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ABSTRACT

A significant problem with inquiry teaching is that too much emphasis is placed on inquiry as a logical, scientific, and rational way of knowing. Feelings and mood are rarely dealt with except in rather off-handed remarks about intuitive leaps and creative encounters. Few consider what a model of inquiry based on mood and feeling might look like. The purpose of using inquiry strategies is to train students in the formulation of bold conjectures as well as the process of severely testing those same conjectures. It is most essential that these conjectures be bold but not necessarily rational, logical, or scientific. Rationality is identified with four features which include a formal set of rules, use of language, clarity for its own sake, and the connection of results with other test results. This conception of rationality dominates all thinking about inquiry at the expense of other forms of knowing. What was begun with good intentions has become a straitjacket around the development of expressive thought. The need for allowing feeling and mood to become a part of classroom inquiry becomes more apparent when some of the recent research on the functioning of the human brain is considered. The right side of the brain deals with appositional functioning and expressive thought as in the production of art, music, and poetry. Since social science teaching is predominantly rational, one function of the brain is being unused in social science education. According to the author, rational thought in inquiry teaching should not be abandoned but integrated with more nonrational thought processes. (Author/DE)

EXPRESSIVE THOUGHT AND NON-RATIONAL INQUIRY

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EXPRESSIVE THOUGHT AND NON-LOGICAL INQUIRY

"Feeling is only an inferior logic from the standpoint of thinking"

Mitroff

Inquiry is hardly a new idea. Indeed it has become a part of conventional knowledge about teaching. The problem is that the thinking surrounding inquiry teaching and learning has been placed into appropriate little boxes and examined, discussed, and criticized ad infinitum. The concern with inquiry is always from a logical and rational framework. Inquiry is conceived of as a rational way of knowing and it is always thought of as a logical process. Feelings and mood are not dealt with except in rather off-handed remarks about intuitive leaps and creative encounters. These are seen as behaviors which help students get involved in the logical process. No one has really considered what a model of inquiry based on mood and feeling might look like? What effects might an inquiry model based on expressive thought, as opposed to logical thought, have on the social studies classroom?

It is fortunate that so few teachers use inquiry strategies, since most of the thinking of the past decade has been misguided. The greatest problem is that inquiry teaching and learning still clings to the basic notion of scientific inquiry. The attachment between inquiry orientated curricula and scientific inquiry is one that began with Dewey; and through the past several decades, it has undergone only slight variations. This point of connection between scientific inquiry and inquiry-orientated curricula is presently expressed very clearly in the current writings of such people as James Banks and Bruce Joyce. That this problem solving artifact (scientific inquiry) is still with us should not be too great of a surprise; rather the surprise should be that its faults have not been

pointed out much sooner. An especially critical problem is that scientific inquiry allows only "rational" inquiry to take place in the classroom. All other styles of inquiry are excluded. The result of this position is unfortunate. The following essay will examine some of the unfortunate results of scientific inquiry's domination of inquiry in social studies, as well as suggest some alternative styles of inquiry.

The motivations behind this traditional exclusion of non-rational forms of inquiry are complex. The major reason is the love affair which our society has with science. An affair which has been based in part on performance but continues to a great extent on mere promise. Science (especially physical science) has done many wonderful things, and it has allowed us to explain complex phenomena as well as allowing us to alter nature to our advantage. The mystique surrounding science develops when this past history is projected as a straight line which continues forever. Too many people view science as a constant growth activity. If one accepts the constant growth of scientific knowledge as an assumption there is little need to explore any alternative ways of knowing. It is only a matter of time, the true believer would argue, until all things are understood. Thus, there is little need to explore other ways of knowing, for scientific inquiry will reveal all of the necessary truths. Only patience and time are needed.

