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What follows is a recurring editorial in the form of a narrative outline as an introductory account of the format of the Compact Disk formatted International Journal of Educology (cd-IJE), as a journal published through the Institute of History and Philosophy of Educology for Developing Democracies in the World an initiative of Educology Research Associates/USA (ERA/USA).

The content of cd-IJE is formatted differently, since 2005. The new format recognizes the existence of the newly forming body of knowledge, i.e. philosophy of educology, as knowledge about educology, and the existence of a developed and developing body of knowledge, i.e. educology, as knowledge about educational processes in which organically inhere features of educative experiences.

The editorial has been put into narrative outline style, with the intent of providing, as well and short as possible, at this stage, a precise and concise account of these two developing bodies of knowledge in their interrelationship to each other and other developing bodies of knowledge. The editorial is planned for recurrence and revision in future issues of the Journal, from the 2005 issue on, with no terminal date set, at this time. Comments critiquing the Recurring Editorial are solicited by the operational and contributing editors. Such comments will be included in revisions of the editorial, in respect to its change for improvement.

Issues of cd-IJE, since 2005, then, have recognized the existence of philosophy of educology and published articles in it that have been written from various perspectives, including, but not limited to, the three perspectives (analytical, experiential, and phenomenological perspectives) accounted for in the outline, as the Journal has published articles in educology from various perspectives in the past.

A Recurring Narrative Outline as an Introduction to the Journal

The International Journal of Educology (the Journal) is a refereed journal (ISSN 0818-0563) that is published biannually (January and July) by Educology Research Associates/USA (ERA/USA), through its initiative of the Institute of History and Philosophy of Educology for Developing Democracies in the World (the Institute). Periodically, special issues of the Journal are published.

When distinguishing between a word, the meaning of a word, and the reference of the meaning of a word, the meaning of the word ‘educology’ refers to a fund of knowledge claims, i.e. the fund of knowledge claims about educational processes as processes in which organically inhere a logic, psychology, problematics, and methodology of educative experiences. The word ‘educology’ derives from the words ‘education’ and ‘logy’.

‘Educology’ has been in use, in the USA, since the seminal work by the late Professor Lowery W. Harding at Ohio State University in the 1950’s. Following this seminal work was that of Professors Emeritus Elizabeth Steiner (Maccia) and George Maccia at Indiana University in the 1960’s in the USA, and, James F. Christensen and James E. Fisher from the 1970’s to the present in Australia and the USA, mostly through Educology Research Associates in Australia and the USA.

In Europe, in 1978, Professor Wolfgang Brezinka at Konstanz University, Konstanz, Germany and, in 1978-79, Professor Anon Monshouwer at the Institute of Philosophy and History of Education, Nijmegen, The Netherlands, did pioneering work in philosophy of educology. Also, in Europe pioneering work in philosophy of educology has been done by Professor Leonas Javaisa, recently retired from Vilnius University, and is being done by Professor Kestutis Pukelis at Vytautas Magnus University, Kaunas, Lithuania and Professor Lilija Duobliene at Vilnius University, Vilnius, Lithuania, since 1991 in Lithuania, both of whom have published in cd-IJE.

In the fifty plus years since the seminal work of Professor Harding, with the meaning of the word
‘educology’ used to refer to a body of knowledge about educational processes, there has been, from the perspective of the Institute, a central challenge in philosophy of educology. It is:

The philosophical challenge of clarifying the nature of educological knowledge, i.e. clarifying the nature of educology, and its subject matter of educational processes, by critiquing experiences that are conducted in the areas of interest of logic, psychology, problematics, and methodology as disciplines that conditionally organize the features of reflective thinking experiences, whereby, these experiences: (1) organically inhere in knowing processes; (2) are engaged for the purpose of producing knowledge about education and a society of reflectively experienced educologists, and; (3) constitute a model for conditionally organizing the features of educative experiences; (i) that organically inhere in educational processes, and; (ii) that are engaged in developing democracies in the world for the purpose of producing a culture of educatively experienced citizens.

The account that follows and the Journal, itself, from the perspective of the Institute, are intended to be an introduction to work in philosophy of educology, hence, philosophy, aimed at meeting this challenge.

**The Journal from the Perspective of the Institute**

The content of the Journal is formatted from the point of view of an experientially oriented philosophy of educology, a kind of empirically oriented philosophy of educology, as grounded in the empirically oriented philosophy of American pragmatism, and, as being developed in the Institute. The Journal publishes works that:

1. examine, from the perspective of educology, the subject matter that accounts for educational processes in which organically inhere features of educative experiences that are modeled after reflective thinking experiences organically inhering in knowing processes, and;

2. examine, from the perspective of philosophy of educology, the subject matter that accounts for various areas of interest in knowing processes that conditionally organize, i.e. that discipline, features of reflective thinking experiences that: (i) organically inhere in knowing processes, and; (ii) constitute a model for educative experiences organically inhering in educational processes.

**Subject Matter for Educology**

Subject matter for educology, as the territory of educology, in general:

1. is subject matter that accounts for the various and complex aspects of educational processes, in which organically inhere features of educative experiences modeled after the features of reflective thinking experiences, and;

2. is subject matter that accounts for persons, including themselves;

   2.1 in an organization of areas of interest that discipline features of educative experiences

   2.2 of persons meeting, managing, and teaching themselves, and;

      2.2.1. other persons who authentically (well) and in-authentically (ill) study,
      2.2.2. for truly (well) and un-truly (ill) learning something,

   2.3. in some situation.

The territory of educology, then, is that which is selectively emphasized and focused on, i.e. that is mapped, in and for educology:

1. featuring the aspects of educational processes in which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;

2. featuring synergetic effects in and on, and that which cause synergetic effects in and on, the aspects of
educational processes, for example;

2.1. the governing factors, for example, of policy and curriculum development practices, and, supervisory and administrative practices as these factors have and do not have synergetic effects in and on educational processes in some situation, and;

2.2. the cultural factors, for example;

2.2.1. of forms of governments, economies, laws, habitus, and memes;
2.2.2. of forms of media and telecommunication networks;
2.2.3. of forms of sports and entertainment businesses;
2.2.4. of forms of industrialized science and technology business corporations, and;
2.2.5. of forms of information theory and knowledge societies;

as these factors have and do not have synergetic effects in and on educational processes in some situation and, by;

2.3. the ecosystem factors, for example;

2.3.1. of ecosystems, communities, and populations, and, of habitats and niches;
2.3.2. of bio-geo-chemical water, oxygen, and nitrogen eco-cycles, and;
2.3.3. of biotic and abiotic natural environments involving the trophic, i.e. nutritive, pyramids of feeding levels, food chains, and food webs;

as these factors have and do not have synergetic effects in and on educational processes in some situation.

**Educology of this Subject Matter**

As knowledge claims about the subject matter of the selectively emphasized and focused on complex of features, i.e. the mapped features, of situated educational processes, as features in which organically inhere educative experiences modeled after reflective thinking experiences organically inhering in knowing processes, educology is constituted by empirical knowledge claims, composed and asserted with warrant to meet:

1. the descriptive and predictive challenges established in producing, for example sociology, psychology, anthropology, and history as these funds of empirical knowledge claims are established in knowledge societies from the educological perspective:

1.1. not as the sociology of mapped features of educational processes, but as the educology of mapped features of social processes, producing sociologic educology;

1.2. not as psychology of mapped features of educational processes, but as educology of mapped features of psychical processes, producing psychologic educology;

1.3. not as anthropology of mapped features of educational processes, but as educology of mapped features of the cultural processes, producing anthropologic educology;

1.4. not as a history of mapped features of past educational processes, but as educology of mapped features of past processes, producing historic educology, and;

2. the predictive and prescriptive challenges established in producing economics, politicology, jurisprudence, praxiology as these funds of empirical knowledge claims are established in knowledge societies from the educological perspective:

2.1. not as economics of mapped features of educational processes, but as educology of mapped features of economic processes, producing economic educology;

2.2. not as politicology of mapped features of educational processes, but as educology of mapped features of political processes, producing politico educology;
2.3. not as jurisprudence of mapped features of educational processes, but as educology of mapped features of litigative and legislative processes, producing jurisprudential educology;

2.4. not as praxiology of mapped features of educational processes, but as educology of mapped features of the meeting, managing, teaching, studying, and learning processes, producing praxiologic educology.

Educology, then:

1. is a fund of empirical knowledge claims, that provide a perspective for producing warranted descriptive and predictive assertions about social, psychical, cultural, and historical processes, such that, then, educology divides into an:

1.1. educology of socially conducted human situated educational processes;

1.1.1. in which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;

1.1.2. about which is produced warranted assertions as to what is, and could be, the case in regard to these processes;

1.2. educology of psychically conducted human situated educational processes;

1.2.1. in which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;

1.2.2. about which is produced warranted assertions as to what is, and could be, the case in regard to this process;

2. educology of culturally conducted human situated process;

2.1. into in which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;

2.2. about which is produced warranted assertions as to what is, and could be, the case in regard to this process, and;

2.3. educology of past humanly conducted situated process;

2.3.1. into in which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;

2.3.2. about which warranted assertions as to what was, and could be, the case in regard to this process, and;

2. is a fund of empirical knowledge claims that provide a perspective for producing warranted predictive and prescriptive assertions about economical, political, litigative and legislative, and meeting-managing-teaching-studying-learning regulated processes, such that, then, educology, further, divides into an:

2.1. educology of effective economically conducted human situated and regulated social processes;

2.1.1. into in which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;

2.1.2. about which is produced warranted assertions as to what could and ought to be the case in regard to these regulated social process;

2.2. educology of effective politically conducted human situated and regulated social process;

2.2.1 into in which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;

2.2.2. about which is produced warranted assertions as to what could and ought to be the case in regard to these regulated social processes;

2.3. educology of effective litigatively and legislatively conducted human situated and regulated social processes;
2.3.1 into which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;
2.3.2 about which is produced warranted assertions as to what could and ought to be the case in regard to these regulated social processes, and;

2.4. educology of an effective meeting-managing-teaching-studying-learning conducted human situated and regulated process;
2.4.1. into which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and;
2.4.2. about which is produced warranted assertions as to what could and ought to be the case in regard to these regulated social processes;

Educology as Subject Matter for Philosophy

As a fund of a combination of various forms of descriptive, predictive, and prescriptive empirical knowledge claims:

1. educology has a subject matter selectively emphasized and focused on, i.e. mapped, that accounts for features of situated educational processes in which organically inhere educative experiences, conducted well and ill by persons, modeled after reflective thinking experiences organically inhering in knowing processes, conducted well and ill by persons, and;

2. educology is a subject matter selectively emphasized and focused on, i.e. mapped, that accounts for features of the situated knowing processes in which organically inhere reflective thinking experiences, conducted well and ill by persons that serves as a model for educative experiences organically inhering in educational processes, conducted well and ill by persons.

Whereas, then, as a fund of empirical knowledge claims, educology has a subject matter, and, it, itself, is subject matter, and, it is subject matter that compares and contrasts with that which is subject matter for it.

From the perspective of educology “having subject matter,” the subject matter:

1. is that of educational processes in which organically inhere educative experiences, modeled after reflective thinking experiences organically inhering in knowing processes, and
2. is the subject matter of empirical science.

From the perspective educology “being subject matter,” the subject matter:

1. is that of knowing processes in which organically inhere reflective thinking experiences, modeling educative experiences organically inhering in educational processes, and;
2. is the subject matter of empirical philosophy.

Each kind of subject matter, then, compares in that each kind selectively emphasizes and focuses on, i.e. in that each kind maps, conduct in situated processes, and, each kind of conduct, in these situated social processes, has a kind of experience organically inhering in it, whereby:

1. reflective thinking experiences organically inhere in the conduct of knowing processes and model educative experiences organically inhering in educational processes, and;
2. educative experiences organically inhere in the conduct of educational processes and model after reflective thinking experiences organically inhering in knowing processes.

Each kind of subject matter contrasts, however, in that:
1. educology has subject matter constituted by educational processes existing externally from itself, whereas;

2. educology, itself, is subject matter constituted by knowing processes existing internally to itself.

The subject matter of educology, as educology itself, then, is subject matter for empirically oriented philosophy, i.e. for empirical philosophy, but, not for empirically oriented science, i.e. not for empirical science. Educology, as subject matter selectively emphasized and focused upon, i.e. educology, as mapped subject matter, is that of a logically formed pattern of features of reflective thinking experiences organically inhering in the knowing process. It is the logically formed pattern of the conduct of reflective thinking experiences, incorporating the logically formed patterns of “discovery” and “verification” thinking experiences, conducted well and ill by persons obligated to conduct them as well as they can, for example, persons in knowing processes in a variety of “knowledge societies,” aka, information, information revolution, knowledge, third wave, informatization, and networks societies.

Such a variety ranges:

1. from persons obligated in scientific knowledge societies, for example:
   1.1. those persons obligated to meet the challenge of conditionally organizing their situated knowing processes in which reflective thinking experiences organically inhere, as practiced in sociology, psychology, anthropology, and history, to;
   1.2. those persons obligated to meet this challenge, as practiced in economics, politicology, jurisprudence, and praxiology;

2. from persons obligated in other scientific knowledge societies, for example:
   2.1. those persons obligated to meet the challenge of conditionally organizing their situated knowing processes in which reflective thinking experiences organically inhere, as practiced in physics, chemistry, and biology, to;
   2.2. those persons obligated to meet this challenge, as practiced in physical technology, chemical technology, and biological technology;

3. from persons obligated in “humanities” knowledge societies, for example:
   3.1. those persons obligated to meet the challenge of conditionally organizing their situated knowing processes in which reflective thinking experiences organically inhere as practiced in “literature;” art, and music, to;
   3.2. those persons obligated to meet this challenge, as practiced in theology;

4. from persons obligated in philosophical knowledge societies, for example:
   4.1. those persons obligated to meet the challenge of conditionally organizing their situated knowing processes in which reflective thinking experiences organically inhere, as practiced in rationalism, empiricism, logical positivism, and pragmatism, to;
   4.2. those persons obligated to meet this challenge, as practiced in existentialism.

Persons involved in knowledge societies, then, are persons obligated to meet the challenge of organizing knowing processes in which reflective thinking experiences organically inhere:

1. as practiced in the organization of conditions, i.e. in the conditional organization, of their knowledge society;

2. as determined by knowing processes in which organically inhere features of reflective thinking experiences, selected by their knowledge society for emphasis and being focused upon from the mapping of these features, and;
3. as subject matter inherent to educology as subject matter for philosophy in philosophy of educology.

**Philosophy of Educology**

Philosophy of educology, then, in general has educology:

1. as subject matter composed of knowing processes in which organically inhere features of reflective thinking experiences, hence;

2. as subject matter accounting for the process of regulating the meeting and managing of persons, including themselves;

   2.1. for the purpose of providing a conditional organization of knowing processes in which organically inhere features of reflective thinking experiences to be conducted by persons, well, i.e;

   2.2. for the purpose of providing conditions for organizing the social processes involving persons meeting and managing other persons, including themselves, in which the conduct of inquiry;

   2.2.1. obligates persons to authentically conduct, well, discovery thinking experiences, as involved in reflective thinking experiences in some situation, and;

   2.2.2. obligates persons to truly conduct, well, verification thinking experiences, as involved in reflective thinking experiences, in some situation.

Educology, itself, then, is subject matter that is the territory of empirical philosophy, in experiential philosophy of educology, wherein, in general, it, i.e. educology, is subject matter for philosophy, whereby, then, philosophy selectively emphasizes and focuses on:

1. the conduct of reflective thinking experiences organically inhering in knowing processes, and;

2. the synergetic effects in and on, and that which causes the synergetic effects in and on, the conduct of reflective thinking experiences organically inhering in knowing processes in some situation, for example;

   2.1. the governing factors of policy development practices, and, supervisory and administrative practices as these factors have and do not have synergetic effects in and on the conduct of reflective thinking experiences organically inhering in knowing processes, and;

   2.2. the cultural factors, for example;

   2.2.1. of forms of governments, economies, law, habitus, and memes;

   2.2.2. of forms of media and telecommunication networks;

   2.2.3. of form of sports and entertainment businesses;

   2.2.4. of forms of industrialized science and technology business corporations, and;

   2.2.5 of forms of information theory and knowledge societies;

   as these factors have and do not have synergetic effects in and on the conduct of reflective thinking experiences organically inhering in knowing processes in some situation, and, by;

2.3. the ecosystem factors of, for example;

   2.3.1. of eco-systems, communities, and populations and of habitats and niches;

   2.3.2. of bio-geo-chemical water, oxygen, and nitrogen eco-cycles. and;

   2.3.3. of biotic and abiotic natural environments involving the trophic, i.e. nutritive, pyramids of feeding levels, food chains, and food webs;

   as these factors have and do not have synergetic effects in and on the conduct of reflective thinking experiences organically inhering in knowing processes in some situation.

Philosophy of educology, then, has logically, epistemologically, and axiologically entailed orientations in
that:

1. it is axiologically oriented around the value of doing something as well as it can be done, wherein;

2. as oriented epistemologically, the doing something as well as it can be done is that of conducting knowing processes as well as they can be conducted, and;

3. as oriented logically in accord with the logic of reflective thinking experiences organically inhering in knowing processes.

Implied by these entailed orientations in philosophy of educology, as axiologically, epistemologically, and logically related issues in philosophy, is philosophical educology, also, as an axiologically related issue in philosophy.

**Philosophical Educology**

Philosophical educology, i.e. empirical philosophy of education as empirical philosophy of educational processes, is empirical axiological philosophy of educational processes as processes conditionally organized in home, school, and community educational institutions. From the axiological perspective of philosophical educology, as being developed in the Institute:

1. educative experiences organically inhering in educational processes ought to be valued by being organized to meet the conditions:

   1.1. entailed by an axiological orientation of philosophy of educology, i.e. the prescription to value doing something as well as it can be done in educational processes, as social processes conducted in home, school, and community educational institutions, and;

   1.2. entailed by an epistemological orientation of philosophy of educology, i.e. the prescription to value doing something as well as it can be done to be the prescription to value the conduct of educative experiences as they organically inhere in educational processes, i.e. social processes conducted in home, school, and community educational institutions, and;

   1.3. the prescription implied by the entailed obligation to conduct educative experiences organically inhering in educational processes, i.e;

      1.3.1. the prescription to organize the conditions in which educative experiences organically inhere in educational processes conducted in home, school, and community educational institutions, to be;

      1.3.2. modeled after the value of the organization of the conditions in which the reflective thinking experiences organically inhere in knowing processes conducted in knowledge societies, and ought to be obliged to be conducted by persons inside of educational institutions, and;

2. the educational process, organized to meet the conditions prescribed in philosophical educology, as stated above, ought to be valued and selectively emphasized and focused upon, i.e. ought to be valued and mapped, as subject matter for scientific educology.

**The Significance of Educology**

From the experientially oriented philosophy of educology perspective of the Institute, as a kind of empirically oriented philosophy of educology perspective, the account above was intended to be an introduction to work in philosophy of educology, hence, in philosophy, aimed at meeting:

Challenge 1: the philosophical challenge of clarifying the nature of educological knowledge, i.e. of educology and its subject matter of the educational process, and;

Challenge 2: the philosophical challenge of critiquing experiences in the areas of interest of logic, psychology, problematics, and methodology as disciplines that conditionally organize the features of
reflective thinking experiences, whereby, these experiences:

2.1. that when conducted well produces the body of educological knowledge, and, also that produces all other bodies of knowledge, and;

2.2. that functions as a model for educative experiences, that ought to be better integrated into the organization of conditions in which the educational process is conducted.

The account was also intended to be a sign to signify work done in the past, in and out of the Journal, and, work to be done in the future, in and out of the Journal, by scientific and philosophical educologists and philosophers of educology, in respect to these philosophical challenges in philosophy of educology.

The Significance of Work Done in the Past

In past issues of the Journal published from 1987 to 2003, Challenge 1, i.e. the philosophical challenge of clarifying the nature of educological knowledge and its subject matter of the educational process was attended to, however, Challenge 2, i.e. the philosophical challenge of critiquing the experience of areas of interest of logic, psychology, problematics, and methodology as disciplines that conditionally organize the features of reflective thinking experiences, was not attended to.

