence, something emerging from unconscious.	Dabrowski's theory (see Osborne, 1985) triggered integration with Prigogine's theory of dissipative structures and learning as a change in worldview.
Jim 30	Counsellor; strong natural science bias; an "objective realist" at core.	Behavioral bias; cognitive psychology was "radical departure"; more holistic view now.	Progression from reductionistic to more holistic veiw of learning; realization that cognitive psychology is not radically different to Behaviorism in some respects; sees the closed-mindedness of mainstream psychology (e.g., Greeno, 1980), more open now to alternatives to natural science.	The importance of looking at the value base of psychology; physiognomic perception; teleology; manipulative potential of natural science methodology (Gibbs, 1979) widespread ignorance of existential-phenomenological thought in psychology.
Amy 38	Feminist; peace educator; rejected S-R paradigm as undergraduate.	Real learning (holistic), relevant to lived-experience; opposed to traditional learning theory; negative reaction to conditioning and information processing approaches.	Confirmation of importance of existential relevance; a feeling of "coming home."	No value neutrality (Bixenstine, 1976); learning as a "change in worldview" (Osborne, 1985); the primacy of perception (McConville, 1978), coconstitutionality; Colaizzi's (1978) "genuine learning."

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Table 1 continued

NAME and AGE	BACKGROUND EXPERIENCE	PRESENT VIEW(S) ON LEARNING	LEARNING PROCESS	IDEAS ENGAGED
Walt 28	Behaviorally oriented therapist-teacher; natural science academic training.	Natural science view (the rest are soft or weird).	Initial hostility to nonnatural science ideas; recognition of importance of coconstitutionality (no value-free science); seeing psychology in a new way; now realizes that behavior modification is not "objective;" allowed suppressed misgivings about natural psychology to surface.	Coconstitutionality as not necessarily opposed to natural science ecological perspective; retains feeling of need to accommodate to natural science.
Cathy 26	Physical education background; disappointment with conventional natural science view of learning inspite of good performance - emptiness; unaware of alternatives to natural science; probehavioral but with reservations; thought nonnatural science approach "soft," thoroughly trained in "doctrinaire" natural science.	Personal thoughts on learning confirmed by Colaizzi (1978) (i.e. genuine learning as existentially relevant rather than information stuffing), confirmation of learning as a change in worldview (Osborne, 1985) through personal experience; offended by Greeno's (1980) disregard for man as a 'feeling' organism.	Became more aware of the manipulative aspects of natural science methodology (Gibbs, 1979); strong sense of "coming home," reconciliation of personal philosophy and an understanding of learning; discovery of a formal body of thought that fits her experience (Existential-Phenomenology).	Attracted to but baffled by coconstitutionality; appreciation of the importance of human consciousness; choice; responsibility; situational freedom; importance of a personal philosophy.
Dee 40	Teacher; disenchantment with teaching - learning; looking for meaning; indistinct recollections of Behaviorism and conditioning.	Learning is more than accumulated information; fine-tuning of mental processes to allow "real" thought to be used in an existentially relevant way; development of empathy; understanding; tolerance.	Stimulated and frightened by Colaizzi (1978); how do we get in touch with ourselves? How do we operationalize Colaizzi's ideas? Anger towards Greeno's (1980) "narrowness, smugness and inflexibility"; ambiguity and uncertainty after reading Brewer (1974). Intrigued by phenomenology (Aanstoos, 1982). Ideas about learning challenged and expanded; "learned" to be more conscious of her life; pessimistic about educational system.	Colaizzi's (1978) "genuine learning"; phenomenology; holism rather than analysis, reduction and objectivity; Bixenstine's (1976) argument on value-fact antithesis.

psychology and learning but to the nature of the dialectic between these approaches. The Greeno-Aanstoos debate exemplifies the ways in which differing values can be a formidable obstacle to understanding. Appreciating the politicization of knowledge is an incidental result of following such a debate. Gibbs's (1979) article also provides an example of the type of "balanced" view that is more acceptable to the APA. Gibbs takes a kind of "plague on both your houses" perspective.

Procedure

As part of the course requirements, students were given the following take-home question to be answered in no more than five double-spaced typed pages:

> Outline briefly the ideas you held about learning before entering this course. In what ways have these ideas been confirmed or challenged by the ideas presented so far? Which ideas have engaged you most? Describe your encounter with these ideas with particular reference to your intellectual and emotional reactions. Also discuss the relevance/irrelevance of these ideas to your own existence as a whole.

Throughout the preceding class sessions, students had been encouraged to express freely their intellectual and emotional reactions to the course material. The instructor emphasized that he was hoping for authentic descriptions of personal experience rather than attempts to feed him what students thought he wanted. Students were told that their answers would be evaluated in terms of the extent to which the instructor believed them to be authentic, scholarly, and articulate expressions of their views and experiences. There was some doubt as to whether the students would trust the instructor's word on this matter. However, the data in Table 1 suggest that they probably did. The demand characteristics of this task were reduced by the rapport established between instructor and students in the preceding weeks.