Two rather unfortunate points need to be raised at this juncture: First, social studies educators are indeed well represented amongst the true believers in scientific inquiry. Secondly, what is referred to as "scientific inquiry" does not exist and probably never has. The first point will be domonstrated shortly and the second has been dealt with elsewhere.[1] These two points taken together not only give the social

studies a poor base for the development of pedagogical inquiry strategies, but the error is compounded as social studies educators make the even greater mistake of feeling optimistic about the productivity of utilizing scientific inquiry procedures in the classroom.

In this fascination with scientific inquiry the function of expressive thought, or non-rational inquiry, has been overlooked altogether.[2] One factor is that there has never been a reasonable analysis made as to why students should use inquiry strategies in the first place. This accounts for the slavish use of the most highly popularized versions of inquiry. An earlier paper (Newton, 1973) argued that the purpose for using inquiry strategies in the classroom was to train students in the formulation of bold conjectures as well as the process of severly testing those same conjectures. That still appears to be a plausible objective. It is most essential that these conjectures be bold, not reasonable. If students are restrained to the extent that they develop only those conjectures which are reasonable, then they are simply being trained in the knowledge of convention. Critics of this earlier paper seemed to have missed this point totally. The most serious limitation that one can put on conjectures is that they be developed rationally. This is hardly a call for the development of non-rational knowledge, rather it argues for allowing the students to develop conjectures in a non-rational manner.

There is a serious difference between developing bold conjectures through non-rational means and accepting non-rational knowledge as valid. This essay argues strongly for the prior and withholds judgment on the later. While a fairly strong case could be made for the utilization of non-rational knowledge, that is not the purpose of this essay.

Rather the purpose is to call attention to how constrained inquiry-based curricula have become over the years by focusing exclusively on rationality. What was begun with good intentions has become a strait-jacket around the development of expressive thought.

Professor Joyce of Columbia argues in his book that "the skills of the social studies approximate those scientists use in studying society." (Joyce, p. 342). This statement is true only if the objectives of social scientists and the schools are the same. They are not. The social studies skills are much more inclusive. At any rate, what a statement such as Joyce's does is lock the social studies into inquiry schemes which are used in the social sciences. This is unfortunately the hypothetico-deductive model of science. The exact same model which has caused so many problems for the social sciences and one which they are currently abandoning for alternative models of inquiry; although, the work has only begun in the past few years and little can really be said about it. Hypothetico-deiuction has emphasized one particular type of research at the expense of all other types. Essentially it is a model of science which can best be described as "logism." Worse, it is a model of science based on one particular type of logic and there have been few attempts to develop alternative models of science. Mitroff, for one, argues for the construction of a psychological model of science. (p. 276) This might also be most appropriate for education, and borrowing from what has been learned from the child development researchers, it would be most interesting if someone would develop a psychological model of classroom inquiry. The development of such a model would give considerable impetus to the reconsideration of the exclusive use of

logical models. At the very least, it would offer a relief from the overly logical models.

Another example of how this logical model of science has come to dominate thinking can be found in the 1973 NCSS Yearbook. Professor Banks argues that ". . .the teacher must accept the scientific method as the most valuable way to attain knowledge." (Banks, p. 173 Italics in the original) Obviously this is some sort of metaphysical commitment to scientific inquiry since it cannot be a logical one. The interesting thing is that Banks is arguing for the non-rational acceptance of a rational way of knowing. Obviously, a most interesting argument even though he may not have inteuded to be that way. This type of blind acceptance of logical, or rational, inquiry is what has caused problems. It causes problems for students and teachers who wish to use inquiry procedures in the classroom.

The reason for this is that people making such statements are attempting to turn the entire social order into thinkers who resemble one small segment of our society—scientists. Science is but one small segment of our society, and its practitioners are a minority within our society. Indeed, they have constructed their own social structure replete with normative codes and value systems.[3] No one has yet demonstrated that the logic used by scientists can be used by the larger society, especially adolescent and pre-adolescent youngsters.