During this time, Challenge 1 was attended to primarily from an analytically oriented philosophy of educology perspective, rather than from an experientially oriented philosophy of educology perspective, both as kinds of an empirically oriented philosophy of educology perspective.

Analytical Philosophy of Educology

From within an analytic, rather than an experiential, philosophy of educology perspective, then, the content of the Journal was formatted with the interpretation of Kant’s first philosophy epistemologically oriented discernment between two forms of sentential meaning in language, two forms of experiences in life, two forms of non-innate knowledge in the conduct of the knowing process, and; one form of innate knowledge in the conduct of the knowing process:

1. from an early and later Wittgensteinian post modern functionally oriented epistemological perspective, in the philosophy of logical positivism, rather than;

2. from a Piercian post modern functionally oriented epistemological perspective, in the philosophy of pragmatism;

wherefore, then, Kant’s first philosophy discernment of these forms, as epistemologically oriented discernments, are:

1. between;

   1.1. analytic forms of sentential meaning, as meaning stated and formed in statements in language;

   1.2. synthetic forms of sentential meaning, as meaning stated and formed in statements in language;

2. between;

   2.1. a-priori forms of experience as forms outside of experiences in life;

   2.2. a-posteriori forms of experience as forms inside of experiences in life, and;

3. between;

   3.1. analytic a-priori forms of knowledge, as;

   3.1.1. non-innate outside of experience;
were interpreted as discernments;

1. of functions of meaning states in the conduct of experience in the areas of interest of logic, psychology, problematics, and methodology as disciplines that conditionally organize the features of reflective thinking experiences of ordinary, scientific, and philosophic languages, in accord;

1.1. to how the non-innately;

1.1.1. true and false analytically formed sentential meaning states, and;
1.1.2. true and false synthetically formed sentential meaning states;

1.2. in these ordinary, scientific, and philosophic languages;

1.2.1. are comported well;
1.2.2. into the conduct of the conjunction of the disciplines of the logic, psychology, problematics, and methodology of verification thinking experiences;
1.2.3. as an aspect of the conjunction of these disciplines as conducted in reflective thinking experiences, and;

1.3. integrated and conducted well;
1.4. in the knowing process, rather than;

2. of functions of meaning states in the conduct of experience in the areas of interest of logic, psychology, problematics, and methodology as disciplines that conditionally organize the features of reflective thinking experiences of ordinary, scientific, and philosophic languages, in accord;

2.1. to how the non-innately;

2.1.1. true and false analytically formed sentential meaning states;
2.1.2. true and false synthetically formed sentential meaning states, and;

2.2. to how the innately;

2.2.1. and truly formed pre-disposition;
2.2.2. to conduct the knowing process;

2.3. are comported well;
2.4. into the conduct of reflective thinking experiences;
2.5. as conduct of;

2.5.1. the aspect of discovery thinking experiences, and;
2.5.2. the aspect of verification thinking experiences;
2.5.3. as two necessary and sufficient aspects of the;
2.6. conduct of reflective thinking experiences;

2.7. integrated and conducted well;

2.8. in the knowing process.

Also, from within an analytic, rather than an experiential, philosophy of educology perspective, the content of the Journal was formatted with the interpretation of:

1. Descartes’ epistemologically oriented discernment of doubt existing as a systematic rule integrated well into the knowing process conducted well, rather than of;

2. Pierce’s epistemologically oriented discernment of doubt existing as an irritable feeling, accompanying realistic imagination, interrupting urges to act, i.e. interrupting conations, as feelings of unsettlement integrated well into the knowing process conducted well, and, of;

3. Descartes’ ontologically oriented discernment of physical and mental substances.

From within an analytic, rather than an experiential, philosophy of educology perspective, the content of the Journal, then, was formatted with the interpretation of these discernments in philosophy:

1. from only the verification thinking experiences, as conducted in reflective thinking experiences, accounted for in the post modern era philosophy of logical positivism;

2. rather than from the conduct of both:

   2.1. the aspect of discovery thinking experiences, and;
   2.2. the aspect of verification thinking experiences;

as two necessary and sufficient aspects of the conduct of reflective thinking experiences, accounted for in the post modern era philosophy of pragmatism, and, adopted in experiential philosophy of educology as being developed in the Institute.

Analytical philosophy of educology, in the past, besides providing perspective for formatting the content and publication of the Journal, it, also provided perspective for work by its co-editors, Christensen and Fisher, out of the Journal from 1987 to 2003, in that it:

1. was grounded in the work of the co-editors of the Journal, from 1987 to 2003, i.e. James E. Christensen and James E. Fisher, specifically the work that they did, out of the Journal, as co-authors of the book Analytic Philosophy of Education as a Sub-Discipline of Educology: An Introduction to its Techniques and Application, University Press of America, Washington DC, 1979, and;

2. was used in their co-editorship of Organization and Colleges of Education: An Educological Perspective, Educology Research Associates, Sydney, Australia, 1983, wherein, an introduction is made of the account in the book of how courses and academic staff, in units in universities, the names of which contain the word ‘education’ e.g. colleges, divisions, and departments of, and, courses in education, but, better named by a name containing the word ‘educology’ e.g. colleges, divisions, and departments of, and, courses in educology, as they are in universities in Lithuania, Europe, can and ought to be organized so that conditions in knowledge society units in university educational situations include features constituting a structure that achieves logical consistency; retains flexibility; dispels ambiguity; overcomes undue pressure from traditional prejudices and interest groups; permits professional individuality and development, but excludes exploitation of the institution by the individual staff members, and; assures the integrity of the institution without stifling the creativity and responsible freedom of the professional staff members.

Analytical philosophy of educology, also, provided perspective for:

1. the below listed two important pieces of work in and out of the Journal, by Christensen:

   1.1. Perspectives on Education as Educology (edited by J.E. Christensen, Washington, D.C. University Press of America, 1981);
1.2. Education and Human Development: A Study in Educology (J.E. Christensen, Educology Research Associates, Sydney, 1981);


1.4. “Education for Freedom: A Philosophical Educology” (J.E. Christensen, International Journal of Educology, 6:2, 1992, 97-131);

2. The below listed two important pieces of work, in and out of the Journal, by Fisher


3. The below listed five important pieces of work in and out of the Journal, by Maccia, Brezinka, and Monshouwer:


3.3. “Meta-Theory of Education: European Contributions from an Empirical-Analytical Point of View” (Wolfgang Brezinka, Perspective on Education as Educology, Edited by James E. Christensen, 1981, 7-26)


Critique of Analytical Philosophy of Educology


This work is clearly in the phenomenological philosophy of educology perspective, in which Steiner:

1. critiques, favorably, the conduct of a systematic phenomenology as the conduct of a phenomenological method, i.e. a method constituted by:

   “formal patterns of intuition, rules for intuitive thinking, in order to present the essence of phenomena. It is the doing of descriptive metaphysics.” (pg. 226);

whereby, then, essences exist in;

   “the ideational realm” of consciousness. (pg. 226)
2. interprets the educational process as phenomena:

“that involves subjects; subjects who are guiding the formation of consciousness of other subjects (learners) and so are teachers, and subjects (learners) who are actively participating in the formation of their consciousness and so are students. To study education, therefore, is also to study consciousness, namely the conscious formation of consciousness.” (pg. 222) And, in conclusion;

3. states:

“If one follows the rules of the phenomenological method, then one can grasp essences. These essences are not relative, i.e., arbitrarily introduced by human beings through their conventions insofar as they assign meanings. Meanings are not arbitrarily assigned; there are essences to be grasped. The world which is experienced after the reduction to the pure life of consciousness is an intersubjective world, it is accessible to anyone. So the essence of education can be grasped. The metaphysics of education can be done. The essential properties of teacher, student, content, and context—the elements of the teaching-studenting process—can be set forth. A meaning basis for empirical studies of regularities can be provided. The crisis in educology can be resolved. Phenomenology is a genuine rationalism.” (pg. 227)

It is to be noted that Steiner, uses the meaning of the word ‘essence’ to refer to that which exists as ideations and that which “assigns meaning,” to be the basis of something, whereby, though, essences or ideations as forms, structures, or states are not identical to the existence of meaning, itself, whereby, then;

1. that which exists;

1.1. as a special, essential, or ideational property as a state of status that specially, essentially, or ideationally forms a state of status of something to be what it is and not to be some other special, essential, or ideational form of thing, therefore;

1.1.1. that which exists that specially, i.e., essentially forms or states of the “pure life of consciousness;” i.e;
1.1.2. a life that, after conducting reductive thinking by following a set of “rules of intuitive thinking;”
1.1.3. is a life of being conscious of pure essences or ideations as forms that state the status of things, i.e;
1.1.4. a life of consciousness that can be “grasped,” or directly and immediately known;

1.1.4.1. by intellectual observation, but;
1.1.4.2. not by sensory observation, hence;

2. that which exists;

2.1. that determines;

2.1.1. a life of pure forms as a life purely known by persons referred to by the meaning of the word ‘subjects’ following the conduct of a set of rules for thinking in which to make intellectual observations of essences or ideations that form things,” and;

2.1.2. a life of impure forms as a life impurely known by persons referred to by the meaning of the word ‘subjects’ following the conduct of a set of rules for thinking in which to make sensory observation of the things, but not the essences or ideations that form things, hence;

2.1.3. a life in an interactive and “intersubjective world,” that:

2.1.4. “is accessible to anyone,” and;

2.2. that provides:
2.2.1. “a meaning basis, state, or status for empirical studies of regularities,” in and for
the educational process, i.e. of the regulations in and for the educational
process, therefore;
2.2.2. a foundation for empirical scientific and empirical philosophic educology of this
process.

In this work, Steiner critiques, unfavorably, the analytical philosophy of educology perspective, as being:

1. a limited perspective in that it is grounded in a philosophy of logic from the perspective of the philosophy
of logical positivism, or as she would characterize it, from the perspective of a naturalistically oriented
philosophy of science, wherein;

2. this logic, as a methodology of science, i.e. as knowledge about a method for conducting science, when
integrated and conducted well in the knowing process, for producing scientific and philosophic educology,
i.e. for producing scientific and philosophic knowledge about the educational process;

3. does not adequately account for the significance of the educational process, as this process; from the
perspective of phenomenological philosophy of educology;

4. involves persons, as subjects, conducting the conduct of the conscious formation of consciousness, as
integrated well into educational phenomena, modeled after the well conduct of systematic phenomenology,
integrated well into the knowing process, in that, as Steiner says:

“... consciousness is not simply a cognitive state. A cognitive state cannot occur without volition
and feeling. Conation is involved, because signs are always standing for somebody. An ‘I’ gives
meaning; there is intentionality. Moreover, since there is self-awareness, there is feeling; there is a
state of affect. Within experiencing or consciousness, we can logically sort out cognition, conation,
and affect, but in any experiencing all three are together.” (pg. 224)

Steiner is making a very similar, if not identical, point that was made earlier, from the experiential
philosophy of educology perspective, i.e. the point that the analytical philosophy of educology perspective
is limited in that:

1. its logic is that of the conduct of only verification thinking experiences, as conducted in reflective thinking
experiences;

2. rather than the conduct of both:

   2.1. discovery thinking experiences, and;

   2.2. verification thinking experiences;

3. as two necessary aspects of the conduct of the conduct of reflective thinking experiences;

4. accounted for in the post modern era philosophy of pragmatism, and;

5. adopted in experiential philosophy of educology;

6. as being developed in the Institute.

The point in common between phenomenological philosophy of educology and experiential philosophy of
educology is that both logics incorporate “cognition, conation, and affect,” as well as volition and eidetic
imagery, i.e. imagination, into the breadth of aspects of consciousness, whereas, however, analytical
philosophy of educology incorporates only cognition into the breadth of consciousness, whereby:

1. the cognitive aspect as a logical state of consciousness;

   1.1. in the phenomenological philosophy of educology perspective;

      1.1.1. is that aspect which constitutes the essences or ideational, i.e. the formal
      aspect of phenomena, that is consciously intellected, and;
1.1.2. is the logical state of status of consciousness;

1.2. in the experiential philosophy of educology perspective;

1.2.1. is that aspect which constitutes the meanings, i.e. the formal aspect of possible forms or states of conduct that is consciously intellected, and;
1.2.2. is the logical state of consciousness, and;

1.3. in the analytical philosophy of educology perspective;

1.3.1. is that aspect which constitutes the analytic a-priori knowledge, i.e. the formal aspect of tautological relationships of meanings that is consciously intellected, and;
1.3.2. is the logical state of consciousness;

1.4. all of which are integrated and conducted well in the knowing process, and;

2. the conative, affective, volitional, and imaginative aspects as psychical events in consciousness;

2.1. in the phenomenological philosophy of educology perspective;

2.1.1. are the aspects that constitute the psychical events;
2.1.2. in consciousness that are sensed;
2.1.3. by internal sensory observation, and, are;
2.1.4. events in consciousness;
2.1.5. to be selectively emphasized and focused on, i.e. mapped, as;

2.1.5.1. the subject matter for psychology, as knowledge about the psyche, and
2.1.5.2. the subject matter to be;

2.1.6. dissociated from;
2.1.7. the cognitive aspect, as the logical state, of consciousness by;
2.1.8. following the conduct of systematic phenomenology, as
2.1.9. well integrated and conducted;
2.1.10. in the pure knowing of essences as forms or states of phenomena feature of
2.1.11. the knowing process;

2.2. in the experiential philosophy of educology perspective;

2.2.1. are the aspects that constitute the psychical events;
2.2.2. in consciousness that are sensed;
2.2.3. by internal sensory observation, and, are;
2.2.4. events in consciousness
2.2.5. to be selectively emphasized and focused on, i.e. mapped, as

2.2.5.1. the subject matter for psychology, as knowledge about the psyche, and
2.2.5.2. the subject matter to be;

2.2.6. associated with;
2.2.7. the cognitive aspect, as the logical state, of consciousness by
2.2.8 following the conduct of reflective thinking experiences, as constituted by;

2.2.8.1. the conduct of discovery thinking experiences, and;
2.2.8.2. the conduct of verification thinking experiences, as;

2.2.9. well integrated and conducted in
2.2.10. the understanding of meanings as possible forms of states of conduct feature of
2.2.11. the knowing process, and;
2.3. in the analytical philosophy of educology perspective;

2.3.1. are the aspects that constitute the psychical events:
2.3.2. in consciousness that are sensed;
2.3.3. by internal sensory observation, and, are;
2.3.4. events in consciousness;
2.3.5. to be selectively emphasized and focused on, i.e. mapped, as;

2.3.5.1. the subject matter for psychology, as knowledge about the psyche, and
2.3.5.2. the subject matter to be;

2.3.6. dissociated from;
2.3.7. the cognitive aspect, as the logical state, of consciousness;
2.3.8. by following only the conduct of verification thinking experiences, as
2.3.9. well integrated and conducted in
2.3.10. the analytic knowing of tautological relationships of meanings as states feature of:

2.3.11. the knowing process

This critique of the breadth of psychical aspects, as psychical events, in consciousness in analytical philosophy of educology, as a limitation from the perspective of phenomenological philosophy of educology, correlates with a critical difference between phenomenological and experiential philosophies of educology, and, between them and analytical philosophy of educology, as that of how the meaning of the word ‘cognition’ is used when referencing an aspect of, i.e. a state of, not events in, consciousness involved in logic as conducted and integrated well in the knowing process. Whereas:

1. as constituted in phenomenological philosophy of educology, the meaning of the word ‘cognition’ is used:

1.1. to refer to the direct and immediate intellectual observation, intuition, grasping, or direct and immediate pure knowing;
1.2. of the existence of “essences or ideations as actual forms of phenomena;”
1.3. as kinds of metaphysical existents, and;
1.4. as the “given” in the logical state of, not psychical events in, consciousness, that;
1.5. “assigns” meaning states, that;
1.6. “comports” significant conduct in;
1.7. the conduct of the conscious formation of consciousness;
1.8. constituted in the conduct of systematic phenomenology;
1.9. as integrated and conducted well;
1.10. in the knowing process;

2. as constituted in experiential philosophy of educology, the meaning of the word ‘cognition’ is used:

2.1. to refer to the direct and immediate intellectual observation, intuition, grasping, or direct and immediate understanding;
2.2. of the existence of “meaning states as possible forms of conduct;”
2.3. as kinds of special conduct, and;
2.4. as the “given” in the logical state of, not psychical events in, consciousness,
that;

2.5. “comports” significant conduct in;

2.6. the conduct of reflective thinking experiences;

2.7. constituted by the conjugation of;

2.7.1. the conduct of discovery thinking experiences, and;

2.7.2. the conduct of verification thinking experiences;

2.8. as integrated and conducted well;

2.9. in the knowing process, and;

3. as constituted in analytical philosophy of educology, the meaning of the word ‘cognition’ is used:

3.1. to refer to the direct and immediate intellectual observation, intuition, grasping, or direct and immediate analytic knowing;

3.2. of the existence of “tautological relationships of meanings as states of actual physical forms of referents;”

3.3. as the only kinds of referents that can be verified;

3.4. as the “given” in the logical state of, not psychical events in the consciousness of verification thinking experiences, that;

3.5. “comports” significant conduct in;

3.6. the conduct of sensory experience;

3.7. the conduct of symbolic logic;

3.8. as integrated and conducted well;

3.9. in the knowing process.

The fundamental difference, then, between phenomenological, experiential, and analytical philosophies of educology is that of the difference in the use of the meaning of the word ‘cognition’ to refer to cognition:

1. as a logical state of, not as a psychical event in, pure knowing of essences as forms of phenomena;

2. as a logical state of, not as a psychical event in, understanding of meanings as possible forms of conduct, and;

3. as a logical state of, not as a psychical event in, analytic knowing of tautological relationships of meanings as actual forms of physical referents, as these relationships between meanings are integrated into the conduct of the conjunction of the logic and psychology of the knowing process.

With this discernment between the logical state of consciousness, intellectually observed, and psychical events in consciousness, internally sensorily observed:

1. in phenomenological philosophy of educology’s logic, the meaning of the word ‘cognitive’ implies the direct and immediate “pure knowing” of essences as actual forms or states of things being well integrated and conducted in the knowing process;

2. in experiential philosophy of educology’s logic, the meaning of the word ‘cognitive’ implies the direct and immediate “understanding” of meanings as possible forms or states of conduct being well integrated and conducted in the knowing process, and;
3. In analytical philosophy of educology’s logic, the meaning of the word ‘cognitive’ implies the direct and immediate “analytic knowing” of tautological relationships of meanings as actual forms or states of physical referents being well integrated and conducted in the knowing process.

Using the meaning of the word ‘cognition’, in the perspective of phenomenological philosophy of educology, the knowing process, as the well conduct of the conscious formation of consciousness is well integrated into it, is such that, if followed well, then;

1. Pure states, i.e. essences or ideations as actual forms or states of things can be grasp, intuited, intellectually observed, i.e. directly and immediately known, as they exist as cognitive states, i.e. logical states of pure consciousness of subjects, in so far as, however;

2. Impure events, i.e. imagination of psychic images, emotion of psychic feelings, volition of psychic determination to move, and, conation of psychic urges to move, that exist as psychical events in the consciousness of subjects are:
   - 2.1. Selectively emphasized and focused on so as;
   - 2.2. To disassociate them, by excluding them, from being focused on;
     - 2.2.1. So that the pure states of, i.e. the essences as forms of, things;
     - 2.2.2. In the consciousness of subjects;
   - 2.3. Can be selectively emphasized and focused on;
     - 2.3.1. To grasp, intuited, intellectually observed, i.e. directly, immediately, and purely known;
     - 2.3.2. So as to assign states of meaning, not events of imagery and/or feelings;
     - 2.3.3. To be well integrated;
   - 2.4. Into the knowing process conducted well, therefore;
     - 2.4.1. Providing a logical state for;
     - 2.4.2. Internally and externally oriented sensory observations;
     - 2.4.3. In verification thinking experiences.