Neither the instructor nor the student coresearchers were aware that the above assignment would provide the data of the present study. It was only after reading the answers that the instructor thought an analysis of the answers would be worth-

while. Consequently, he asked the students for permission to use their answers for research purposes. After the data analysis was completed, the instructor showed each participant Table 1 to determine whether the abstraction of their experience was valid. All students confirmed the validity of Table 1. They were also asked, now that course grades were final, whether they believed that they may have told the instructor what they thought he might want to hear rather than describing their authentic experience. All students claimed to have been truthful. Some commented that it would have been too difficult and pointless not to have been truthful. One person said that she could have revealed more personal details about her experience but that what she did disclose was true.

RESULTS AND DISCUSSION

The answers to the above question(s) were read several times in order to get a "feel" for the data. The data in Table 1 are abstracted summaries of the content of students' answers and as such are the result of the an interpretative act by the researcher. The present phenomenological analysis attempts to identify patterns of lived-experiences emerging from the data. Organization of Table 1 reflects the researcher's attempt to categorize the data under headings that seemed to include the vast majority of the material contained in the students' answers. The tabular headings also reflect the thrust(s) of the question(s). Whether Table 1 represents phenomenological analysis and/or content analysis is arguable.

All of the coresearchers had a traditional natural science background in psychology in addition to the natural science value orientation, which is the "natural attitude" of Western societies. Mary had taken a course in phenomenology, Tom had some exposure to humanistic psychology, while Garry's interests in Eastern ideas and philosophy seemed to suggest receptivity to non-natural science ideas. Vicki, Amy, Cathy, Dee, Jan, and Colin expressed either reservations or negative feelings about their natural science background in learning. Jim, Tom, Walt, Sam, and Paul expressed their prior adoption of a predominantly natural science orientation to psychology and/or learning while Ron claimed to be eclectic.

The women's reservations about natural science may suggest that they value, more highly than males, the human science value orientation because of its greater tendency to include all human experience (especially lived-emotions) within the purview of psychology. Finally, one might say that Mary, Tom, Garry, Vicki, Amy, Cathy, Dee, Jan, and Colin were predisposed toward an alternative approach to learning while the other students were relatively content with natural science when entering the course. Cathy's experience is fairly typical of those with reservations about their prior experience of natural science-type learning:

> I have been suffering a chronic struggle over the past years concerning the personal issue of "what is learning?" I came away from an undergraduate degree in physical education with a sense of disappointment. Despite having been a good student and achieving high marks, something was missing. I found that I could not remember many of the details of what I had learned, even worse—I couldn't remember some of the key concepts! After many hours of soul searching I came to the conclusion that the reason I couldn't remember anything was that I had never "learned" it in the first place.

All the students, except Amy and Garry, were unknown to the instructor who had just returned from a year's study leave. Amy and Garry took this course because they knew of the instructor's human science orientation. The remaining students, when questioned after the data were collected, stated that their selection of this section of the course had nothing to do with the instructor.

The tabular heading of "Present View(s) on Learning" contains data that express the students' views on learning at the same time of writing. Data in this column of the table are the best interpreted in conjunction with the data listed under the heading "Learning Process." Although students were asked about their views on learning before and after entering the course, and the process they had experienced, they tended to discuss these questions as a whole in terms of the past and present. The researcher has sorted the data into the separate categories of Table 1 for the sake of convenience.

Tom and Walt hold a natural science view as they did before taking the course. Jim and Ron hold a mixed (eclectic) view of natural and human science. While Jim shifted from a natural science view, Ron retained his eclectic view. Garry, Vicki, Amy,

Cathy, Dee, Jan, Sam, Colin, Paul, and Mary hold a human science view of learning. Garry held a prohuman science view before the course while Vicki, Amy, Cathy, Dee, Jan, Sam, Colin, Paul, and Mary were either dissatisfied with a natural science approach to learning and/or receptive to an alternative approach. These latter students seem to have found a human science approach to learning to be a meaningful alternative to natural science.

The "Learning Process" in Table 1 seems to be characterized by three patterns of experience. Garry, Amy, Cathy, Jan, Ron, and Colin report a type of "coming home" or confirmatory experience. The experience varies from the formalization of a strongly held value orientation (Garry) to the emerging identification of a personal value orientation that had been intuitively sensed beforehand (Amy, Cathy, Jan, Ron, Colin). Vicki seems to have had an experience that facilitated the integration of ideas gathered before and during the course.

The second pattern of experience is characterized by disorientation, anxiety, or even hostility. Tom's faith in natural science is shaken but not destroyed, while Walt's initial hostility to nonnatural science learning gives way to doubts about "objectivity."

The third pattern of process suggests a progression or change in views about learning. There is a shift toward a broader more holistic or ecological orientation to human learning. The shift seems to be also in the direction of a more existentially relevant approach to learning (Jim, Dee, Sam, Paul, Mary). This pattern of experience is similar to the idea of learning as a change in worldview that was expressed in one of the articles studied in the course (Osborne, 1985).