This type of evangalism for science is the legacy of Dewey. Crabtree has pointed out that "a theory of reflective method owes its origins to philosophic pragmatisim and to the logic of inquiry." (Crabtree, p. 88) While she meant the observation to be a positive one, the legacy also has some strong negative features. The most significant one being that

reflective thinking grew out of a period when scientific thinking was poorly understood. It was a period when no work in the sociology of science, and very little work in the history of science, had taken place. Thus, the conception of scientific activity was a very narrow one. This narrow conception of science was then brought intact to education and called reflective thinking. The logism mentioned earlier was also brought along.

This logical conception, whether one calls it reflective thinking or scientific thinking, is derived from a basic conception of rationality. The first characteristic of this concept is that it (scientific thinking) is characterized by a formal set of rules. This is most certainly true of the social studies. Every author feels a need to set out the rules, or steps a student should follow when engaging in inquiry. Almost any of the recent methods textbooks in the field could serve as an example. In an otherwise excellent book, Richard C. Phillips outlines a "thinking model" complete with an accompaning diagram. (Phillips, p. 56)

Belief ---- Doubt ---- Hypothetical Insight ---- Testing of Insight ---- Tested Belief

While Professor Phillips offers the customary note about how thinking is not a mechanical or logical process, but rather a creative one, he evidently does not feel it is so creative as to defy codification within a set of rules. Any number of others could be cited as being guilty of the same mistake. The important point is not that they are guilty of the same mistake, but rather, that they do not see that they have been entraped in a model of rationality which limits exactly the very thought processes they wish to further.

A second feature of this conception of rationality is that the use of language is essential. Whatever it is that a student is to inquire into, or reflect about, words become important. Indeed, without the use of words it would be impossible to reflect within this rationalist framework. Hunt and Metcalf devote an entire chapter to "Discussion as a Tool of Reflective Thinking." They rather obviously, place a great deal of emphasis on language. Indeed so deeply ingrained has our thinking become that it is difficult to conceive of any thought process which does not involve the use of language. Total introspection and non-verbal thought are quite simply not a part of our intellectual tradition.

A third essential feature is that rationality seeks clarity for its own sake. The belief here is that the clearer the explanation the better it is: Not because it explains more, but simply because clarity is highly valued in rational conceptions of knowing. This is expressed in the notion that if one has two alternative ways of explaining something, and both offer equally complete explanations, the simpler is preferable. The drive in science is always for the simplest and clearest explanation. Massialas and Cox offer the advice to the teacher that he should always attempt to have the students clarify all terms in order to avoid ambiguity (Massialas and Cox, p. 117) In an alternative system of logic it could very well be that ambiguity is prized and clarity would present problems. I am hardly advocating that schools across the United States begin teaching ambiguous systems of logic but I do wish to call attention to the value that we place on clarity as an attribute of rational thinking. It is not necessarily a universal goal.

A fourth aspect of rationality is that findings must always be embeded in other findings. No result is desirable unless it is connected

with previous results. In some cases this calls for the construction of elaborate deductive systems. In inquiry based curriculums this is usually referred to as offering of evidence. While the desire here is to insure that findings accepted as knowledge are valid, it has as a side-effect that knowledge is also conservative. That is, if one's findings must conform to, or be embeded in, previous findings, then a limitation is placed upon the research at the very outset. The problem with this procedure is that it loads any inquiry with a heavy conservative bias. One can only go so far from the accepted types of knowledge. If one goes too far then the results are unacceptable on the basis of lacking supportive data.

This procedure may be fine for the scientist, but that is not crucial to our problem here. As was pointed out earlier science and the social studies have quite different objectives. The desirability of a conservative bias in science is not the question being considered here. Rather, the concern is with the development of an inquiry model which fosters the development of bold conjectures. A stricture which holds that all findings must be embeded in previous findings will restrain the development of bold conjectures.

Rationality is strongly identified with these four features. A formal set of rules; use of language; clarity for its own sake; and the embedding of other findings. This conception of rationality has come to dominate all thinking about inquiry. Everything that does not fit into this conception is thrown into the ashcan of "non-rational." Rational thought has come to be accepted as the only way of knowing. The unfortunate point is that this has resulted in little consideration of other forms of knowing. This is important. The point in this essay

is not that we ought to abandon rational thought, for such a position would obviously be absurd, but rather that some consideration ought to be given to the role of non-rational thought in the social studies classroom.