Using the meaning of the word ‘cognition’ from the perspective of experiential philosophy of educology, the knowing process, as the well conduct of discovery and verification thinking experiences, in the reflective thinking experience, is well integrated into it, is such that, if followed well, then;

1. As possible forms of conduct, states of meanings can be grasp, intuited, intellectually observed, i.e. directly and immediately understood, as they exist in the cognitive, i.e. logical, state of consciousness of subjects, in so far as;

2. Imagination, emotion, volition, and conation as psychical events in the consciousness of subjects exist in association with possible forms of conduct as meaning states existing as the cognitive, i.e. logical, state or status of consciousness of subjects, whereby, the psychical events are:
   - 2.1. Selectively emphasized and focused on so as;
     - 2.1.1. To associate them, by including them, with;
     - 2.1.2. Possible forms of conduct, as states of meanings;
     - 2.1.3. In the logical state of consciousness of subjects;
     - 2.1.4. So that states of meanings as plausible forms of conduct;
   - 2.2. Can be selectively emphasized and focused on;
     - 2.2.1. To grasp, intuited, intellectually observed, i.e. directly and immediately understood;
     - 2.2.2. So that meaningful conduct becomes integrated well;
   - 2.3. Into the knowing process conducted well, therefore;
2.3.1. providing a logical state for;
2.3.2. sensory observations, in;
2.3.3. discovery thinking experiences, and, in;
2.3.4. verification thinking experiences, in:

2.4. the conduct of reflective thinking experiences;

Using the meaning of the word ‘cognition’ from the perspective of analytical philosophy of educology, the knowing process, as the conduct of only verification thinking experiences, is such that, if followed well, then:

1. meanings as actual forms or logical states for referencing only physical referents can be grasp, intuited, intellectually observed, i.e. directly and immediately analytically known, as they condition the consciousness of subjects, in so far as;

2. imagination, emotion, conation, and volition as psychical events in consciousness exist in disassociation with meanings as possible forms or states of conduct in verification thinking experiences of subjects, whereby, the psychical events in consciousness are:

2.1. selectively emphasized and focused on so as;

2.1.1. to disassociate, by excluding them, from;
2.1.2. meanings as actual forms or states for only referencing;
2.1.3. physical events and objects;
2.1.4. in verification of thinking experiences;

2.2. so that meanings, also, as plausible forms or states of conduct:

2.2.1. can be selectively emphasized and focused on;
2.2.2. to be grasped, intuited, intellectually observed, i.e. directly and immediately;
2.2.3. analytically known as tautological relationships of meanings;
2.2.4. for meaningful conduct becoming integrated well;

2.3. into the knowing process conducted well, therefore;

2.4. providing a logical state for;

2.5. sensory observations, in;

2.6. the conduct of verification thinking experiences.

**Critique of Analytical and Phenomenological Philosophies of Educology**

From the perspective of experiential philosophy of educology, then, both analytical and phenomenological philosophies of educology are critiqued, unfavorably, hence, are limited in that they both disassociate, by excluding, psychical events in consciousness from the logical state of consciousness, in the knowing process, though in different ways, whereas, however, experiential philosophy of educology, associates, by including, them in consciousness in the knowing process, in that:

1. Phenomenological philosophy of educology does the disassociation:

1.1. directly through its rules of reduction, constituting;
1.2. the conduct of systematic phenomenology;
1.3. involving eidetic reduction, i.e.
1.4. dissociating, by excluding;

1.4.1. imagery in imagination, feelings in emotion, urges to move in conation, and

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determination to move in volition;
1.4.2. as psychical events in consciousness, and;
1.4.3. sensorily observed;
1.4.4. by internally oriented sensory observation, and;

1.4. dissociating, by excluding:
1.4.1. physical events external to consciousness;
1.4.2. as sensorily observed;
1.4.3. by internally oriented sensory observation, and;

1.5. associating, by including;
1.6. intellectual observations of essences, i.e. of ideations,
1.7. as purely knowing, i.e. purely cognizing;
1.8. the logical states of consciousness;
1.9. as actual forms of phenomenon;
1.10. as integrated and conducted well;
1.11. in the knowing process, and;

2. Analytical philosophy of educology does the dissociation:
2.1. indirectly through its rules of reduction, constituting;
2.2. the conduct of symbolic logic;
2.3. involving declaratively formed sentences functioning as statements, i.e;
2.4. involving sententially formed meanings, as logically formed cognitive states, in;
2.5. ordinary, scientific, and philosophical languages;
2.5.1. being reduced to atomic, or, protocol sententially formed meaning states;
2.5.2. referring to, and only to;
2.5.3. physical event and objects
2.5.4. external to consciousness;
2.5.5. sensorily observed;
2.5.6. by externally oriented sensory observation;
2.6. dissociating, by excluding, psychical events;
2.6.1. in consciousness;
2.6.2. sensorily observed;
2.6.3. by internally oriented sensory observation, but;
2.7. associating, by including, the logical state;
2.7.1. of analytic knowing, i.e. analytic cognizing;
2.7.2. tautological relationships of meanings;
2.7.3. intellectually observed;
2.7.4. as actual forms of physical events and objects, and;
2.8. associating, by including, physical events and objects;
2.8.1. sensorily observed;
2.8.2. by externally oriented sensory observation;
2.9. as integrated and conducted well;
2.10. in the knowing process, and;

3. Experiential philosophy of educology does the association:

3.1. directly through its principle of eduction, involved in;
3.2. the conduct of reflective thinking experiences, constituted by;
   3.2.1. the conduct of discovery thinking experiences, and;
   3.2.2. the conduct of verification thinking experiences;
3.3. involving declaratively formed sentences functioning as statements, i.e;
3.4. involving sententially formed meanings states in;
3.5. ordinary, scientific, and philosophical languages;
   3.5.1. being educted for;
   3.5.2. referring to, but, not only to;
   3.5.3. physical events and objects, hence;
3.6. associating, by including, psychical events;
   3.6.1. internal to consciousness;
   3.6.2. sensorily observed;
   3.6.3. by internally oriented sensory observation, and;
3.7. associating, by including, physical aspects;
   3.7.1. external to consciousness;
   3.7.2. sensorily observed;
   3.7.3. by externally oriented sensory observation, and;
3.8. associating, by including, logical states;
   3.8.1. of understanding meanings;
   3.8.2. as forms or states of possible conduct
   3.8.3. intellectually observed;
   3.8.4. internal to consciousness;
3.9. as integrated and conducted well;
3.10. in the knowing process.

Outcome of Critique

From the perspective of experiential philosophy of educology, the main outcome of the critique is that the analytical philosophy of educology and phenomenological philosophy of educology perspectives are shown to be limited in that they disassociate, by excluding, the psychical aspects, i.e. psychical events, from the logical aspect, i.e. logical state, in consciousness by the conduct they purport to integrate and conduct well, hence, providing an inappropriate model for conduct to be well integrated into the educational process, whereby;

1. from the analytical philosophy of educology perspective it is conduct of verification thinking experiences;
   1.1 involving the conduct of reduction;
   1.2. by following the rules of symbolic logic, and;
2. from the phenomenological philosophy of educology perspective it is the conduct of the conscious formation of consciousness;

2.1. involving the conduct of reduction;

2.2. by following the rules of systematic phenomenology, and;

in contrast;

3. from the experiential philosophy of educology perspective it is the conduct of reflective thinking experiences;

3.1. involving the conduct of eduction;

3.2. by following the principles of;

3.2.1. discovery thinking experiences, in conjunction with;

3.3.1. verification thinking experiences.

**The Significance of Work to be Done in the Future**

From the perspective of the Institute, the work to be done in the future in philosophy of educology, as stated earlier, is that of meeting two challenges, i.e:

**Challenge 1:** the philosophical challenge of clarifying the nature of educological knowledge, i.e. of educology and its subject matter of the educational process, and;

**Challenge 2:** the philosophical challenge of critiquing the conduct of reflective thinking experiences;

2.1. as the conduct that integrates, well, the organization of conditions in which the knowing process is conducted, hence, the logic that when conducted well produces the body of educological knowledge, and, also that produces all other bodies of knowledge, and;

2.2. as the conduct of reflective thinking experiences, functioning as a model for the conduct of educative experiences, ought to be better integrated into the organization of conditions in which the educational process is conducted.

The significance of this future work, from the perspective of the Institute:

1. will be to continue to show the limitations of the analytical and phenomenological philosophy of educology perspective being connected to their logics and psychologies of reduction, as;

1.1. the psychical aspects, in conscious reflective thinking experiences, being disassociated, by exclusion, from the logical aspect, of conscious reflective thinking experiences, then;

1.2. disassociating, by excluding, hence, preventing;

1.2.1. the imaginative, emotional, conative, and volitional aspects involved in discovery thinking experiences, from being conjoined with;

1.2.2. cognitive thinking experiences involved in verification thinking experiences, and, in the conscious formation of conscious thinking experiences, in;

1.2.3. reflective thinking experiences;

1.2.4. being conducted and integrated well, into;

1.2.5. the knowing process, therefore;

2. will be to continue to show the frontiers of the experiential philosophy of educology and its conduct of eduction, as;

2.1. associating, by including, hence, developing;
2.1.1. the imaginative, emotional, conative, and volitional aspects, as the psychical aspects of conscious discovery thinking experiences, being conjoined with;
2.1.2. cognitive thinking experiences, as the logical aspect of conscious formation of conscious, and, verification thinking experiences, as
2.1.3. two necessary stages of reflective thinking experiences;
2.1.4. being conducted and integrated well, into;
2.1.5. the knowing process, therefore,

2.2. being a model for educative experiences;

2.2.1. being conducted and integrated well, into;
2.2.2. the educational process.

The significance of future work in experiential philosophy of educology, in meeting its two challenges, then, is that it will provide a body of knowledge for a profession, as referred to by the meanings, for example, of such words as ‘the profession of teaching’, ‘the profession of school teachers’, ‘the profession of school administrators’, ‘the profession of school counselors’, and, could and should be referred to by the meaning of the words ‘the profession of educologists’.

The significance of further work, then, will be that of providing for the profession of educologists to have a body of knowledge which can and will provide perspective and confidence so that “the profession” can and will have the kind of political influence it needs to arrange for the organization of conditions in which educative experiences are well integrated and conducted in the educational process of educational institutions, e.g. home, school, and community educational institutions, as modeled after reflective thinking experiences being well integrated and conducted in the knowing process.

Notes


“All, in Europe pioneering work in educology has been, and is being done, by Professor Kestutis Pukelis at Vytautas Magnus University since 1991 in Lithuania.”

has been modified to state that:

“All, in Europe pioneering work in educology has been done by Professor Leonas Jovaisa, recently retired from Vilnius University, and is being done by Professor Kestutis Pukelis at Vytautas Magnus University, Kaunas, Lithuania and Professor Lilija Duobliene at Vilnius University, Vilnius, Lithuania, since 1991 in Lithuania.”

Therefore, Version 2 includes Professors Jovaisa and Duobliene, along with Professor Pukelis, as doing pioneering work in educology in Lithuania.

1.2. In the 2005 Vol. 19 African Special Issue the above two statements are modified, by the following statement:

“All, in Europe, before the 1991 Lithuanian Revolution, pioneering work in and about educology was done by Professor LEONAS JOVAISA. Professor Jovaisa suggested using the new term ‘educology’ and argued that when the limits of some scientific term are overstepped we need a new term, hence, because the limits of pedagogy have been overstepped by being considered to be applied psychology, the new term ‘educology’ is needed.

Professors Pukelis and Duobliene, then, have continued to use and extend the term ‘educology’ since the 1991 Lithuanian Revolution.”

This statement constitutes Version 3 of the Recurring Editorial.
1.3. Version 4 is a modification of Version 3 and is one made beginning in the 2006 issues of cd-IJE. This modification is from the perspective of experiential philosophy of educology to be, generally, that of considering the experience of the conduct of the interests of logic, psychology, problematics, and methodology, rather than just logic and psychology, as the experience of the conduct of disciplines constituting educology.
Special Account of 2008 cd-IJE’s Educology ‘86

This issue is that of the 2008 cd-IJE’s Educology ‘86 and it follows the issues of the 2005, 2006, and 2007 cd-IJE’s Perspective on Education as Educology. The 2005, 2006, 2007, and 2008 issues are special ones in that they present work in and about educology in books that are now out-of-print.

The issue of 2008 cd-IJE Educology ‘86 is of the Proceedings of a Conference on Educational Research, Inquiry and Development with an Educological Perspective. This conference was held at the University House, Australian National University, Canberra, ACT on July 10-12, 1986, as it was conceived, organized, and hosted by James E. Christensen, who also edited the Proceedings.

Special Note: A special note should be made here, in regard to an earlier announced plan for the 2008 issue of cd-IJE. That plan was to begin in 2008 the 2008 cd-IJE Experiential Philosophy of Educology Analysis of Articles in Educational Theory, a plan that will be postponed until the year 2009, hence, it, then, will be the plan to issue the cd-IJE Experiential Philosophy of Educology Analysis of Articles in Educational Theory in 2009, rather than in 2008. The reason for the postponement is because of the value of putting the content of Educology ‘86 back into the public domain before the experiential philosophy of educology analyses of articles in Educational Theory begins, hence, giving the analyses a larger context of meaning, therefore, significance, as formed in literature in and about educology.

The analysis, in the 2009 issue of cd-IJE will be of articles in the 2008 issue of Educational Theory from the perspective of experiential philosophy of educology as this perspective is being developed in and through the Institute of History and Philosophy of Educology for Developing Democracies in the World. This Institute is the initiative of Educology Research Associates/USA (ERA/USA) www.era-usa.org and its mission is to advance philosophy of educology, as an experiential philosophical kind of inquiry guided by the questions:

1. “What is the body of knowledge claims about the educational process, whereby, the educational process is a social process conducted within an existing culture being conditioned and/or reconditioned by a developing democracy in the world?”

2. “How can this body of knowledge claims, within this kind of cultural conditioning and/or reconditioning, be constructed and united as a body of knowledge claims about the social process of education as this kind of social process ought to have more educative experiences than mis-educative experiences conducted in it in home, school, and other community social situations in this kind of cultural conditioning and/or reconditioning?”

The year 2008, then, will be dedicated to publishing special issues of cd-IJE containing work in and about educology, as this work has been published in the book of proceedings of the above identified conference. The 2008 Volume 22, Number 1 issue, this issue, contains the first five articles in the book Educology ‘86, and, the 2008 volume 22, Number 2 issue, the next issue, will contain the last eight articles in this book.

The year 2009, therefore, will be dedicated to the beginning of the annual publication of the special, which it is planned to become the regular, issue of cd-IJE containing analyses of articles in Educational Theory, from an experiential philosophy of educology perspective. The intention of these analyses is to demonstrate, over time, how the body of knowledge claims about the educational process can be unified, hence, made more significant, in cultures being conditioned and reconditioned through a developing democracy, by being understood as a body to be referred to by the meaning of the word ‘educology’, as this meaning is formed from an experiential philosophy of educology perspective.
EDUCOLOGY 86

Proceedings of a Conference on Educational Research, Inquiry and Development with an Educological Perspective

University House
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Canberra, ACT

July 10 -12, 1986

Edited by
James E. Christensen

Educology Research Associates
Sydney
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Introduction

The field of phenomena to which we point with the term 'education' can be characterised from many different points of view. Sociology, for example, characterises the field in terms of its effects upon society and social organisation, status and social class. Economics describes and explains education in terms of its influence upon the production and distribution of goods and services. Psychology considers education with respect to its impact upon attitudes and behaviour. In each of these cases, education is treated as the independent variable. It is an adjunct concern, and the central concern is some other factor, e.g., society, economic systems, behaviour. In contrast, the educological perspective treats the educational process as the dependent variable, and it inquires of the effects of other factors such as social settings, economic systems and personality types, upon the educational process.

Some examples will illustrate the distinction. The question, "How does education affect socioeconomic status?" is a sociological one. Status is the dependent variable. Education is the independent variable. The question, "How does the socioeconomic status of those who participate in the educational process affect the function of education?" is an educological one. Education is the dependent variable. Status is the independent variable. Questions which treat the educational process as the independent variable have the educological perspective.

There is the educational process, and there is recorded, propositional knowledge about that process. Within the process, we find people teaching and studying some content within some geographic, social and cultural milieu. An Australian child knows her brother how to fly a kite in the park adjacent to their house, and the brother practises under her guidance until he can control the kite independently of her supervision. This is an example of education. The teacher is the sister. The student is the brother. The content is kite flying. The geographic setting is the park. The social milieu is the family and the neighborhood. The cultural milieu is Australian culture. A second example of education is a school teacher in an Australian high school explaining to a class of students the different kinds of clouds which are associated with weather fronts. In this second example, the teacher is an official, certified secondary school teacher. The students are officially enrolled secondary school students. The content is clouds and weather fronts. The social milieu is a secondary school class. The cultural milieu is that of Australian culture.

The characteristic form of the educational process consists of a teacher, student, content and social and cultural milieu. These are its four basic components or elements. There are other elements which derive from these four, including intentions of teachers and students, strategies and methods of teachers and students, styles of teachers and students, physical resources and language. The characteristic functioning of education is teaching, studying and (if all goes well) learning. Teaching is essentially the intentional provision of opportunities for someone to learn some content. Studying is essentially making use of opportunities to learn some content. The content may be propositions, such as, "All matter is made up of discrete particles." It may be attitudes such as courageousness, charitibility, competitiveness, compliance with authority. It may be funds of knowledge, such as meteorology, biology or chemistry. It may be procedural knowing, such as how to tie shoelaces, drive a car, solve a quadratic equation. It may how to inquire soundly with
due regard for appropriate evidence. Education, then, is a process which has both a characteristic form and function, and it is to be found within the functions and transactions of people.

In contrast to the process of education, there is recorded, propositional knowledge about education. It is to be found in books, audio tapes and other media suitable for recording propositions. Examples of knowledge about education are the warranted statements, "Learning can be achieved without teaching," "Compulsory schooling is a worldwide phenomenon," and "It is wrong for teachers to victimise their students." Any proposition which can be shown to be true by adding necessary and sufficient evidence counts as knowledge about education. Such propositions can be assembled and arranged into a collection or fund of knowledge about the educational process.

Within common usage of the English language, and within its special (or technical) usages, we employ several terms to name the fund of recorded knowledge about education. Included among those terms are pedagogy, andragogy, ethology, Education and psychopedagogy. But there is one term which performs the job of naming the fund of knowledge about education even better than these five: educology. It suits the job best for three reasons: (1) It names nothing less than the fund of knowledge about education; (2) it names nothing more than the fund of knowledge about education; and (3) it avoids conflating the educational process with recorded knowledge about that process.

Educology implies the inclusion of the entire fund of recorded propositional knowledge about the entire educational process, from early childhood through senescence. It is not limited to knowledge about the education of children (pedagogy) or to that of male adults (andragogy). It is not recorded knowledge about processes other than education, such as knowledge about character development (ethology) or a combination of psychological knowledge and the practice of teaching (psychopedagogy). The name educology eliminates the ambiguity that is created by naming the process of guided study education and naming the fund of recorded propositional knowledge about that process with the same term, education.

Educology consists of all warranted assertions about any and all aspects of the educational process in which education is being characterised as the dependent variable. Warranted assertions are statements (declarative sentences) which have necessary and sufficient evidence to affirm their truth value. This affirmation may be in the form of a high degree of confirmability, thus making the truth value one of probability. The affirmation can also be in the form of necessary implication, thus making the truth value one of necessity (i.e., without exception). Warranted assertions which are educological may be about those who play the role of teachers (such as uncles, aunts, friends, university professors, primary school teachers), those who play the role of students (such as children, adults, clerks, bankers, university students, primary school pupils), content that is taught and studied (such as how to sew buttonholes, the virtues of honesty and peaceful resolution of conflicts, quantum physics, standard procedures for navigating a ship, how to repair a tractor). Educology also consists of warranted assertions about the influence of the milieu in which teaching and studying take place. That milieu includes geographic, social and cultural dimensions. The cultural milieu for education includes, among other things, the linguistic,
political, historical, religious, legal, administrative and economic factors which impinge upon, direct or otherwise influence the educational process constructively, reconstructively or even destructively.