The ideas that engaged most students can be broadly described as the human science value orientation. Specifically, such ideas as coconstitutionality, holism, the relativity of knowledge to a human subject, and the irreducible value component of all knowledge were listed within this value orientation (Garry, Tom, Jim, Amy, Cathy, Walt, Dee, Jan, Ron, Paul, Mary).

It is interesting to note that the central idea of the existential-phenomenological approach to psychology (coconstitutionality) was the idea most engaged and the idea that caused the most difficulty in understanding according to the data listed under "Learning Process." Those who have "crossed over" from natural

science to human science know that apprehending the concept of coconstitutionality usually involves more than a simple cognitive shift. The process may be described as a change in worldview (Osborne, 1985), which may take considerable time. For those whose natural attitude is based on a subject-object split, the dissolution of such a way of being-in-the-world is exceedingly difficult. The reports of the learning process contained in Table 1 bear this out.

The next most commonly engaged idea was the existential-phenomenological approach to psychology. This includes existential thought in general, meaning and teleology, in particular, and the method of phenomenology (Jim, Cathy, Jan, Tom). The same people expressed increased awareness of the limitations of natural science.

Colaizzi's (1978a) paper on "genuine learning" had the strongest and most widespread impact upon students. His notion of "genuine learning" as existentially relevant unforgettable experience rather than information acquisition seems to have resulted in "genuine learning" for a number of students (Amy, Dee, Ron, Sam, Paul, Colin).

Osborne's (1985) conception of learning as a change in worldview also made an impact upon some students (Vicki, Amy, Sam and Paul). Vicki was able to integrate Osborne's reference to Dabrowski's (1970) theory of positive disintegration with her knowledge of Prigogine's (1971) theory of dissipative structures to achieve some "genuine learning."

The data of this study suggest that although all students in the course were familiar with the natural science approach to psychology, most of them had reservations about the adequacy of such an approach. Perhaps the maturity and professional experience of these people is a reason why they seemed to be questioning their values and practices as professionals or students. The data in Table 1 show clear signs of questioning a psychology that seems to be out of kilter with the students' lived-experiences (e.g., Sam feels a split between "learning theory" and his existence, while Colin says "I can breathe as MYSELF again"). Several students reported the conflict between what they intuited about human nature and what natural science psychology affirmed (e.g., Amy, Ron, and Cathy described a feeling of "coming home" in response to the human science ideas).

The descriptions of the "Learning Process" include emotional states such as hostility (Walt), affective congruence (Amy, Cathy), fear, anger, and pessimism (Dee); concern (Jan); disorientation (Tom); immanence and urgency (Vicki); dissatisfaction (Paul); anxiety (Mary); puzzlement (Ron). These data suggest that an emotional as well as a cognitive process was occurring for these students. The major source of anxiety/curiosity was the overall approach of human science to learning but especially the concept of coconstitutionality. Sam's description of his experience captures the idea of learning experience as a journey into the unknown:

> A few summers ago a friend and I were hiking in northern British Columbia. My friend was familiar with the territory while I was not. He told me about a beautiful mountain just beside us but the cloud cover that day obscured it from view. As we started our hike, the fog limited our visibility to just a few yards. I was concerned that we would become lost. For a moment the cloud cover diminished enough for us to make out the silhouette of a huge mountain towering over us, but then the clouds thickened and it was gone. Later the fog lifted and there were breaks in the clouds so that we could see parts of the mountain clearly, but not the whole. Finally, the sky cleared, revealing the mountain in its fullness. . . . My experience in this course can be likened to my encounter with the mountain that day . . . it gave me a glimpse of a part of learning, but the integration of all those concepts was difficult. This is where I am at the moment—catching a glimpse of what it means to learn and waiting for the whole picture to come into view.

After the course was over, Jim told the instructor that he noticed the "intensely personal" nature of the reading materials and realized that the instructor was sharing his experience with his students. He found that this approach facilitated a more personally relevant approach to looking at his own ideas on learning. Perhaps the instructor could be viewed as the friend who was "familiar with the territory" in Sam's metaphor of the hike. In this sense, the instructor was a guide for a journey through some of the presuppositions of two approaches to human learning.

The nature of the journey reported in the data began with widespread dissatisfaction with the natural science approach to

learning. In some cases, the present course drew out experiences and views that were latent but not developed by previous experience of natural science orthodoxy. Some students found a home in the human science orientation to learning with its alternative philosophical base. The learning process that took place in the course was not so much an abrogation of natural science as it was a tapping of the intrinsic experiential relevance of human science. Students were ready to translate their discontent with natural science psychology into a meaningful encounter with ideas that were existentially relevant.

The nature of the process described in Table 1 suggests that students participated in an encounter with the ideas that characterize natural and human science approaches to learning and thereby achieved the major instructional objective of the course. Small group discussions during the course enabled students to validate their views and experiences with each other and the instructor.

This study also provides an example of how a human science approach to learning can be evaluated in a human science way rather than using the conventional summative course evaluation. Much of the data in Table 1 would be obscured in a summative evaluation.

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