The Physiological Basis For Expressive Thought

This need for allowing feeling and mood to become a part of classroom inquiry becomes even more apparent when some of the more recent research on the functioning of the human brain is considered. Joseph Bogen, writing from a purely physiological point of view, calls attention to the fact people have two independent spheres of consciousness. The left side of the brain is concerned with propositional functions. This would involve such things as abstract logical thought and what has come to be known as a scientific style of thinking. Such thought can be expressed verbally or written.

In contrast to the left side, the right side of the brain, according to Bogen, deals with appositional functioning. Here the processes are perceptual and spatial thought. Such processes are very important in the production of art, music, and poetry. They deal with the types of things we usually call artistic, or expression of affect. Thus, the term expressive thought can be used to describe such thinking. The important thing to remember is that one is not a higher form of thinking and the other a lower form. Rather propositional and appositional thought must be viewed as merely being different. They can be looked on as processes which exist together and in some cases complement each other. It is important to keep in mind that in any given individual one type will be dominate over the other. It does not follow necessarily

that students fall naturally into two separate and distinct categories of thinkers, but there is some evidence to suggest this possibility. "Neurological theory indicates. . . that in the socialization process they come to be specialized, the left hemisphere becoming involved in speech and the right hemisphere in perceptual and visual tasks." (Ten Houten and Kaplan, p. 22).

The implications of this theory are truly staggering. It means that for many children expressive thought is dominant over abstract logical thought. Coupled with the earlier observations as to how the social studies are predominately rational (or logical) in nature, the problem becomes quite apparent. Many children are being asked to submerge their natural model of functioning to one which, for them, is unnatural. More importantly they are being told that rational, or logical, thought is better than expressive thought. What these students naturally excel at is being degraded.

The argument here is that no one form of inquiry is superior, but rather that analytic inquiry and synthetic inquiry can actually act as complements to one another. The most important aspect is that expressive thought can lead to the development of new insights. It can act as a way of coming to know something and as a way of generating the bold conjectures mentioned earlier. Knowledge can grow out of the personal and inner feelings that one might have. Indeed, this is what one might call personal, as opposed to scientific, knowledge. Both are forms of knowledge; they are just different types.

What one might call the creative arts usually grow from such personal knowledge, or expressive thought. Novels, poetry and music are expressions of mood and feeling, not rational thought. Novels, and

their production, hardly resemble hypothetico deduction. Nonetheless, they help people understand, and know, the world and themselves. Expressive thought is different from logical thought yet it can accomplish some of the objectives that are important for social studies students. Mood and feeling are too important a part of human understanding to simply be given a position inferior to rational thought.

One rather interesting study has shown that creative scientists have personality characteristics which resemble artists more then other scientists. (Ferguson, p. 286) This is of some importance for the social studies since it may demonstrate how in slavishly copying science the essence of science may have been missed. Perhaps too much attention has been paid to the average scientist and not enought to the most productive and brilliant scientists. Robert Merton has maintained that a majority of the working scientists could be eliminated, and overall scientific productivity would not suffer. (Merton, p.503) This would result because of two factors: First the notion of multiple scientific discovery, and secondly because a minority of the working scientists develop the majority of scientific discoveries. The implications of these factors for the development of classroom inquiry strategies are important.

The major point is that in attempts to model the scientist it has been the average scientist that has been copied. The wide use of hypothetico-deduction is testament to this. Perhaps educators instead should examine the minority of the scientists who are most productive, as opposed to following the lead of the average scientist. What should really interest educators are the scientists who bring about paradigm shifts. These are the scientists who are making the bold conjectures,

not the scientist who does the work which goes into answering the questions raised within a given paradigm.