Forming educology is essentially making warranted assertions about education. Educology is extended through the addition of warranted assertions to the already established fund of warranted assertions about education. We can extend the fund of warranted assertions about education through successful inquiry. Such inquiry implies the research activities of asking, answering and adducing the appropriate, necessary and sufficient evidence to support answers to the questions asked. The search implied in the asking may be directed towards finding propositions which are already known, a retro-searching. It may be directed towards reaffirming or negating propositions which are already known, a re-searching. Or it may be directed towards affirming or negating propositions which are not yet known, a neo-searching. 7

In each of the three cases, well disciplined inquiry follows sound rules for adducing necessary and sufficient evidence and for drawing supportable inferences. This set of rules, logical operations and procedures constitutes the discipline for the inquiry. When the inquiry is successful (and if the inquiry is a neo-searching), new propositions about education are affirmed, and the fund of knowledge about education is augmented (i.e., educology is extended).

Although related, a fund of recorded knowledge is not identical with the discipline used to produce that fund, no more than a house is the same as sound rules for home construction, or the activity of playing tennis is the same as rules for tennis play. The activity of asking, answering and verifying answers to questions is inquiry. The inquiry can be a retro-search, a re-search or a neo-search. The rules of proof (or the standards of verification) which are followed in the inquiry constitute the discipline. The product of the inquiry, if successful, is a set of warranted assertions about education. And that fund, of course, is educology.

Footnotes


2. The argument for the term 'educology' as an appropriate name for knowledge about education was originally developed by Elizabeth Steiner (Maccia) in "Logic of Education and Educatology: Dimensions of Philosophy of Education," Proceedings of the Twentieth Annual Conference


5. See Elizabeth Steiner, Educology of the Free, New York: Philosophical Library, 1981, pp. 50-51, for the full argument for educology over ethology.


SCIENCE TEACHERS' CONCEPTS IN SCIENCE: AN EDUCOLOGICAL PERSPECTIVE

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Faculty of Education
Monash University

Concept and Concept Learning as an educological issue can be seen from various perspectives. Concepts as agents of thought for human beings from early childhood through adulthood are fundamental in the education process. Concept learning in Science in particular facilitates the learning process. Students have been found to have naive concepts which inhibit their learning. If Science teachers are aware of these naive concepts, they will be of tremendous help to students. This study sets out to find out if Science teachers have concepts which are superior to the students they teach.

Introduction

Concept as an educological issue can be seen from various perspectives. Concepts are viewed by Klausmeier et al. (1974) as the fundamental agents of thought for human beings from early childhood through adulthood. As a fundamental agent of thought, no education and its processes can be devoid of concepts. Concepts, according to Klausmeier et al., designate both mental constructs of individuals and also identifiable public entities that comprise part of the substance of the various disciplines.

Philosophers have two broad views of concept. The first is arrived at by connecting concepts with images, the second by connecting concepts with language, and hence they see concepts as vehicles of thought (Harre, 1966).

In the educational process, it is quite impossible to think without conceptualising. For instance, forming a concept facilitates students' thinking clearly. It helps students to learn spontaneously. Learning through concept means that the learner's thinking is not at all a case of random behaviour for it is sensible, intelligible and predictable against the available theoretical construct (Vaidya, 1980).

Much work has been done on concepts in science, especially at the primary and secondary level. The literature on concepts in science has repeatedly pointed to the fact that students have misconceptions (Edwards and Fraser, 1985; Gunstone, Champagne and Klopfer, 1981; Helm, 1980; Osborne and Gilbert, 1979; Osborne, 1982).

Recent studies have been conducted that show also that Science teachers' concepts are often not superior to those of the students they teach (Ameh and Gunstone, 1985; Ameh, 1986; Ameh and Gunstone, 1986a; 1986b). Although there are many studies of teacher effect and student gain, most of these are devoid of direct investigation of teacher knowledge and ideas.
This study explores the concept of "force" held by Nigerian Science teachers. Force is an area in physics where students have many naive conceptions. Gunstone and Watts (1985) studied students' ideas about force. Osborne (1982) investigated children's concepts of force using interview cards. He found that children have misconceptions about the concept of force. These and other studies have urged teachers to explore students' concepts before teaching them. But there is another important question. Are teachers' concepts superior to those of the students they teach? This paper considers that question with particular reference to the concept of force.

Sample

Three hundred and eighty-eight Science teachers - both practising and trainee - wrote the test. The practising teachers constitute four groups: NCE (National Certificate in Education). This certificate is obtained three years after 'O' level from a college of education. This qualification is the minimum qualification for teaching in the secondary school and they teach up to Form Three (Year Nine); B.Sc. - obtained three or four years after the 'A' level. B.Sc. plus Postgraduate Diploma in Education (PGDE). The trainee teachers are designated (TT).

<table>
<thead>
<tr>
<th>Type of Qualification</th>
<th>TT</th>
<th>NCE</th>
<th>BSC</th>
<th>NCE+BSC</th>
<th>PGDE</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>137</td>
<td>140</td>
<td>79</td>
<td>17</td>
<td>15</td>
<td>388</td>
</tr>
</tbody>
</table>

Method

The data for this study were obtained from a pencil and paper test administered to Science teachers, both practising and trainee teachers, in Nigeria, in 1985. Three hundred and eighty-eight Science teachers wrote the test. Some teachers were subsequently interviewed.

The instrument for this study consists of two questions. The questions are given below. The questions were developed and used by Osborne (1982). They have not been modified because the study aims to find out if Science teachers have a more superior concept than the students they teach.

The test is not designed as a standard achievement test. It is an exploratory test to find out teachers' views. Hence marks have not been awarded for any response(s). For whatever response given by teachers, reasons for such response were elicited.
Results

Question 1

Place a tick against the appropriate answer.
A person throws a tennis ball straight up into the air just a small way.
The questions are about the total force on the ball.

(a) If the ball is on the way up, then the force on the ball is shown by which arrow?

(b) If the ball is just at the top of its flight, then the force on the ball is shown by which arrow?
(c) If the ball is on the way down, then the force on the ball is shown by which arrow?

Question 2

<table>
<thead>
<tr>
<th>Reasons</th>
<th>NO BRAKES</th>
<th>NO PEDALLING</th>
<th>SLOWING DOWN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Is there a force on the bike?</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a) Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b) No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Eight patterns of responses to Question 1 have been identified.

Key to the pattern
a = the force is going down
b = the force is going up
c = the force is zero

Pattern 1
a,a,a: (the scientific view) Twenty (5.15 per cent) of the total sample fall into this category. They are considered to have a scientific view of force in a dynamic situation. This group said that gravity is always acting on any body so the force in each case will be acting downwards, e.g.:

Because when the ball is thrown up, there is a gravitational force trying to pull the ball downwards.
Pattern 2
b,a,a: up, down, down. Forty-five (11.5 per cent) of the total sample fall into this category. These said that when the ball was going up, the force was upwards because going up means that the ball has overcome the force of gravity, e.g.:

Because if the ball is thrown up, there must be a force to counter gravitational force. Since it is going up, the force that is pulling it up is going to be greater than gravitational force.

When the ball gets to the top of its flight, they said that the initial force applied is finished, and the only force will be the force of gravity that will be acting from the moment it gets to the top of its flight, e.g.

When the ball has reached the top of its flight, it is no more proceeding by kinetic force. What we have at that point is, it will start to rest, it will rest momentarily before coming down. At that time it is producing another type of force. It starts to have oscillation force, i.e. the time it will turn and start coming back

Now the gravitational force is over the pulling force.

Pattern 3
a,c,a: down, zero, down. Thirteen (3.35 per cent) of respondents fall in this category. They believe that the force of gravity is always acting on the ball, e.g.:

Because I am referring mainly to gravitational force which is always going downwards so that if something is going upwards, a force is on it but it is negative.

Although it's going up, the force is acting against gravity. Force of gravity is forcing it down.

That is the gravitational pull of the earth, it pulls everything going up downwards.

But when the ball attains its maximum height, at that point, they said that the velocity is now zero, so the force is zero, e.g.:

When the ball reaches its height, there becomes a point where the velocity is equal to zero, that means the motion stops temporarily, momentarily.
Because at that maximum position there, the velocity is zero and the force itself is proportional to the velocity. So when the velocity becomes zero it means there is no force acting on it at that particular time, that is why it stops momentarily.

The force there is zero, that is the acceleration is zero because it has reached its peak, cannot move again, no force acting on it.

No force, at that maximum height the velocity is zero so no force.

Pattern 4
b,c,a: One hundred and seventy-eight (45.87 per cent) of the total sample fall into this category. They said when the ball is going up, the force taking the ball up is upward, e.g.:

When you throw something up, because of the force exerted from your hand or something like kicking, the force must be exacted before it can move.

Because the ball is going up, the force must be coming from down.

Because, but for that force it won’t have gone up because of the force applied.

When you throw a ball upwards, you apply a force when you are throwing it up. That force is still acting on the ball, that is why the ball is still progressing, if the force is not there, instead of going up, it will start coming down. The influence of the force is still on the ball.

When the ball gets to the top of its flight, that is attains a maximum height, they said there is no force because it is at a neutral point, e.g.:

When it has reached the top of its flight, there is no force because the force pushing it upwards and the force ... you see when it reaches up there it stops momentarily before coming down, when it stops at that point ... it means at that point that the force which was propelling it up and the force which is going to ... the force of gravity pulling it down at that particular point, may neutralize each other, they equalize ... at that point the force is zero because the velocity is zero.
No force, at that moment there is no force because it has reached the maximum height and the force acting pulling it down is equal to the force that took it up.

When it gets up, the force due to gravity balances the upward force, that is why it stops there, both of them cancel each other and no force is acting.

Zero because this is exactly where the gravity is equal to force with which the ball was thrown. The velocity becomes zero.

Zero because the force of acceleration and the force of gravity are all equal.

There is a sort of equilibrium between the forces acting on it. The kinetic energy pushing it up is exhausted.

At equilibrium, i.e. the force that is pushing it up and the gravitational force, when they are at equilibrium is where the force is zero.

No force, the equilibrium at ... when it reaches the top, momentarily, it's at rest since it's at rest, the upward balances with the downward force.

Pattern 5
b,a,b: Thirty-two (8.24 per cent) of the total sample said that the force will continue to go up until it can go no further, when gravity becomes greater, e.g.:

Because the force with which the person throws the ball keeps it up until it gets to a point where it doesn't go further.

Pattern 6
a,a,b: Eight (2.06 per cent) of total respondents fall into this category. They said the gravity will continue to pull on the ball until the ball starts descending, then it starts battling with other forces, e.g.:

When it is going down, there is some force, i.e. as it's going down, now moving towards the gravitational force, so it has to battle with the upward force that kept it at balance, the ball is trying to move down but the force opposing it's movement is upwards.
Because of the existing force, as the ball is coming down there is another force pulling it up called resisting force.

Pattern 7
Others. Twenty (5.15 per cent) of the total respondents did not follow any pattern. There is evidence of confusion, e.g. from such a response as: down, zero, up:

At that point, when it begins to come down, the acceleration, the force acting on it is force acting upwards because it's coming down, the force acting on it will be force that acts in the opposite direction.

Because the existing force, as the ball is coming down there is another force pulling it up called resisting force.

Sixty (15.46 per cent) of the total sample did not respond. Some claimed not to have done physics or indicated they were not teaching physics.

<table>
<thead>
<tr>
<th>Pattern of Responses</th>
<th>% Sample in Each Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>down, down, down</td>
<td>20</td>
</tr>
<tr>
<td>up, down, down</td>
<td>45</td>
</tr>
<tr>
<td>down, zero, down</td>
<td>13</td>
</tr>
<tr>
<td>up, zero, down</td>
<td>178</td>
</tr>
<tr>
<td>up, up, down</td>
<td>32</td>
</tr>
<tr>
<td>down, down, up</td>
<td>8</td>
</tr>
<tr>
<td>down, up, down</td>
<td>12</td>
</tr>
<tr>
<td>others</td>
<td>20</td>
</tr>
<tr>
<td>no response</td>
<td>60</td>
</tr>
</tbody>
</table>

In the second question, to be considered as having a scientific concept of force, respondents should give a positive answer to the question as well as list some scientific attributes like force of gravity and force of friction.

The responses have been grouped into "Yes" and "No".

YES

Two hundred and ninety (74.7 per cent) said "Yes", there is force on the bike. "Yes" here can be divided into two:

1) "Yes", which can be summarized as follows:
<table>
<thead>
<tr>
<th>Categories of &quot;Yes&quot;</th>
<th>% Sample in each Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, force of friction and gravitational pull</td>
<td>55</td>
</tr>
<tr>
<td>Yes, initial force</td>
<td>11</td>
</tr>
<tr>
<td>Yes, force exerted by rider</td>
<td>18</td>
</tr>
<tr>
<td>Yes, frictional force between tyre and ground</td>
<td>45</td>
</tr>
<tr>
<td>Yes, force between the wheel and the ground surface</td>
<td>5</td>
</tr>
<tr>
<td>Yes, because it's moving</td>
<td>19</td>
</tr>
<tr>
<td>Yes, presence of wind acts on it</td>
<td>3</td>
</tr>
<tr>
<td>Yes, external force</td>
<td>5</td>
</tr>
<tr>
<td>Yes, force of retardation</td>
<td>15</td>
</tr>
<tr>
<td>Yes, uniform acceleration</td>
<td>4</td>
</tr>
</tbody>
</table>

2) The second "Yes" (others) can be further divided into two:

(a) "Yes" without any reasons. Forty-six (11.85 per cent) of the total respondents said "Yes" without listing any attribute or giving reasons for saying so.

(b) "Yes" which shows some linguistic confusion or invalid use of the word "force". Sixty-four (16.4 per cent) constitute this group. They gave reasons such as:

Yes because when you apply it, the forces will stop the moving object.

Yes because if you reach the hill top on your way down there is applying force.

Yes because it has no effort and load.

Yes because it has tyres and can move.

Yes because there is no movement since no brakes, no pedalling are involved.

Yes because it's now moving and it is having no brakes and pedalling.

Yes because of the force of a slopy ground or bad road, wave length can move the bike.

Yes as one pedals, kinetic force is introduced.

Yes because the bike needs force to go.

Yes the boy is forcing it to move forward.
It helps the cycle to move.

Yes the boy is controlling the bike by his hands and the mass of the bike contribute some sort of force.

Yes there is a force on the bike because there is no pedalling, no brakes.

Yes perhaps it was running uphill.

Yes the pedalling is the force.

Yes there is no force, only when it is at total rest.

Yes one has to use force to drive the bike e.g. pedalling and this will make it move.

Yes because F = Ma thus the bike is decelerating and have mass.

Yes it requires a force to bring it from a state of motion to rest. Without force, it would continue to move at uniform speed.

---

Eighty-four (20.61 per cent) of the total respondents said "No" there is no force on the bike.

Ten respondents out of the eighty-four said "No" without any reasons. Seventy-four gave reasons which show some linguistic confusion or invalid use of the word "force". Some of these reasons are as follows:

No, force is work done on an object.

No because the bike is not living as such no force is acting on the bike.

No, it is slowing down.

No, there is movement.

No, no force on the bike because it cannot move.

No, he does not exert any energy on pedalling.

No, the bike is in a resting position.

No because force of friction act on the bike and the rider is not putting enough force to overcome the frictional force.
No, stable.

No because no friction.

No, no pedals so no movement, since force produces movement.

No because it is sloping down.

No since there is no force acting on it, force is constant - 0.

No, force here is zero.

No because the resistance is so low that it needs force. The friction does not work or exist any longer.

No because the brake is no more on the bike, therefore it is free to move.

**TABLE 4**
Summary of Responses in Question 2

<table>
<thead>
<tr>
<th>Category of Responses</th>
<th>% Sample in Each Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>290</td>
</tr>
<tr>
<td>No</td>
<td>84</td>
</tr>
<tr>
<td>No Response</td>
<td>14</td>
</tr>
</tbody>
</table>

**TABLE 5**
Summary of Responses Based on Qualifications

<table>
<thead>
<tr>
<th></th>
<th>aaa</th>
<th>aca</th>
<th>bca</th>
<th>bba</th>
<th>baa</th>
<th>aab</th>
<th>acb</th>
<th>aba</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT</td>
<td>4</td>
<td>4</td>
<td>50</td>
<td>9</td>
<td>21</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>NCG/BSC</td>
<td>1</td>
<td>-</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>NCE</td>
<td>7</td>
<td>1</td>
<td>69</td>
<td>17</td>
<td>14</td>
<td>3</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>BSC</td>
<td>7</td>
<td>7</td>
<td>42</td>
<td>4</td>
<td>7</td>
<td>1</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>PGDE</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 6
Summary of Responses in Question 2

<table>
<thead>
<tr>
<th>Qualification</th>
<th>Yes</th>
<th>No</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT</td>
<td>98</td>
<td>35</td>
<td>4</td>
</tr>
<tr>
<td>NCE</td>
<td>106</td>
<td>31</td>
<td>3</td>
</tr>
<tr>
<td>BSC</td>
<td>63</td>
<td>11</td>
<td>5</td>
</tr>
<tr>
<td>PGDE</td>
<td>12</td>
<td>3</td>
<td>-</td>
</tr>
<tr>
<td>NCE/BSC</td>
<td>11</td>
<td>4</td>
<td>2</td>
</tr>
</tbody>
</table>

Discussion

The findings have indicated vast misconceptions in force amongst the Science teachers in Nigeria. These misconceptions do not depend on the type of qualification of the teachers. Although these data were obtained from Science teachers, the results complement the report of Osborne (1982) with students. The same patterns of response as in Osborne's study have emerged with the teachers. This has pointed to a new awareness of teachers' concepts in Science.

What could be the possible cause(s) of these misconceptions? Gunstone (1981) found that students held to their naïve conceptions, even after instructions. Several others have reported that misconceptions are remarkably resistant to change, and that even after formal instruction, students may hold two sets of understandings - their own, and the traditional scientific teaching which has been rote-learned (Brumby, 1984).

It is also often found that these naïve concepts play a greater part in the students answering questions. Ameh (1986) reported some "common sense" answers to science questions by Science teachers. These "common sense" answers are quite often not scientific and not reflective of the teacher's teaching.

This has revealed that there is a serious area of concern for educational enquiry. Should subsequent curriculum development be shifted to teachers with emphasis on changing their concepts before that of students? What can be derived from this study from the perspectives of "Educology 86"? It is apparent that educators, especially Science educators, face a great challenge.

Conclusion

On the basis of this study, and the findings, it could be concluded that Science teachers have misconceptions in some scientific concepts. These misconceptions may not only be confined to Nigerian teachers (Ameh and Gunstone, 1986a). Curriculum planners should consider this awareness and take a new perspective of teacher curriculum and educology.
References


An Educological Analysis of The Differential Perceptions of School Staff in Relation to School Based Curriculum Development

Laurie Brady
Kuring-gai College of Advanced Education

Differences in staff perceptions of four areas related to school based curriculum development, viz (a) the organizational climate of the school, (b) the methods of curriculum decision making, (c) the curriculum models used for planning, and (d) the degree of curriculum satisfaction, are analyzed according to status, experience, department (primary or infants), age and sex.

The study was conducted in the early 1980's, and involved 277 primary and infants teachers in 20 systematically selected public schools in N.S.W.

The development of instruments for each of the three curriculum areas is reported, as is the development of the Australian O.C.D.Q. by Thomas and Slater which was used to measure the organizational climate of schools.

The results indicate that the predictor variable of status was significantly related to the three curriculum areas, and to organizational climate. So school staff have different perceptions according to the status they occupy. Experience and age were also significant predictors.

The findings are discussed, and a conclusion is reached.

Introduction

There has been a developing trend in Australia over the last 15 years toward the devolution of educational decision making from central authorities (the state departments of education) to the schools. Policy statements introducing school based curriculum development (sbcld) were made as early as 1968 in Tasmania and South Australia, and by 1978, all states had transferred responsibility for making curriculum decisions to the schools.