It is doubtful if scientists who cause paradigm shifts work in the overly logical model of science as laid out in hypothetico-deduction. Rather, these people would appear to utilize expressive thought to a greater extent then we imagine. If students should utilize patterns of scientific thought at all there needs to much more attention given to the incorporation of mood and feeling, or expressive thought.

A key point in utilizing such expressive thought is the legitimatization of personal knowledge. Personal knowledge is one's highly personalized conception of the world. It is the way in which an individual deals with the sensory data which confronts him.

"Man cannot see the world other than as it unfolds itself within the sensory projection of his brain." (Gerard, p. 250) Thus, all people must of necessity operate with a highly personalized conception of the world. This problem of perception and personal knowledge is essential to an understanding of expressive thought.

The problem begins with sense data. "The locus of sense data is, by necessity, an inside experience. This experience is then made public in an experiment and compared with other people's experiences. It is entirely possible that two people confronting the same sense-data might well have different visual experiences. (Hanson, p. 188) Experiences which might not be comparable.. A system of inquiry which maximizes (or even allows) expressive thought would build upon such personal experiences and utilize them as ways of helping a child to comprehend his world in a personal way.

Science on the other hand has as its goal the elimination of personal elements in knowledge. One of the basic beliefs in rational systems of logic is that all knowledge must be inter-subjectively testable. In order for this to be the case it is essential that personalized knowledge, and even personal experiences, be removed. Obviously this is an impossibility; but it has not slowed educators down in attempts to force it upon young people through slavish use of scientific inquiry models. Such a strategy is not very productive, and this attempt to destory personal knowledge has often resulted in the destruction of all knowledge. (Polanyi, p. 20)

Some may feel that what I am suggesting here is actually methodological anarchy. This is exactly what I am advocating. I am advocating that mood and feeling become an integral part of both hypothesis development and the entire inquiry process. An inquiry model that makes use of only logic is far too restrictive in terms of the knowledge it allows students to deal with. The conception of knowledge utilized by youngsters must be a larger one then that used by scientists and it must encompass the full range of things on which young people actually base their decisions and actions.

This should not be construed as arguing for the abandonment of logic, but rather an argument for enlarging inquiry and going beyond it. Youngsters actually spend a considerable amount of time acting on the basis of mood and feeling. Thus, they could easily benefit from an inquiry model which calls for an analysis of these non-rational modes of thinking. This does not entail the advocacy of logic over expressive thought. Rather it calls for an inquiry style which allows for the expression and validation of personal knowledge and expressive thought.

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NOTES

[1]The major problem with a logic of scientific inquiry is that it only tells one what a scientist says he does. Too often this information is taken from the finished research report. This report is usually a polished and cleansed version of what actually took place. The blind alleys and the failures are all removed and only those items which lead to the results remain. Thus, the research takes on a smoothness and logical consistency which it never attained in actual practice. Needless to say this new, almost mythical description of the research is much more impressive then the actual process ever could have been.

[2]There is a difference between non-rationality and irrationality. If something is irrational it is the direct opposite of rational. Non-rational simply means that something is not rational in the sense it is outlined in this essay. While a non-rational belief might be irrational it is not necessarily so.

An analogy might be the usage of the terms non-belief and dis-belief. Non-belief is a state of suspended judgement while dis-belief is the denial of a belief. Dis-belief is the counterpart of belief in the same way that irrational behavior is the counterpart of rationality. Non-belief is simply the lack of belief in the same way that non-rationality means simply the lack of rationality.

[3]I dealt with this topic in an earlier paper "The Social Aspects of Inquiry" which was presented at the 1974 Michigan State University Social Studies Conference held in May, 1974. Anyone interested in this topic would do well to begin with the book by Robert Merton listed in the Reference section of this essay. Another book that might be useful is Science As A Cultural Process by Maurice N. Richten, Jr. (Cambridge, Mass.: Schenkman Pub. Co., Inc., 1972). The entire area of examining the social processes of scientific inquiry is new but it promises to be a very useful area for educators to consider.