The change towards curriculum autonomy was endorsed at federal level. The Karmel Report. Interim Committee For The Australian Schools Commission (1973) used the phrase 'devolution of responsibility', and referred to a grass roots approach to the control of schools. The Curriculum Development Centre (CDC) was established by the Australian Government in 1975 to increase the effectiveness of curriculum development through cooperation and coordination.
Terms like 'decentralization', 'regionalization', 'devolution of authority', and 'school autonomy' are used to describe the concept of sbcd, and underline the variability of the concept. What the term sbcd does involve is teacher participation in relation to curriculum development and implementation, whether it be by creation (the design of new curricula), adaptation (the modification of existing curricula) or selection (the choice made from a range).

By the mid 1980's, the sbcd movement had affected a slight change in emphasis in most Australian states toward state departments of education developing more comprehensive statements of curriculum, and giving teachers fuller content guidelines than in the mid 1970's. Such a shift however, is not a negation of the practice of sbcd.

The purpose of the reported study was to conduct an educological analysis of the differences in the perception of staff to four areas related to sbcd, namely the curriculum models used for planning, the methods of curriculum decision making, the degree of curriculum satisfaction, and the organizational climate of the school.

The first three areas (models, methods and satisfaction) are directly related to sbcd. The latter area, organizational climate, is indirectly related, but is included in the analysis as it has been frequently cited as a factor that facilitates sbcd (Logan, 1974; Nebauer, 1975; Kemp, 1977; Brewer, 1978; Smith, 1978; Walton, 1978; Seddon, 1979).

The Variables

1. Curriculum Models. Although the term model is used generally as a synonym for theory, a curriculum model is one which shows the relationship between the curriculum elements or curriculum commonplaces, namely objectives, content, method and evaluation.

    The theoretical literature reports on a number of models which show the relationship between the curriculum elements in curriculum planning. These include the objectives model reported in Tyler (1949), the cyclic models displayed in Wheeler (1976) and Nicholls (1978), the interaction model displayed in Taba (1962) and Cohen (1974) and the process model of Hawes (1979).

    Given the great problems of developing an instrument, two models were selected in the belief that they subsume all the basic approaches to curriculum planning. They may not represent a complete dichotomy, but they do represent a useful contrast to curriculum planning.

    The objectives model of curriculum development involves the developer beginning with statements of objectives, selecting content to achieve those objectives, planning suitable teaching
learning activities, and planning for evaluation, in that order. This model is displayed in Figure 1.

```
Objectives
  ↓
Content
  ↓
Method
  ↓
Evaluation
```

**Figure 1. The Objectives Model**

The interaction model of curriculum development involves the developer beginning with any curriculum element, progressing in any sequence amongst the elements, and permitting the learning situation to determine that sequence. The curriculum elements are regarded as interactive and progressively modifiable.

This model is displayed in Figure 2

```
Objectives
  +---+
  |   |
  +---+

Content       Method

  +---+
  |   |
  +---+

Evaluation
```

**Figure 2. The Interaction Model**

No other research which attempts to examine how teachers use the curriculum elements within a model, is known to the author. Toomey (1977) and Zahorik (1975) have examined the importance given by teachers to particular curriculum elements. There is no reported study examining the elements as they are related conceptually in a model.

Table 1 displays the decision making methods used by the above authors. The categories have been related across authors to show the degree of decision making involvement from minimum to maximum involvement in descending order.

Table 1. Methods of Curriculum Decision Making

<table>
<thead>
<tr>
<th>Southworth</th>
<th>Maddocks</th>
<th>Knop &amp; O'Reilly</th>
<th>Seddon</th>
<th>Harrison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Egocentric</td>
<td>Principal Departmental Head Individual</td>
<td>Static Individual</td>
<td></td>
<td>Unilateral Direction/ Request</td>
</tr>
<tr>
<td>Democratic Centralist</td>
<td>Democratic Centralist Group Discussion</td>
<td>Co-ordinator Development Individual within Parameters</td>
<td></td>
<td>Handclasp/ Handshake Subgroup</td>
</tr>
<tr>
<td>Collegial Parliamen tarian</td>
<td>Group Decision Binding when Majority Agrees</td>
<td></td>
<td>In Consultation/ Acquiescence Voting with majority decision Silent, Assumed Consensus</td>
<td></td>
</tr>
<tr>
<td>Participant Determining</td>
<td>Group Makes Decision Consensus Required</td>
<td>Group Planning (Consensus)</td>
<td>Consensus Voting with Unanimous Decision Unknown</td>
<td></td>
</tr>
</tbody>
</table>

There are different degrees of generality and specificity in Table 1. For instance, the categories of Southworth (1975), and Maddocks (1973) are general and broad, whereas those of
Knoop and O'Reilly (1976), Harrison (1979) and Seddon (1979) are more comprehensive. Analysis of Table 1 indicated several common categories: staff involvement as a group, decision making by the teacher alone, and decision making for rather than by the teacher.

Five categories were selected for the study:

(a) Principal - the principal makes the decisions.

(b) Class teacher - the teacher makes the decisions.

(c) Small Group - a group of between two and six makes the decisions.

(d) Whole Staff or Almost All - the great majority of the staff make the decisions.

(e) Individual in Parameters - the individual teacher makes the decisions within constraints defined by the executive.

3. Curriculum Satisfaction. Curriculum satisfaction was determined by adding the scores for three factors:

(a) Happy - the degree of satisfaction staff expressed with various curriculum decisions.

(b) Enough Say - the degree of perceived involvement by staff in curriculum decision making.

(c) Better Way - the degree to which staff believed there was a better way for making curriculum decisions.

4. Organizational Climate. Organizational climate is a term used to define what is often regarded as the atmosphere or tone of a school or organization. Deer (1978, p.1) defines it as a "perceived environmental quality".

The most prolifically used instrument for measuring organizational climate is the Organizational Climate Description Questionnaire (O.C.D.Q.) (Halpin and Croft, 1963) which Halpin (1967, p.6) claims was used in over 1100 schools in the U.S.A., Canada, Australia, Korea and Pakistan in the four year period following its development. The O.C.D.Q. is based on the assumption that the way a person actually behaves is less important than how the group perceives that behaviour. So the O.C.D.Q. involves the perceptions of people in the organization.

Many studies have researched the organizational climate of schools using the O.C.D.Q., and have indicated the need for a school to have an 'open' climate. Numerous studies have shown a relationship between 'open' climates and educational innovation (Marcum, 1968; Johnson and Marcum, 1969; Reynoldson, 1969; Hilfiker, 1971).
Other studies have examined the subtests of the O.C.D.Q. and their respective relation to innovation in schools (Brunbaugh and Christ, 1972; Thomas, 1973). Thomas claimed that 'principal supportiveness' and 'teacher intimacy' were significantly higher in innovative schools in Australia. Kensell (1978) found that organizational climate was a significant predictor of change in the 'innovation proneness' of neophyte teachers, and that the most significant predictors were 'principal supportiveness' and 'principal operations emphasis'.

The research literature suggests a relationship between educational innovation and the organizational climate of schools, so if the assumption is plausible that sbod is an instance of educational innovation, then there should be a relationship between organizational climate and sbod.

There are several studies which have examined the effect of status on perception of organizational climate in schools (Marcum, 1968; Grassie and Carss, 1972; Finlayson, 1973; Ogilvie, 1975). In Australia, Grassie and Carss (1972) and Ogilvie (1975) studied status in relation to 'synergy' (working together harmoniously) and 'impedance' (staff hindering each other) in secondary schools.

The Instruments

1. Curriculum Models. The Curriculum Model Questionnaire (C.M.Q.) was developed to examine teacher use of the objectives and interaction models. Items were developed to correspond to the characteristics of the two models according to the theoretical literature. The construct validity of the items was confirmed by consultation with 14 curriculum experts from a university and C.A.E.

   Teachers responded by ticking one of five response options - always, often, sometimes, rarely and never. Table 2 displays sample items from the C.M.Q.

   A pilot study using factor analysis and reliability measures, was conducted to refine the instrument, and the construct validity of the C.M.Q. was further confirmed in the major study by:

   (a) Joreskog and Sorbom's (1978) E fap ll Exploratory Factor Analysis Program which enables the researcher to obtain a 'goodness of fit' measure, and thereby determine what factors can be defended as conceptually different, and;

   (b) Joreskog and Sorbom's (1978) Lisrel IV which enables the researcher to specify a model of a factor structure, and test the fit of data in that model.
Table 2. Sample Items From The C.M.Q.

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Often</th>
<th>Some-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>times</td>
<td></td>
<td>Rarely</td>
</tr>
</tbody>
</table>

Curriculum planning in our school:

- follows this order: objectives, content, method, evaluation
- starts with a different curriculum element at different times
- regards evaluation as the extent to which the initially stated objectives are achieved.
- considers that the order of curriculum elements to follow, varies

2. Curriculum Decision Making. The Curriculum Decision Making Questionnaire (C.D.M.Q.) was developed to examine decision making methods according to the five previously defined categories. Areas of content for curriculum decision making were selected from categories used in the Curriculum Action Project (Cohen and Harrison, 1978). Each item involved a nominated curriculum area, a listing of the five methods, and the response options always, often, rarely, or never. Curriculum areas included content, teaching methods, objectives, learning activities, content sequencing, grouping, classroom space, and curriculum evaluation. A sample item is displayed in Table 3.

Table 3. A Sample Item From the C.D.M.Q.

Decisions about what objectives are selected are made by:

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Often</th>
<th>Some-</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>times</td>
<td></td>
<td>Rarely</td>
</tr>
</tbody>
</table>

- the class teacher
- the principal
- a small group of staff
- the whole staff or almost all
- individual teachers working within limits defined by the executive staff
A pilot study was conducted to confirm the construct validity of the scales, and the X scale program (Bailey, 1976) measured both the reliability of each scale within the test, and the correlation of items with those scales. The reliability of the scales, as indicated by the alpha coefficients, ranged from 0.87 to 0.97.

One interesting result of the pilot study was the emergence of the two categories 'a small group of staff' and 'the whole staff or almost all' as one factor. These two categories were therefore combined for the major study, and called 'group'.

3. Curriculum Satisfaction. Curriculum satisfaction was measured by a section at the back of the C.D.M.Q. The same areas of content for curriculum decision making were used, so that each item involved a nominated factor, a listing of curriculum decision making areas, and the response options 'strongly agree', 'agree', 'disagree', and 'strongly disagree'. A sample item is displayed in Table 4.

Table 4. A Sample Item For Curriculum Satisfaction

<table>
<thead>
<tr>
<th>I have enough say about:</th>
<th>SA</th>
<th>A</th>
<th>D</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>what content a class is taught</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>what teaching methods are used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>what teaching activities are used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>how pupils work is assessed</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>what objectives are selected</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>what teaching materials are used</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>how the content is sequenced</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>how the curriculum is evaluated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>how pupils are grouped for learning</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>what use is made of classroom space</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4. Organizational Climate. An adaptation of the O.C.D.Q. for Australian primary schools, developed by Thomas and Slater (1972) was used. Thomas and Slater (1972) found a four factor solution in a sample of South Australian primary schools, in contrast to the eight factor solution of Halpin and Croft (1963). Thomas and Slater (1972, pp.203-4) define the four factors as follows:

Principal's behaviour
Supportiveness. This is a measure of the principal's leader behaviour. The supportive principal is concerned with his teachers' welfare - both personal and professional. He is visible, approachable and open in discussion. The supportive principal is involved in the operation of the school and sets an example by the degree of his own commitment. The principal's supportiveness is reflected in the extent of teacher involvement and satisfaction in the school.
Operations emphasis. This is a measure of the principal's leader behaviour. His involvement in the school is essentially egoistic. The principal's leadership style is authoritarian; he makes decisions affecting the school by himself. His concern with the operative aspects of the school and his close supervision are burdensome to teachers.

Teachers' behaviour
Disaffiliation. Disaffiliation is a measure of teacher interaction within the school. It reflects a lack of cohesive professional relationships which are displayed in the form of group discord, disunity and partition. Intimacy. Intimacy is a measure of social cohesiveness among teachers. Staff members enjoy friendly personal relationships with each other. In school these are displayed particularly in teacher co-operation to accomplish tasks. Beyond the school such relationships are extended into satisfying social activities.

In the reported study, the O.C.D.Q. was factor analyzed, and a four factor solution was found to be the most appropriate. A comparison with the Thomas and Slater (1972) factors revealed that not only were the factors the same, but that 70 percent of the items were identical. Given this marked agreement, and the problem of redefining the factors, it was decided to retain the four factors as defined (but with slight changes of items).

The Sample
The sample consisted of 277 primary and infants teachers in 20 N.S.W. public schools, selected from two of the five administrative regions for schooling in the Sydney metropolitan area. Sampling followed these steps:

(a) The selection of the two administrative regions for schooling (in the belief that they were representative of the total school population in Sydney).

(b) The determination of an even distribution of school types within each region. In N.S.W. primary schools are classified P1 to P4 depending on the size of pupil enrolment.

(c) The random selection of every seventh school from each type, and from each region directory of schools, until 20 schools accepted.

It was decided to focus on maths and social studies, in the belief that there may be differences between subjects. Maths and social studies were selected for two reasons:

(a) Maths is a sequential discipline with an inherent logical order whereas social studies does not have this logical structure.
(b) The maths curriculum in N.S.W. is highly detailed and sequenced in content prescription, whereas the social studies document is a more flexible guide with negligible content delineation.

The Results

Data were analyzed using the multivariate regression analysis of Finn (1978). This procedure enables the researcher to assess the strength of the relationship between the predictor variables (department, status, experience, age and sex) and the criterion variables (organizational climate, methods, models and curriculum satisfaction).

1. Curriculum Models

(a) The higher the respondent's status, the more likely she/he was to perceive an objectives model of curriculum planning (P<0.05).

Three explanations are given for this finding: First, staff with higher status may be those who have been most responsible in developing curricula, and who have consulted texts in curriculum development. The 'planning by objectives' movement (Logan; 1974; Nebauer, 1975; Sutton, 1978) was a strong force in N.S.W. primary schools prior to the study. and articles by the cited authors were published in The Leader, a journal which was distributed to all primary principals.

Second, the objectives model may be seen to be the quickest way to produce a curriculum. Its fixed sequence may eliminate some wastage of time which may result from the use of a more flexible model.

Third, there may be a general flexibility factor: the possibility that the nature of a higher status position, makes it incumbent less flexible in an area broader than just curriculum development.

2. Curriculum Decision Making

(a) The higher the respondent's status, the more likely s/he was to perceive group decision making operating (P<0.05).

(b) The greater the respondent's experience, the more likely s/he was to perceive group decision making operating (P<0.05).

(c) The younger the respondent, the more likely s/he was to perceive group decision making operating (P<0.05).

Findings (b) and (c) may appear to be contradictory. Analysis using the subprogram Crosstabs in SPSS (Nie et al., 1975) confirmed the belief that many women have returned to teaching after raising a family, and therefore have relatively low status for their age.
The fact that group decision making was more likely to be perceived by higher status staff, may possibly be explained by the fact that staff in positions of authority (higher status) have a more idealized picture of school practice because they take the lead in curriculum decision making. The same explanation may be given for the finding that group decision making was more likely to be perceived by staff with more teaching experience.

The finding that group decision making was more likely to be perceived by younger staff may possibly be explained by the fact that younger staff may use group decision making informally, whether or not a directive to do so has been given.

3. Curriculum Satisfaction

(a) The higher the respondent's status, the more likely s/he was to be satisfied with school curriculum development (N.B. $P < 0.1$).

(b) The more experienced the staff, the more likely they were to be satisfied with curriculum development in the school (N.B. $P < 0.1$).

(c) Women were more likely to be satisfied with curriculum development in the school (N.B. $P < 0.1$).

The greater satisfaction of higher status staff with school curriculum development, may be interpreted in the light of their probable role as leaders in curriculum development. A higher status staff member is more likely to have instigated curriculum development, and their curriculum satisfaction may largely be a reflection of their curriculum preferences. The same explanation applies for experienced staff.

No explanation is given of the findings that women were more likely to be satisfied with curriculum development.

4. Organisational Climate

(a) The higher the status of the respondent, the less likely s/he was to perceive operations emphasis ($P < 0.05$).

(b) The higher the status of the respondent, the less likely s/he was to perceive principal supportiveness ($P < 0.05$).

(c) The older the respondent, the more likely s/he was to perceive principal supportiveness ($P < 0.05$).

The explanation for the supposed contradiction of (b) and (c) has already been given.

Finding (a) may be explained by the fact that the higher status staff member may be more involved in the administration of the school, and may therefore be less likely to be affected by the principal's decisions. Higher status may also involve a deeper
understanding of the need to complete tasks which might be perceived by lower status staff as burdensome. The higher status staff member may also have greater freedom to complete tasks, and be less subject to the rigid requirements imposed on lower status staff.

Finding (b) may be explained in three ways:

First, the principal may concentrate professional (and personal) support on the younger (lower status) staff, assuming that higher status staff have the expertise to cope.

Second, higher status may involve a more idealized view of the supportiveness the principal should be providing, and therefore lead to more criticism of the principal’s perceived inadequacies.

Third, higher status may be associated with the likelihood of imminent promotion, and therefore a more critical view of the principal’s performance.

The only explanation given for finding (c) is that older staff are more likely to be the principal’s peers, and possibly enjoy a greater personal friendship with the principal.

Conclusion

A major finding of the study was the importance of the status of a staff member as a variable explaining differences in perception of organizational climate, methods of curriculum decision making, curriculum models and curriculum satisfaction.

It would appear that higher status staff (those in authority) have a more idealized view of curriculum development and decision making in the school. They were generally more satisfied with curriculum, and perceived more group decision making. Such an idealized view of school curriculum functioning held by those in authority could well be an impediment to curriculum change, especially if it is a view not held by the staff as a whole.

The organizational climate of the school has been frequently defined as a factor which either facilitates or hinders educational change. In this light, it is interesting to note that there were also differential perceptions of the organizational climate factors.

The findings emphasized the need for clear communication channels between those occupying various status positions in the school, and regular dialogue between staff, particularly in the staff forum context.
References


Commitment and competence are crucial aspects of a successful educator's sense of success and self-worth. From the study of personality and psychological development, we know that a person's commitment and sense of competence are intricately related to his self-perception. This relationship makes the study and use of self-perception (self-concept and self-esteem) enhancement theory and practice very important to the teacher educator, the prospective or inservice teacher, and, subsequently, the students these teachers teach. Although there has been a thread of research and study of the construct and concept of self-perception in psychology and in pedagogical inquiry for a number of years, it has been within the past few years that such research and implications have begun to be more widely discussed and considered in teacher education and in educational literature and programs. Along with the past history of research and inquiry into these areas and their relationship to teaching and learning, there has been a growing body of applications and techniques developed by applied researchers and practitioners (e.g., psychologists, counselors, teachers, and others) to assist those interested in enhancing, or at least clarifying, individuals' understandings of their own self-perceptions. These applications and techniques can be addressed according to five organizing strategies: (1) infusion in the formal curriculum, (2) integration in extracurricular engagements, (3) incorporation in verbal and nonverbal interactions, (4) inclusion in the basic organization of the school, and (5) self-improvement means by the professional/student.

Introduction

The traditional curriculum of school, even with individualized, or personalized, enhancements, tends to view the child as primarily a passive receiver, rather than an active expresser, of knowledge. The child's perception of what, how, and when learning should occur is largely ignored or, at best, seen only as a factor of maturity and development, something to be overcome with better sequencing or better reward structure. Yet research and theory development, under the general label of humanistic or "third force" psychology (Goble, 1970) has led us to seriously consider that a child's perception of his total life experience, and, in particular, his perception of himself, is at the core of how, what, and why he learns. Humanistic psychology would further challenge us to consider the child as a creator of meaning (Combs, 1982).

The 1984 National Commission on Excellence in Education suggested that we are a "Nation at Risk" because many of our children are not being challenged to their fullest potentials. Much of the solution suggested by the commission involves adding time and content to the curriculum. However, we must consider that the solution is equally
embedded in unlocking the diversity of human potential and creativity in children. Recent research and theory development in humanistic psychology has produced clear principles and numerous strategies for releasing human potential and creativity (Gregorc, 1984).

Among these principles, seven emerge as salient. All relate realization of human potential, that is, of human becoming, to total life perception and, particularly, to perception of self. However, before proceeding with discussion of how these principles can be implemented in the existing curriculum, the phrase "humanistic psychology" must be addressed. In truth, the phrase has many meanings. Essentially, humanistic psychology is viewed as that branch of psychology that challenges the behavioristic and even classical psychoanalytic viewpoint that man is only or primarily a reactor to life. Humanistic psychology is grounded in the past and present of human thought and posits that man is self-conscious, intentional, and responsible. Abraham Maslow stated it as follows:

"Life is a continual series of choices for the individual in which a main determinant of choice is the person he already is.... We can no longer think of the person as 'fully determined' only by forces external to the person.' The person, insofar as he is a real person, is his own main determinant. Every person is, in part, 'his own project' and makes himself." (Maslow, 1968, p. 193)

The study of humanistic psychology has grown from a challenge of traditional thought to a diverse branch of the psychology of human growth and development. Although the meaning might change slightly, some would refer to the whole branch as perceptual or phenomenological psychology. Other limbs or facets would include elements of brain development theory, imaging theory, cognitive-affective learning theory, moral development theory, transactional analysis, rational-emotive therapy, reality or control therapy, and the general areas of human relations and communications theory. Thus, reference to humanistic psychology includes a very diverse set of knowledge.

A restatement of the underlying premise of humanistic psychology is that most, if not all, of what one knows is rooted in what sense he has been able to make out of his world. In other words, the heart of learning is one's perception--of himself, of others, of holistic life experience. The specific construct of self-perception is a complex multidimensional aspect of the human phenomenon. Self-perception includes such dimensions as how one describes himself (self-concept), how one evaluates himself (self-esteem), and how assured one is in meeting life (self-confidence). Each of these constructs has further sub-dimensions (Beane, Lipka, 1984). Thus, all of what a child encounters in life is filtered through these and other aspects of his self-perception.

How to form, nurture, and enhance a child's self-perception, therefore, is the central focus and underlying premise of the principles and processes suggested in this paper. However, this brief theoretical "grounding" of these principles is more than justification or rationalization. To use the principles involves more than just knowing and doing them. It is essential to understand their intent and to believe that they can have an effect.
Implications from Research

The relationship among teaching, learning, and self-perception (self-concept and self-esteem) is gaining increasing attention in educational literature. Implications from research suggest that this relationship is a strong and mutually influential one. Studies show that the child who experiences success in academic, personal, social, and creative encounters is likely to perceive himself favorably. If he senses the respect, consideration, and appreciation of those "significant others" in his life, his perception of self is probably further enhanced (Silvernail, 1981). In addition, if he views his cultural and learning diversities as valuable to the unity of the teaching-learning group, he will, in all likelihood, image his persona or self as even more worthy and important. In turn, it is probable that his emerging self-image will lead to greater success and satisfaction (Beane, Lipka, 1984; Quandt, Selznick, 1984). The process is cyclical.

Research also demonstrates the critical role of the teacher in the enhancement of the child's self-perception. As one of the most "significant others" in the child's life, the teacher can influence either positively or negatively the child's description (self-concept) and evaluation (self-esteem) of his persona (Hamachek, 1971; Beane, Lipka, 1984). The direction of this influence is often dependent on the teacher's own self-perception (Crane, 1974; Quandt, Selznick, 1984). Studies suggest that the teacher with a strong self-image is better able to nurture the image of the child, and, to achieve satisfaction and success within her position (Purkey, Novak, 1984). Conclusions from research also reveal that the teacher attuned to her own teaching-learning style, and, to the child's learning modality/style, will create a more efficacious teaching-learning environment (Keefe, 1982; Guild, Garger, 1985). In such an environment, the child is likely to engage in successful experiences and to value his responsibility for those experiences. Again, the process is cyclical.

Other studies demonstrate the intricacy and complexity of human formation of self-perception (Bost, 1984; Hamachek, 1971): We know that the self-perception nurturing process can be tacit and subtle, or explicit and direct. In schools, the comprehensive self-perception nurturing process can be holistic, interwoven within all dimensions of the child's curricular and extracurricular life, a part of the total Gestalt which is the teacher's style (Beane, Lipka, 1984). Or, it can be designed as a special set of experiences added to the already established curriculum (Canfield, Wells, 1976). Research provides examples of both approaches, yet clearly points to the critical necessity of making self-perception enhancement an essential component of the curriculum (Quandt and Selznick, 1984). In either case, it is important that the teacher have internalized the principles of self-perception theory and be able to apply them in appropriate ways (Purkey, Novak, 1984; Keefe, 1982).

Principle One: The Child's Self-Perception is Enhanced through Teaching Him to Image Himself as Exemplary

Being able to image himself just as he desires to be is the very essence of healthy self-perception for the child. Thus, imaging self as exemplary is the most critical principle of nurturing description and esteem of self. Before there can be success or becoming in any
aspect of the child's life, he must be able to create the image or visualization of his success or becoming. Image theorists hold that both "imaging" and "image of" the self are learned and that, therefore, positive self-image can be learned—and taught (Parnes, 1981; Khatena, 1984).

The psychological pattern of imaging is a compelling one. The mental picture that the child visualizes of himself is as expansive or as sterile as the limitations which he imposes upon his image. However, his mental picture of himself is the image projected to others. This projected visualization then becomes the basis of evaluation and description of him by others, and is reflected in their attitudes and behaviors toward him (Parnes, 1981; Khatena, 1984). If the attitudes and behaviors then communicated to him are supportive and enhancing, the child's self-image is nurtured; if not, his self-image is deflated. Thus, it is particularly critical that the child learn to image himself just as he desires to be.

Teaching the child to image positively is a tripartite process. One thrust is designed to pique his imagination and sense of playfulness. These two right-brain characteristics are critical to imaging. As the child learns to imagine mental pictures and to visualize himself fully engaged in those pictures, he increases his powers to image his ideal self (Khatena, 1984). Experiences such as "The Beauty Meditation" or "The Light Meditation" lead the child to imagine natural scenes and feelings in which he plays a satisfying role (Hendricks, Roberts, 1977). In these meditative flights of imagination, the teacher leads the child to close his eyes and visualize himself, detail by detail, confidently bringing enhancing experiences into his life. Such imaginative meditations are excellent preliminaries to the child's attaining his desired image or ideal self (Castillo, 1978).

The second thrust is designed to enhance the child's essential sense of self-description and self-value. But before the child can describe and value himself according to his ideal self-perception, he must first be able to visualize, to image, his desired persona or self. Through every communication—verbal, written, kinesic, paralinguistic—between the child and the "significant others" in his life, his perception of self is either enhanced or debilitated. The teacher sensitive to this principle can, through her messages to and about him, teach him much about his fineness, that is, about the quality of his image. In turn, she can teach him to image that fineness, and, at the same time, to describe that fine visualization. One of the ways she can accomplish this is to ask him to close his eyes and to image that someone loves him (or, is describing some of the fine things about him). She asks him to focus on the ways this person communicates that love (or, fine description). Then, she asks him to open his eyes and write all those ways down. In turn, she asks him to image himself communicating love and/or fine description to the other person, and, as before, to record these. Research clearly indicates the importance of this latter step. Becoming of self and self-perception result not only from describing and evaluating the self positively, but of enhancing description and evaluation of others as well (Khatena, 1984).

The third thrust provides the child those successful accomplishments of creative, social, academic, physical, and personal encounters
imperative to the development of high self-perception. Until he has engaged in the sweet taste of success with the experiences he has imaged, all communications to him designed to enhance his self-perception are virtually meaningless. The heart of the third thrust is the process of "meditation-inspiration-creation." Within this process, all three thrusts come together and the imaging process is essentially internalized (Ehle, 1983). At the "meditation" level, the child, whether self-directed or directed by the teacher, assumes a quiet, contemplative state in which he images himself communicating, accomplishing, and creating according to his ideal self-perception. At the point of "inspiration," when his visualization of his desired self is complete (e.g., a golf swing, a speech, a short story, etc.), he expresses his imaged "creation." The image of success is realized. The child who images himself thus in preparation of a challenging experience will likely achieve his highest expectations. In turn, the child whose image of self focuses on fear of failure, probably will fail.

The teacher can guide the child through increasingly more effective imaging by asking him to close his eyes, assume a relaxed position, listen to fine music, and "meditate." Then, through her flow of comments, she can inspire and cajole him to visualize himself as a capable and esteemed creator and communicator of some specific message. As her commentary flows, the child might image himself, for example, successfully completing each of the components of a diamante poem. In response to her words, he visualizes himself feeling or experiencing the metaphors he will later record. At the point of enlightenment that "meditation" evokes "inspiration" to communicate his images, the child expresses his "creation," in this case, a diamante. Although his use of diamante form is guided by the teacher, his creative expression provides the child that sense of accomplishment which nurtures his self-worth and self-image. It also elicits commendation and approbation from others, which further enhances his self-perception.

Principle Two: The Child's Self-Perception is Enhanced through Literature which Acculturates Positive Attitudes, Beliefs, Values, and Behaviors

Books have been, throughout the ages, a two-edged sword, capable of perpetuating insidious stereotypes and injudicious impressions, but capable also of leading all individuals to full becoming. The teacher sensitive to the potential powers of literature can, through the process of "posacculturation" (positive acculturation), guide the child to intervene with the dehumanizing and debilitating effects of stereotypical literature. Instead, she can enhance the child's concept of self and others through that literature which acculturates positive attitudes, beliefs, values, and behaviors.

First, she must lead the child to critically analyze all writings, whether stereotypical and insidious, or enhancing and sensitive. To understand stereotypical and discriminatory writing is to help preserve the dignity of individual self-image. Thus, to analyze the sociological, historical, psychological, and economic bases for the relationship between the subservient "Jims" and domi-
nant "Tom Sawyers" of literature is to discourage demeaning and in-
humane messages from perpetuation (Dorfman, 1983). In turn, to ana-
lyze distinguished books which depict characters representative of all
peoples as capable and esteemed is to provide the child with positive
models for emulation and identification. Such books inspire accept-
ance of cultural diversities and physical unigenesses as well as vi-
carious pride in self (Schon, 1981).

Through critical analysis, then, the child learns to interpret,
on one hand, the patronizing sexism of The Great Brain (Fitzgerald,
1983), and, on the other, the heroic courage of the Japanese-American
family in Journey to Topaz (Uchida, 1971). Further, depictions of char-
acters in naturalistic struggle, even negatively, as well as books
which reveal diverse peoples as heroic, positively, can both evoke
readers' identification and compassion. Thus, readers can learn more
about the self and others through identification with both the Russian
streets-urchins, bezprizorni, The Wild Children (Holman, 1985), as well
as with the heroic Italian war orphans in The Little Fishes (Haugaard,
1967).

The critical analysis may be guided by traditional questions,
or by incomplete statements, continua, opinion polls, or interpreta-
tions of quotations, among others. What is important is that as ques-
tions are explored during literary analysis, new insights and values
are evolved; new associations, verbalized; the sense of isolation and
difference, diminished; esteem of self and others, elevated. The
child internalizes the books' contributions to humanity and is better
able to internalize these contributions within his persona/image
(Lewis, 1961).

Second, the teacher must confront a curriculum whose books re-
main, in spite of the protests of the seventies, dominantly stereotypi-
cal and insidious (Schon, 1981). She must assure that the curriculum
include books which depict all members of the vast continuum of di-
verse humanity with respect, truth, dignity, integrity, and compassion
for their human experience. Characters which portray the members of
unique cultures as strong, worthy, positive, even heroic, will evoke
in the child who senses a kinship with those characters the psycho-
logical processes of empathy, insight, and enhancement of self-per-
ception (Norton, 1983).

To illustrate, exploring the symbolism of the protagonist's
diminishing size and changing color in The Shrinking of Treehorn
(Heide, 1971) puzzles the child's awareness of the universality of
the need for appreciation and esteem. Analyzing Sorrow's Song
(Callen, 1979) inspires the child to identify with the theme of
evaluating people on the basis of their individual worth and abili-
ties, rather than on their physical appearances. Evaluating the
aesthetic tributes to ethnicity found in Pedro, the Little Angel of
Olvera Street (Politi, 1946) leads the child to new insights of peo-
bles different from his own and to himself as one of those peoples.

Third, creative expressions about characters and their interac-
tions are essential to development of those values, attitudes, be-
liefs, and behaviors which enhance the child's self-perception (Sinatra, 1983). For example, through creative drama, the child can live the positive image acculturated by the literary hero, or, an alternative image of a less-than-heroic character. Role Play can encourage change of attitude and visualization of self and others through understanding of character strengths and weaknesses (McCaslin, 1975). The spontaneous reactions springing from the dynamics of puppetry can creatively motivate the child to identify with characters similar to himself and thus gain greater insights and higher images of self (Valentinetti, 1975). Through creative writing the child can note relationships, make comparisons, and draw analogies which lead to ever higher levels of character empathy, insight, and personal change (Stewig, 1980). Finally, pantomime can lead the child to better recognize and empathize with the physical expressions of human emotions and to better understand the means of communicating those emotions.

Principle Three: The Child's Self-Perception is Enhanced through Written Expressions which Clarify His Worth, Value, and Integrity

Writing can significantly contribute to the child's development of self, just as its absence or its negative connotations can detract from self-image. Writing can enhance the total environment of living and learning. Writing journals, for example, and various forms of poetry and prose which reflect personal or imaged experiences, independently or under the tutelage of the teacher, can help clarify the child's worth, value, and integrity.

Actually writing "I Can..." and "I Am..." statements or receiving "You Can..." and "You Are..." statements from the "significant others" in his world enhances the child's self-perception. His belief in his "I-Can-ness" and "I-Am-ness" is the basis of the child's evaluation of himself as a worthy, successful, accomplished, esteemed being ("I am a poet; today I wrote a diamante poem."). However, positive self-perception results not only from the support and approbation received from others, but also from the caring extended to others. Thus, writing "You Can..." and "You Are..." statements about his peers can further enhance his image of self as positive.

Because such writings enhance the child's feelings of worth and evoke images of success, the teacher can consistently nurture the child's self-perception through frequent writing of brief supportive notes to him. Each note can commend some quality or accomplishment, recognize a helpful behavior, or encourage progress shown. For example, she might write, "I liked what you said about..." or, "You were a big help when..."

In a variation of this experience, the teacher can assign each child to observe a peer, then to complete a series of open-ended statements which positively describe that peer. Writing "I appreciate you because..." or, "You are special because..." statements can help affirm positive feelings and values in both sender and receiver. The great enhancing value of such writings is reflected in the sharing discussion which follows the writing. At this point closure is achieved and the communications cycle is complete.
For the young child, creating picture books about the self or others, and for the adolescent, writing autobiographies or biographies, all with a focus on positive description, can reveal important characteristics and values about self. With these writings, losses and disappointments, as well as successes and joys, might be shared. In this sense, the writings can be cathartic and unfold new insights. Such writings encourage the child to investigate his own self-description and to nurture his sense of self-esteem. They become excellent reflections of his evolving self-perception.

Another aspect of the writing experience is a class collaboration, The Best Thing Ever Book. Each student assumes the creative roles of writer and illustrator to design two contributions to the book: (a) "The Best Thing I Ever Did for Any Person," (b) "The Best Thing Any Person Ever Did for Me," and/or (c) "The Best Thing I Ever Did for Myself." For each contribution, the author describes the "Best Thing," explains why he or the other person did it, and reveals how it makes him feel.

Often, even with knowledge of the value to the self-perception of such writings, the selection of the proper phrasing constitutes a challenge. What better resource of information can there be for creating such writings than the proposed receiver of the message! Thus, asking the child to write the five (or ten...or twenty...) things which are most important to inspiring good feelings about himself can be an invaluable experience to both receiver and expressor of the communication. The potential sender of the communication now has inspiration for his writings, and the potential receiver has shared a critical part of his inner self. Studies reveal that some of the most frequently mentioned items are variations of "Tell me that you appreciate me....," "Recognize me in some way....," "Look at me, listen to me, when I speak....," "Shake my hand, and tell me that you missed me...." The list goes on in this fashion (Canfield, Wells, 1976).

**Principle Four: The Child's Self-Perception is Enhanced through Communications which Help Him to Reflect on His Own Words, Thoughts, and Actions**

The talk that goes on between teacher and student (and between student and student) is one of the most overlooked areas of self-perception development. This includes verbal and nonverbal (kinesthetic, proxemic, paralinguistic) talk. Kinesics refers to the body movements or positions; proxemics, to the symbolic distances; paralinguistics, to the tones and inflections of the voice; which humans use to add significant meaning to who they are and what they communicate. Being aware of the critical roles of kinesics, proxemics, and paralinguistics in the communication of ideas and feelings can enhance self-perception.

Research has shown that what may seem insignificant attentions have powerful impact on self-perception. The individual child whose eyes are never met, who is rarely greeted, whose opinion is considered of no consequence, who is most frequently shown turned heads and backs, and, shoulders slanted in the direction of others, soon begins to perceive himself as invisible, a non-person. Teacher and
child alike must experience the critical impact of the nod of recognition, the greeting of interest, those hand and body motions which connotate acceptance. It is important that both sender and receiver of communications learn to use, for example, the forward body slant of receptivity when communicating with the other, and the open palms of acceptance when gesturing during that communication (Castillo, 1978).

Just as imaging is a critical dimension of communication, so are kinesics, proxemics, and paralinguistics. The child who images himself exercising the gestures, facial expressions, and body motions of successful communication, will, following meditation and inspiration, be most likely to express his ideas and feelings at the level of his expectations. Both the sense of accomplishment which this lends him and the reactions of the receivers of his messages will be elevating to his perception of self (Hendricks, Roberts, 1977).

Another aspect of communication that has been shown to have a major effect on self-perception is the choice of words in expressing ideas and feelings. One approach encourages, the other discourages, humane interaction. For example, the use of "I versus You" messages can help both teacher and child more clearly communicate their feelings without conflict. This approach would suggest that it is wiser to make the statement, "I become very concerned when you don't finish your work," than "You are always neglecting your work." Similarly, it is more helpful for the child to respond, "It really upsets me when you criticize me in front of my friends," than, "You are always picking on me: I hate you" (Howe, Howe, 1975; Gordon, 1974; Ginott, 1972).

The language of encouragement, as opposed to that of praise, helps the receiver of a message to know exactly what he did well without burdening him with the anxiety of living up to ambiguous over-generalized expectations, that is, praise (Martin, 1980; Simon, Howe, Kirschenbaum, 1979). The teacher as "significant other" is much more encouraging to the child in saying "You did very well on this test," rather than "You are the best student I have ever had." Similarly, "It was very polite of you to help Jim pick up his books," is more encouraging than "You are always such a polite and thoughtful person."

Active listening, which concentrates on reflecting the speaker's messages, rather than interpreting or rejecting/avoiding them, is another technique that can immensely contribute to a climate of respectful and self-enhancing communication between teacher and child. When the child is visibly upset and says, "I think you are very unfair; I should have received a better grade," the teacher reflects active listening by responding, "You think I am unfair and you are upset with the grade I gave you," and then lets the child continue to talk about his feelings. Often the initial reactions of the child and teacher are not the real concerns. If the teacher engages the child in non-threatening reflections, she is more likely to reach the heart of the matter. Further, she is more likely to reach a conclusion which more humanely considers the concerns of both her and the child.

To enhance and humanize communication, extensive self-monitoring
of verbal and non-verbal messages is required. Further, new communication patterns in the face of established and habitual forms requires considerable practice. But the rewards of more effective communication and an increasingly positive and nurturing environment makes such striving for change worthwhile for both teacher and child.

Principle Five: The Child's Self-Perception is Enhanced through Problem Solution and Conflict Resolution Rather than through Power and Coercion

Solving problems, resolving conflicts, and diminishing the inevitable misunderstandings of expectations requires self-control and responsibility, not coercion and punishment. As William Glasser well stated, "to love and be loved and feel that we are worthwhile to ourselves and others" is the primary human need. Recognition and nurturing of this between teacher and child would greatly contribute to a self-enhancing environment (Glasser, 1965)

Glasser (1965) emphasizes an approach to personal and interpersonal problem-solving which assumes the integrity and power of the individual to control his own behavior and destiny. Applying this approach to a problem solution or conflict resolution, the teacher first asks the child to describe his behavior, to tell her what he is doing, but not why. Second, she asks him to make a value judgement about whether the behavior is or is not enhancing to himself and others. It is critical that the conclusion be his; otherwise, the following actions will likely have little or no effect.

If the child strongly believes, and the teacher cannot reason with him, that the behavior in question was not debilitating to perception of self or other, then the disagreement may become the problem. Once this point is resolved, the third step involves the teacher asking the child, with possible suggestions from her, to design a plan to terminate or change the behavior. Fourth, the child, verbally or in writing, agrees to implement the plan. Fifth, the teacher intermittently reviews with the child how well both believe he has followed the plan. If necessary, the entire process is started over.

The key to this and other more humanistic approaches to problems and conflicts is engagement of the child in logical, sensible dialogue and transactions which clarify the problem behavior and lead to a resolution.

Space does not permit a more thorough discussion of the ways in which other complementary and equally effective means also exemplify the advantages of humane dialogue and transactions over power and coercion. Rational emotive therapy (Ellis, 1971), logical consequences (Dreikurs, 1982), and transactional analysis (Harris, 1974) also enhance perceptions, interpersonal problem solving, and general human relations between child and teacher.

Principle Six: The Child's Self-Perception is Enhanced when His Uniqueness is Clarified, Affirmed, and Considered in the Teaching-Learning Process
Human uniqueness can be defined in many ways. The most relevant for the discussion of this principle are those of intelligence and learning styles. Research and theory development strongly suggest that humans have multiple intelligences (Gardner, 1983; Gregorc, 1984; Taylor, 1968). Traditionally, we have viewed intelligence as primarily logical (the ability to think clearly) or linguistic (the ability to use words effectively). Present research indicates that there are other equally interesting and important aspects of human ability for which the basic native talent or propensity to learn and do is more obvious in some individuals than in others. Gardner (1983) identifies three such intelligences other than logical or linguistic: (1) musical, (2) spatial, and, (3) body-kinesthetic. Taylor (1968) suggests four talents other than academic: (1) planning, (2) decision-making, (3) forecasting (e.g., the ability to see the consequence(s) of series of events or data), and (4) productive thinking (e.g., the ability to express consistently varied and creative responses in problem-solving situations). Bost (1984) identifies eight unique intelligences: (1) linguistic, (2) musical, (3) logical-mathematical, (4) spatial, (5) sensory-kinetic, (6) personal-internal, (7) personal-external, and (8) emotional-intuitive.

Each of us can easily name people who exemplify one or more of these intelligences or talents more prominently than the others. The implication of considering multiple intelligences for self-perception enhancement is powerful. The traditional curriculum and the process of schooling is designed primarily for the linguistically and logically talented. Providing equal opportunity for those with unique abilities other than (or in addition to) linguistic and logical to demonstrate and develop such talents with esteem and recognition could result in a tremendous expansion of human potential.

The research on learning styles also challenges us to consider that students do not learn equally well with particular methods. Learning styles have been differentiated in many ways. Two of these dominate current thinking and practice: (1) theory development concerning brain hemisphere dominance, and, (2) identification of reliance on the concrete or the abstract when learning. Although additional research to clarify the dimensions of learning styles is needed, research adequately evidences and confirms that humans differ in the way they best learn (Gregorc, 1982; Keefe, 1982). The implication is obvious. To be more human and humane, education must take into consideration the ways children best learn.

What-a tremendous enhancement to self-perception and self-esteem it would be for the child to realize and be valued for his ability to discriminate musical notes and play the piano by ear. Similarly, another child's self-perception would be significantly enhanced to know that his ability to plan and lead people to work together was valued as much as his peer's mathematical ability. The scenarios are endless.

Principle Seven: The Child's Self-Perception Is Enhanced when Realization of the Total Human Potential and Self-Actualization Are the Emphasis of the Curriculum Subject Matter
Self-actualization is the ultimate end of enhanced self-perception.

"The self-actualized person is one who utilizes his capabilities and potentials to the highest talent. Self-actualization may be considered the ultimate goal of education, toward which other goals, which may be termed mediate goals, contribute" (Patterson, 1973, pp. 28-29).

Combs suggests that the process of education is to "...produce some change in personal meaning..." (Combs, 1982, p. 48). Personal meaning would be considered a primary mediating goal of education.

As suggested in Principle Six, the child and the teacher each bring to the learning event their own uniquenesses—self-perceptions, abilities, potentialities, values, talents, and preferred learning styles—and, for teachers, teaching styles. The challenge of education is for teacher and student to spark their innate desires to learn more about what humans have thought, valued, done, and, further, may think, value, and do in the future. The purpose of this exploration is primarily student enhancement, but should prove enhancing to both student and teacher in their quests for becoming.

This dynamic milieu of human uniqueness and challenge to personally relate the subject matter of past and potential human experience provides the background for schooling from a more human(e) perspective. Within this context, traditional content becomes transformed to a means of maximizing each child's potential. Mathematics and science become man's ability to think logically and systematically, to describe the universal world, and to solve various problems. The language arts become clear and expressive communication of ideas and values through personal means, as well as reflections on the literary past and present. The personal arts, such as music, art, and physical education, become means of self-expression, of nurturing knowledge of human abilities and values, and of development of physical and aesthetic competencies. The social studies are seen as a means of understanding one's own values, cultural beliefs, and physical habitat through the study of people, events, and places—past and present. In these and numerous other ways the teacher helps the child, and herself, toward greater becoming, realization, and self-actualization by:

1. developing his human competencies.
2. clarifying his identity.
3. clarifying and establishing what he believes to be good, true, and beautiful.
4. helping him to value himself.
5. increasing his ability to make decisions in the light of personal goals.
6. helping him to more effectively relate to others.
7. increasing his spontaneity and creativity.

These characteristics are the essence of the self-actualized person, one with the ultimately enhanced self-perception (Patterson, 1973; Combs, 1949).
Summary

This paper was premised on the relationship between effective learning and positive self-perception. Because self-perception is critical to the child's holistic development, it must be attended to within the curriculum. Whether positively, or negatively, development of self-perception is pervasive in schooling. Thus, to provide an environment enhancing to self-perception, the teacher must implement multiple processes which nurture description and esteem of self throughout the teaching-learning experience.

Much work has been, and is being, done in research and practice to assist the teacher in her efforts to enhance the self-perception of the child. Certainly, more research is needed to help the teacher relate self-perception development to the curriculum. However, it remains that movement toward a more human and humane curriculum requires a major philosophical and psychological commitment from the teacher.
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Toward a Theory of Language for Educology and Education

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I

Stephen Toulmin says that if inquirers about human behavior decided that "human behavior in general... represents too broad a domain to be encompassed within a single body of theory--that could... be a sign of maturity..." He further says that "until this preliminary point has been clarified the deepest theoretical issues in the behavioural sciences may well remain on a purely analytical level, and appeals to experiment and observation may be premature."

Educology is a scientific, praxiological, and philosophical study about education. Both educology and education are human behavioral endeavors and both are conducted primarily through language.

The attempt in "Toward a Theory of Language for Educology and Education" is to focus on a particular aspect of general human behavior in educology and education--the particular aspect of language behavior. The hope is that the preliminary point, made above, can begin to be clarified so that educology can begin to mature.

II

Jerome Bruner has used three terms that are helpful when talking about human behavior in general. They are 'symbolic', 'iconic', and 'enactive'. These terms are helpful in that they provide a rough classification of human behavior. They will be used here to provide such a classification and also to specify the type of human behavior to be focused upon--human language behavior.

Symbolic behavior includes the behaviors of listening to, speaking, reading, and writing words and numbers. Iconic behavior includes the behaviors of drawing pictures, painting pictures, and making charts, graphs, and diagrams. Enactive behavior includes the behaviors of hammering nails, manipulating a bunsen burner, throwing a ball, and assembling a model airplane.

These exemplary definitions offer only vague concepts of the three kinds of human behavior, but they are sufficient to discern human language behavior from other kinds of human behavior. An observer of human behavior would not mistake someone speaking about a picture for someone drawing a picture, nor someone reading about how to use a bunsen burner for someone manipulating a bunsen burner, nor someone writing words and numbers for someone assembling a model airplane. Human language behavior is easily discernable from, and seen to be not identical with, iconic and enactive human behavior and it can be focused upon by observation.

So that the focusing becomes clearer, another classification will be used. It is that classification of human language behavior made by
the terms 'linguistic language' and 'body language'. Whereas lin-
guistic language is the language of words and numbers, body language
is the language of the face, arms, hands, and legs, for example. Body
language includes winking, blinking, nodding, pointing, and posturing.
Body language accompanies linguistic language, especially speaking,
and it can be observed to emphasize, clarify, dramatize, and contra-
dict linguistic language.

An observer of human behavior may often be confused by what is
said by someone's body language with what is said by someone's lin-
guistic language. What is said by the linguistic language, for ex-
ample, by speaking, may be "The car is in the garage." but what is
said by the accompanying body language, for example by winking, may
be "The car is not in the garage." By taking what was said by body
language and by going to the garage to see, the observer could dis-
cover that a mistake was made in that the car was in the garage. The
taking of what was said by body language was a mistake.

An observer may make this kind of mistake, mistaking what is
said, but not mistake the body language--the winking--for the lin-
guistic language--the speaking. The body language behavior of wink-
ing, nodding, pointing, and posturing, though accompanying the lin-
guistic language behavior of listening, speaking, reading, and writ-
ing, is not identical to it. Each is an unmistakably different and
particular kind of human language behavior and both can be focused
upon by observation.

III

Linguistic language behavior, the language of words and numbers,
and body language behavior, the language of face, arms, hands, and
legs, for examples, will be taken as two forms of symbolic human be-
havior. Body language behavior could be taken as a form of enactive
behavior, but this will not be done here. The reason for this can
be seen by considering an example.

Consider the example of someone assembling a model airplane.
While assembling, the person can be observed picking up a wing,
squeezing glue from a tube, applying glue to one end of the wing,
fitting the wing to the fuselage, and holding the wing and fuselage
intact while the glue dries. These assembling behaviors are classi-
ifiable as forms of enactive human behavior. While observing this en-
active behavior, the observer can also observe the person blinking
his eyes, nodding his head, and grimacing his face. The blinking,
nodding, and grimacing behavior accompanies the picking up, squee-
zing, applying, fitting, and holding behaviors, but they are not
identical to them. The blinking, nodding, and grimacing will be
taken as body language behavior and classifiable as one form of
symbolic human behavior.

If the person was observed to be reading or enunciating the
words in the instructions for assembling the airplane then the ob-
server would be observing another form of symbolic human behavior--
linguistic language behavior.
The essential difference between the enactive behavior of assembling—picking up, squeezing, applying, fitting, and holding—and the symbolic behavior of body language—blinking, nodding, and grimacing, is that a physical object, other than the person's body, is involved in enactive behavior, whereas, in the symbolic behavior of body language, only the person's body is involved. The physical objects, other than the person's body, that are involved in the enactive behavior of assembling a model airplane, are a wing, a tube of glue, and the fuselage. Physical parts of the person's body are involved in the symbolic behavior of body language—the eyes, face, and head—but these are physical parts of the person's body and not physical objects other than the person's body. An observer would not make the mistake of seeing a wing grimace and a face glued and fitted to the fuselage, except under very unusual or metaphorical circumstances.

To follow up with the example a little further, an observer might make the following mistake, however. Suppose the observer sees the person looking at a diagram of the model airplane. The part of the diagram the person is looking at is that part showing the wing being fitted to the fuselage. On the diagram there are pictures of one hand holding the wing and another hand holding the fuselage. The wing and the fuselage are pictured being held intact. Next to the picture are the words 'THE GLUE PROVIDED IS QUICK DRYING. HOLD INTACT FOR THIRTY SECONDS.'

While the person is looking at the diagram, an observer may say that the person is reading the diagram. Literally, this would be a mistake. Only metaphorically could the observer say that the person is reading the diagram. Literally, it would be correct to say that the person is reading the words on the diagram and looking at, studying, or concentrating on the pictures in the diagram. Strictly speaking, words are symbols and pictures are icons.

An icon is made up of lines that take on, to some degree, the shape of the object represented by it. The pictures in the diagram of hands holding the wing and fuselage are made up of lines that take on the shape of actual hands, a wing, and a fuselage. They are icons. The words 'THE GLUE PROVIDED IS QUICK DRYING. HOLD INTACT FOR THIRTY SECONDS,' are made up of lines, but the lines do not take on the shape of the actual glue nor the shape of glue drying quickly. The words are symbols.

IV

The terms 'enactive', 'iconic', and 'symbolic' have been used and defined to provide a general classification of human behavior. The terms 'body language' and 'linguistic language' have been used and defined so as to distinguish between two forms of symbolic behavior and to specify linguistic language behavior to focus on.

At this point quotes from John Dewey will be introduced and interpreted, using the concepts formed by these terms. The quotes come from Dewey's *Logic: The Theory of Inquiry*. The first quote is from the chapter on the needed reform of logic. He states that:
The authors of classic logic did not recognize that tools constitute a kind of language which is in more compelling connection with things of nature than are words, nor that the syntax of operations provides a model for a scheme of ordered knowledge more exacting than that of spoken and written language.

The term 'tools', as used in the first part of the quote, means the tools of enactive behavior. That is, tools like crucibles, balance beams, and test tubes—physical tools. What is not meant are the tools of linguistic language behavior. That is, tools like words and sentences—linguistic tools. It is the physical tools of enactive behavior that constitutes a kind of language that is in more compelling connection with things of nature, than are the linguistic tools of symbolic behavior, as a kind of language.

For the purpose of making a connection with things of nature, then, the quote means that enactive behavior is more compelling, that is better than, linguistic language behavior. Physical tools, as a kind of language, are better than linguistic tools, as a kind of language, for this purpose.

The phrase 'syntax of operations', used in the second part of the quote, means the arrangement of operations involving physical tools in enactive behavior. That is, the arrangement of operations involving such physical tools as crucibles, balance beams, and test tubes in the enactive behavior of inquiry about chemical substances as things of nature. Such an arrangement would be the crushing, weighing, and heating of chemical substances by the respective physical tools.

The phrase 'syntax of operations' does not mean the arrangement of operations involving linguistic tools in symbolic behavior. That is, it does not mean the arrangement of operations involving such linguistic tools as words and sentences in the linguistic behavior of talking and writing about the enactive behavior of crushing, weighing, and heating chemical substances. It does not mean the arrangement of the operations of describing, comparing, contrasting, explaining, and predicting in the linguistic behavior of talking and writing.

The phrase 'scheme of ordered knowledge', in the second part of the quote, means a systematic plan for organizing the operations in inquiry about things of nature. And, by the meaning of this part of the quote, the more exact plane, that is, the better plan, for organizing such operations is one of systematizing the operations involving the tools of enactive behavior in inquiry about things of nature, rather than systematizing the operations involving the tools of linguistic language behavior in inquiry about things of nature.

By interpretation, then, the quote valuatively means that the physical tools of enactive behavior are better than the linguistic tools of linguistic language behavior for making connection with things of nature, and that a system of enactive behavioral operations, involving physical tools, is better than a system of linguistic
language behavioral operations, involving linguistic tools, for ordering knowledge about things of nature. Enactive behavior is better than linguistic language behavior for making connection with things of nature because physical tools are more compellingly connected with them than are linguistic language tools. A system of linguistic language behavioral operations is better than a system of linguistic language behavioral operations for ordering knowledge about things of nature because it is more exact.

The model used by Dewey, when forming this valuative meaning, is apparent in the following quote from the chapter on the needed re-form in logic. He states that:

Genuine scientific knowledge revived when inquiry adopted as part of its own procedures and for its own purpose the previously disregarded instrumentalities and procedures of productive workers. This adoption is the radical characteristic of the experimental method of science. The great role of mathematics in the conduct of science shows that discourse still has a fundamental role. But as far as existential knowledge is concerned, that role is now subordinate and not supreme.4

The term 'productive workers', in the first sentence of this quote, means workers observed using physical tools. The authors of classic logic, Aristotle being prominent, observed such workers as house builders, shoe makers, and farmers. These workers manifested, for the most part, the enactive behavior of using physical tools--hammers, awls, plows--which, in the operations of hammering, punching, and plowing, put them in close and compelling connection with things of nature--woods, leather, and soil. They developed operations--procedures, instrumentalities--involving the physical tools of enactive behavior, which they systematically organized for themselves and others. But, their system for organizing such operations of enactive behavior did not take form in their linguistic language behavior as much as it did in their iconic behavior.

Productive workers, when systematizing their enactive behavioral operations, tend toward drawing pictures and diagrams and making charts and graphs. They use the tools of lines, circles, and planes--iconic tools--in their iconic behavioral operations of drawing, charting, and graphing more significantly than the tools of words and sentences--linguistic tools--for systematizing knowledge about things of nature. For productive workers, the most significant system of knowledge about things of nature would be a pictorial chronology of operations of enactive behavior involved in their productive work. The sequence of icons would be the focus of the system, with words and sentences in the periphery. Iconic behavior is more significant than linguistic language behavior, for productive workers, when systematizing knowledge about things of nature.

The phrase 'systematizing knowledge about things of nature', for productive workers, means the systematizing of enactive behavioral
operations involving physical tools that put them in compelling connection with things of nature. Knowledge about things of nature, for them, is most significantly found in the realized potential of performing operations with physical tools and next in the realized potential of performing operations with iconic tools. It is less significantly found in the realized potential of performing operations with linguistic tools. And, it is even less significantly found in the linguistic tools—words and sentences—involved in linguistic performances.

This is in contrast to the authors of classic logic. For them, knowledge about things of nature is most significantly found in the realized potential of performing operations with linguistic tools and in the linguistic tools—words and sentences—theirelves. For the authors of classic logic, it was this realized potential and tools of linguistic behavior that compellingly connected with the things of nature. However, it was not the things of nature themselves that were compellingly connected with by the realized potential and tools of linguistic behavior. It was the form of the thing. The essential difference, for them, between the forms of things and the things themselves, was that forms were unchanging and things were changing. The term 'knowledge' was reserved, by the authors of classic logic, to refer to the connection with the unchanging forms of things of nature.

For them, the things of nature were incidental, in their words 'accidental', to the forms of the things. They were incidental because they were changing, hence not perfect, whereas, the forms were not changing, hence perfect. Knowledge about things of nature was taken to be of the connection with the perfect forms of things not the imperfect things themselves.

These forms, for the authors of classic logic, were connected with by those who had the potential to do so and who asserted the connection in words and sentences. Those who had this potential for connecting with the forms of nature and who used the linguistic tools—words and sentences—to assert the connection, were not those who used physical tools to connect with the things of nature. Those who did this—productive workers—were taken as those who were only in incidental connection with the perfect form of the things of nature. The productive workers, with their physical tools, were in connection with the imperfect things of nature—the accidents—and not the perfect forms of things of nature. These were supposedly connected with by the authors of classic logic and their linguistic tools—words and sentences.

The model for Dewey when forming the valuative meaning that the physical tools of enactive behavior, and the operations with them, are better than the linguistic tools of symbolic behavior, and the operations with them, for connecting with things of nature, is the productive workers. The theory of perfect forms of things, supposedly connected with by the linguistic tools and the operations with them, by the authors of classic logic, is rejected. Genuine knowledge
about things of nature is the knowledge acquired as realized poten-
tial by enactive behavior in inquiry about things of nature. Dis-
course, that is, the operations and tools of linguistic lan-
guage in symbolic behavior, though playing a fundamental role, is
taken by Dewey to be subordinate to the role of the operations and
tools of enactive behavior, when inquiring about things of nature.

This model is appropriate for considering the behavior in in-
quiry about things of nature. Things of nature can be operated on
by physical tools. Chemical substances can be connected with by
the operations of crushing them in a crucible, weighing them on a
balance beam, and heating them in a test tube. Wood can be sawed,
planed, and hammered into a house by house builders; leather can
be cut, shaped, and stitched into a shoe by shoe makers; and soil
can be plowed, harrowed, and planted for crop production by farm-
ers.

The model of productive workers, when adopted, emphasizes and
gives direction for the enactive and iconic behavior involved in
inquiry about things of nature. It makes enactive behavior, and
then iconic behavior, the focus of such inquiry, leaving the lin-
guistic language of symbolic behavior in the periphery of focus.
With a high degree of significance, it locates knowledge about
things of nature in the realized potential of the enactive and
iconic behaviors involved in connecting with things of nature. But,
with a low degree of significance, it locates such knowledge in the
realized potential of the linguistic language tools and operations
of symbolic behavior.

The question is, is the model of the productive worker an appro-
priate one for educology and education? Does it provide the emphasis
and direction—the focus—appropriate for inquiry about education—
educology? Does it provide the appropriate focus on the object of
inquiry—education—and on the tools and their operations in the
inquiry itself? To answer this question, the object of inquiry—edu-
cation—and the inquiry itself—educology—will be considered.

To consider education as an object of inquiry, in this context,
is to ask is education a thing of nature? As used above, the phrase
'thing of nature' refers to physical things that can be connected with
by the operations of physical tools in enactive behavior. If educa-
tion was such a thing of nature then it would be the kind of object
that could be crushed, weighed, and heated or hammered, punched, and
plowed, that is, connected with by the operations of physical tools
in inquiry about it.

Of course education is not this kind of object of inquiry. Edu-
cation is the social process of someone teaching someone something
somewhere. This general definition asserts that education is an ob-
ject of social inquiry not of physical inquiry. Education involves
associated human behavior, that is, social behavior. It involves en-
active, iconic, and symbolic behavior of humans socially associated
for the purposes of teaching, studying, and learning something in a
setting.
In such a social association, and with such purposes, humans can be observed connecting with physical things like chemical substances, using crucibles, balance beams, and test tubes in a science classroom setting; with physical things like wood and leather, using hammers and saws in a shop classroom setting; and with soil, using plows in an agriculture classroom setting. In fact, enactive behavior can be observed in all classroom settings. Classroom settings are places where physical things like pencils, paper, books, overhead and movie projectors, desks, chairs, and tables are tools of enactive behavior. Also, they are places where physical things like balls, bats, vaulting poles, parallel bars, drills, wrenches, typewriters, computers, calculators, ranges, and sewing machines are tools of enactive behavior.

Classroom settings of schools are places where iconic behavior can be observed. The tools of lines, circles, and planes are used in such iconic behaviors as drawing and painting pictures and making graphs, charts, and diagrams. And, classroom settings are places where symbolic behavior can be observed. Body language behaviors of blinking, nodding, grimacing, pointing, and posturing are observable and linguistic language behaviors of listening to, and speaking, reading, and writing with the tools of words and sentences are observable.

General human behavior, classified by the terms 'enactive', 'iconic', and 'symbolic', associated for the purposes of teaching, studying, and learning something—the purposes of education—can be observed in school settings and other settings. Settings like churches, businesses, and homes are other places where it can be observed. Physical things are involved in enactive behavior in these settings, however they are not the focus of inquiry about education, or evaluatively speaking, they ought not be the focus of inquiry about education.

Why this evaluative claim is being made can be understood when considering the following quote in Dewey's chapter on the cultural matrix of inquiry. When explaining how he uses the term 'language' he states that:

...language is taken in its widest sense, a sense wider than oral and written speech. It includes also not only gestures, but rites, ceremonies, monuments and the products of industrial and fine arts. A tool or machine, for example, is not simply a simple or complex physical object having its own physical properties and effects, but is also a mode of language. For it says something, to those who understand it, about operations of use and their consequences. To the members of a primitive community a loom operated by steam or electricity says nothing. It is composed in a foreign language, and so with most of the mechanical devices of modern civilization. In the present cultural setting, these objects are so intimately bound up with interests, occupations and purposes that they have an eloquent voice.
The way Dewey uses the term 'language' is so broad that it refers to human behavior in general--enactive, iconic, and symbolic--and all the operations, tools, and products involved in general human behavior. It includes gestures--body language of symbolic behavior; rites and ceremonies--enactive, iconic, and symbolic behavior; monuments--the produce of enactive behavior; products of industrial arts--products of enactive behaviors; products of fine arts--products of body language behavior (acting) and enactive behavior (piano playing); physical tools--tools of operations in enactive behavior; machines--products of operations in enactive behavior; and it includes oral and written speech--tools and operations of linguistic language in symbolic behavior.

Using the term 'language' as Dewey uses it and following the suggestion of the phrase 'they have an eloquent voice', meaning by 'they' the physical objects so intimately bound up with interests, occupations, and purposes of modern civilization, inquiry about education tends to focus on physical things and enactive operations with them in education. Physical things, and their accompanying tools and operations in enactive behavior, by speaking so eloquently, tend to attract the attention of inquiry about education and becomes the focus, leaving linguistic tools--words and sentences--and their accompanying operations in linguistic language behavior very much in the periphery of focus.

The reasons for the evaluative claim that inquiry about education ought not focus on physical things and their accompanying enactive behavior; as modeled by that of the productive worker, as left ambiguous by Dewey's broad use of the term 'language', and as suggested by the eloquent voice of physical things, is because inquiry about education--educology--is not physics, chemistry, or biology. It is not the kind of inquiry in which the connection with its object of study--education--is performed by tools and operations of enactive behavior. The object of educological inquiry--behavior in education--is observable, as are the objects of inquiry in physics, chemistry, and biology, but, the point is that it is not connected with by physical tools and their operations, as are the objects of inquiry in physics, chemistry, and biology. This point is made unclear by the model, the ambiguity, and the suggestion used by Dewey.

VI

What will now be focused upon is the importance of linguistic language behavior in relation to meaning. The question is what is meaning and how is it connected with by linguistic language behavior? To begin an answer to this question, the technique of definition by synonymy will be used, but it will be used by quoting Dewey from his chapter on the cultural matrix of inquiry. In the quote it will be noticed that what is here called 'definition of synonymy', Dewey calls 'signification by a synonym'. He says that:
I shall now introduce the word 'symbol' giving it its signification as a synonym for a word as a word, that is, as a meaning carried by language in a system, whether the system be of the loose or the intellectually rigorous kind. The especial point in the introduction of the word 'symbol' is to institute the means by which the discrimination between what is designated by it and what is now often designated by sign may be instituted. What I have called symbols are often called 'artificial signs' in distinction from what are called natural signs.6

After defining by synonymy the word 'symbol' by the word 'word', Dewey then defines by classification and characterization the word 'word'. The classification and characterization definition is that a word is a meaning carried by language in a system. The word 'meaning' does the classification and the phrase 'carried by language in a system' does the characterization. He then gives a purposive explanation for introducing the definition of the word 'symbol'. It is that the word 'symbol' will be used to contrast with the word 'sign' for making a distinction between artificial and natural signs.

Earlier, it was pointed out that Dewey used the term 'language' very broadly, but in the quote above he can be taken to use it in the narrower way, that is, to refer to written and oral speech only. The division of a system of language into a loose kind and an intellectually rigorous kind indicates the narrower use.

To make the distinction between artificial and natural signs clear and to further explain the purpose of defining and instituting, for common agreement, the word 'symbol' as 'word' and 'word' as meaning carried by language in a system, Dewey states that:

It is by agreement in conjoint action...that the word 'smoke' stands for the English language for an object of certain qualities. In some other language the same vocable and mark may stand for something different, and an entirely different sound stand for 'smoke'. To such cases of representation the word 'artificial signs' applies. When it is said that smoke as an actual existence points to, is evidence of, an existential fire, smoke is said to be a natural sign of fire. Similarly, heavy clouds of given qualities are a natural sign of probable rain, and so on. The representative capacity in question is attributed to things in their connection with one another, not to marks whose meaning depends upon agreement in social use. There is no doubt of the existence and the importance of the distinction designated by the words 'natural' and 'artificial' signs. But the fundamentally important difference is not brought out by these words. I prefer to mark the difference by confining the application of sign to so-called 'natural signs'—employing symbol to designate 'artificial signs'.7
In this quote, the difference between things of nature and their connection with one another and words about these connected things is made clear. For the former the word 'sign' is reserved and for the latter the word 'symbol' is reserved. Things of nature are signs of other things of nature, and symbols—words and sentences—are used, through conjoint agreement, to designate these things. Dewey goes on to indicate the actuality of the difference between signs and symbols, the importance of the intellectual property of symbols, and the liberating effect of symbols. He states that:

The difference just stated is actual. But it fails to note the distinctive intellectual property of what I call symbols. It is, so to speak, an incidental and external fact, logically speaking, that certain things are given representative function by social agreement. The fact becomes logically relevant only because of the possibility of free and independent development of meanings in discourse which arise once symbols are instituted. A 'natural sign', by description is something that exists in an actual spatial-temporal context. Smoke, as a thing having certain observed qualities, is a sign of fire only when the thing exists and is observed. Its representative capacity, taken by itself, is highly restricted for it exists only under limited conditions. The situation is very different when the meaning 'smoke' is embodied in an existence, like a sound or a mark on paper. The actual quality found in existence is then subordinate to a representative office. Not only can the sound be produced practically at will, so that we do not have to wait for the occurrence of the object; but, what is more important, the meaning when embodied in an indifferent or neutral existence is liberated with respect to its representative function. It is no longer tied down. It can be related to other meanings in the language-system; not only to that of fire but to such apparently unrelated meanings as friction, changes of temperature, oxygen, molecular constitution, and, by intervening meaning—symbols, to the laws of thermodynamics.  

Dewey is pointing out that when meaning is embodied in sounds and marks on paper, it becomes symbolized—in a somewhat intellectualized in words and sentences—and it becomes liberated from, that is not tied down to sign—things in nature. A sign's representative capacity—significance—is highly restricted—tied down—because it exists within a very limiting physical situation. A symbol's representative capacity—meaning—is highly unrestricted—not tied down—because it exists within a very much less limiting linguistic language situation.

Because of the importance of clear word meaning for the purposes of designation, Dewey states that:
I shall... connect sign and significance, symbol and meaning, respectively, with each other, to have terms to designate two different kinds of representative capacity. Although signs and significance have a common verbal root... this consideration is of no importance... compared with the necessity of having some words by which to designate the two kinds of representative functions... The important consideration is that existent things, as signs, are evidence of the existence of something else, this something being at the time inferred rather than observed.9

The significance of signs, then, is that they, as observed, are evidence for inference to unobserved signs. It is this significance of signs that provides for symbols to have meaning. Though observed signs provide evidence for the existence of unobserved, but observable signs, words provide no evidence for the existence of observed or observable signs. Dewey states that:

... words, or symbols, provide no evidence of any existence. Yet what they lack in this capacity they make up for in creation of another dimension. They make possible ordered discourse of reasoning. For this may be carried on without any of the existences to which symbols apply being actually present; without, indeed, assurance that objects to which they apply anywhere actually exist and, as in the case of mathematical discourse, without direct reference to existence at all.10

The point is that things of nature, as observed and observable signs of nature, exist and that words and sentences, as agreed upon symbols of society, exist. But, the existence of agreed upon symbols of society does not provide evidence for the existence of signs of nature. Existence of things of nature is not contingent upon the existence of agreed upon symbols of society. However, the existence of ideas, that is hypotheses, is a kind of existence that is contingent upon symbols of society—words and sentences. Dewey states that:

Ideas as ideas, hypotheses as hypotheses, would not exist were it not for symbols and meanings as distinct from signs and significance. The greater capacity of symbols for manipulation is of practical importance. But it pales in comparison with the fact that symbols introduce into inquiry a dimension different from existence. Clouds of certain shape, size and color may signify to us the probability of rain; they portend rain. But the word cloud when it is brought into connection with other words of a symbol-constellation enable us to relate the meaning of being a cloud with such different matters as difference of temperature and pressure, the rotation of the earth, the laws of motion, and so on.11
It is at this point, in the discussion of meaning, that it should be called to attention that underlying the quotes from Dewey is a theory of existence. This theory of existence obviously includes physical existence. Things of nature are physical existences that function as signs. It also includes the existence of meaning that functions as symbols. This kind of existence is logical existence that makes reasoning possible. These two kinds of existences—physical and logical—are not clearly distinguished in such a statement as "symbols introduce into inquiry a dimension from that of existence," as asserted in the quote above. This statement applies the word 'existence' with the meaning of only physical existence.

However, in the quote above, the statement "ideas as ideas, hypotheses as hypotheses, would not exist were it not for symbols and meaning as distinct from signs and significance," ascribes existence to ideas—hypotheses. For Dewey, ideas are hypotheses and hypotheses are logical existences that function as meaning in reasoning—ordered linguistic language. An idea—hypotheses—is not a mental existence, though mental existence is included in his theory of existence. Though not denying mental existence, Dewey does deny its function in inquiry. To make the point that ideas—hypotheses—are logical existences and not mental existences, he places both kinds of existence in the context of the pattern of inquiry. After discussing the antecedent conditions of inquiry and the institution of a problem in inquiry, he discusses the determination of a solution to a problem. He states that:

The possible solution presents itself... as an idea... Ideas are anticipated consequences (forecasts) of what will happen when certain operations are executed under and with respect to observed conditions...

An idea is first of all an anticipation of something that may happen; it marks a possibility... Because inquiry is a progressive determination of a problem and its possible solutions, ideas differ in grade according to the state of inquiry reached. At first, save in highly familiar matters, they are vague. They occur at first simply as suggestions; suggestions just spring up, flash upon us, occur to us. They may then become stimuli to direct an overt activity but they have as yet no logical status. Every idea originates as a suggestion, but not every suggestion is an idea. The suggestion becomes an idea when it is examined with reference to its functional fitness; its capacity as a means of resolving the given situation.12

This quote points at mental existence by means of the word 'suggestion'. But, as is stated, there is a difference between a suggestion and an idea. A suggestion is a kind of mental existence that functions as a stimulus to direct overt—enactive, iconic, symbolic—activity. But, as mental existence it has no logical status—logical existence. For a suggestion—mental existence to become an idea—logical existence—it must be examined as to its functional fitness in resolving the given problematic situation. About the
examination of suggestions, Dewey says that:

This examination takes the form of reasoning, as a result of which we are able to appraise better than we were at the outset, the pertinency and weight of the meaning now entertained with respect to its functional capacity. . .

Because suggestions and ideas are of that which is not present in given existence, the meanings which they involve must be embodied in some symbol. Without some kind of symbol no idea; a meaning that is completely disembodied cannot be entertained or used.13

In this quote the statement "suggestions and ideas are of that which is not present in given existence," means that suggestions and ideas arise out of a given problematic situation. They come into existence—mental existence—for suggestions and logical existence for ideas—out of a presently given problematic situation. If this were not the case new suggestions and ideas could not arise. Because suggestions—mental existence—can arise and be examined by reasoning, that is by ordered linguistic language—ordered discourse—they can be entertained as to their function as an idea. In inquiry, where suggestions—mental existence—becomes embodied in symbols, they become ideas—logical existence—and can then meaningfully function as possible solutions to a problem. A suggestion—mental existence—would be meaningless to inquiry, even though it might stimulate enactive, iconic, or symbolic activity. It would be meaningless to inquiry because it would not be useful to reasoning in inquiry.

Dewey's theory of existence, then, includes physical, logical, and mental existence. Physical and logical existences have explicit functional value in inquiry. However, mental existence has no such explicit functional value to inquiry. Dewey refers to mental existence as "merely mental." What follows are two quotes, both of which are from footnotes. The first is from the chapter where he discusses the cultural matrix of inquiry and the second is from the chapter where he discusses the pattern of inquiry. He says that:

I would say that I am not aware of any so-called merely 'mental' activity as a result that cannot be described in the objective terms of an organic activity modified and directed by symbols-meaning, or language, in its broad sense.14

In this quote Dewey is using the term 'language' again to include enactive, iconic, and symbolic behavior, where symbolic behavior includes linguistic and body language behavior. It is not clear how the term 'symbols-meaning' is being used, however, in previous discussions it was limited to word and sentence meaning. He does
use the term 'merely mental', not in denial of mental existence, but as an indication that mental existence, as mental existence, does not play a major functional role in inquiry. Whatever minor role it plays can be described in terms of 'organic activity,' which would be observable behavior in enactive, iconic, and symbolic activity.

Suggestion--mental existence--is the source of ideas--logical existence--which do play a major functional role in inquiry. Dewey uses the term 'idea' differently than had been used in psychological and epistemological studies previous to his study of the logic of inquiry. He says that:

The theory of ideas that has been held in psychology and epistemology since the time of Locke's successors is completely irrelevant and obstructive in logical theory. For in treating them as copies of perceptions or 'impressions', it ignores the prospective and anticipatory character that defines being an idea. Failure to define ideas functionally, in the reference they have to a solution of a problem, is one reason they have been treated as merely 'mental'.

The position that ideas are impressions--mental pictures--is rejected by Dewey in that it does not identify an ideas's prospective and anticipatory function in inquiry. This is what makes an idea an idea. An idea, in the previous position, is a mental existence, that is, a mental copy or replica of a physical existence. An idea, in Dewey's position, is a logical existence and is not a replication of physical existence, but it is an implication as logical existence.

For Dewey, an idea--logical existence--is reasoned out of a suggestion--mental existence--by becoming symbolized in words and sentences. These linguistic language tools make an idea meaningful in inquiry. It--the symbolized suggestion--is meaningful, or has meaning, to the degree it functions well in solving the problem under inquiry. The function of an idea is a function of the logical existence of meaning as embodied in symbols--words and sentences--being related to each other by implication. About implication, Dewey state that:

Just as the sign-significance relation defines inference, so the relation of meanings that constitute propositions defines implication in discourse, if it satisfies the intellectual conditions for which it is instituted.

This quote means that significance is inferred from signs in nature and that meaning is implied by symbols of linguistic language. Signs are things of nature and they function significantly
in inquiry by being the kind of existence--physical existence--by which inference is made possible. Symbols are words and sentences instituted by society and they function meaningfully in inquiry by being the kind of existence--logical existence--by which implication is made possible.

Mental existence as suggestions, impression, or mental pictures, is not logical nor physical existence and does not function meaningfully or significantly in inquiry, though it does function as a stimulus to action--enactive, iconic, symbolic--in inquiry.

About the connection between mental existence--suggestion--and logical existence--implication, meaning, ideas--as they function in inquiry, Dewey says that:

> When suggested meaning is immediately accepted, inquiry is cut short. Hence the conclusion reached is not grounded, even if it happens to be correct. The check upon immediate acceptance is the examination of the meaning as a meaning. The examination consists of noting what the meaning in question implies in relation to other meanings in the system of which it is a member, the formulated relation constituting a proposition.17

Meaning that is still in suggestion is mental existence but when it is put into words and sentences it is changed into logical existence. It can then be examined for implication, or, that is, examined for meanings implied by it as meaning constituted, embodied, instituted in propositions. Propositions relate meanings that are implied by other meanings. They are logical existences not mental existences. Propositions are not mental images, suggestions, or impressions. They are the logical effects of these mental existences as the outcome of symbolization in words and sentences. They function logically to relate meaning in the enactive, iconic, and symbolic--linguistic and body language--activity of inquiry.

Dewey discusses the relation between propositions, as the embodiment of meaning, and language, as words and sentences, by comparing his position with another. One position is that of logical positivism. About this position he states that:

> . . . logical positivism eschews the use of 'proposition' and 'terms', substituting 'sentence' and 'words'. The change is welcome in as far as it fixes attention upon the symbolic structure and content of propositions. For such recognition emancipates logical theory from bondage to pre-conceived ontological and metaphysical beliefs, permitting the theory to proceed autonomously in terms of the contents and functions of propositions as they actually present themselves to analysis. In emphasizing the symbolic element, it brings
propositions into connection with language generically; and language, while about things directly or indirectly, is acknowledged to be of another dimension than that which it is about. Moreover, formulation of logical subject-matter in terms of symbols tend to free theory from dependence upon an alleged subjective realm of 'sensations' and 'ideas' set over against a realm of objects. For symbols and language are objective events in human experience.18

In this quote Dewey uses the terms 'ontological' and 'metaphysical'. These terms are used to designate existences not included in Dewey's theory of existence. 'Ontological' means the kind of existence which the authors of classic logic called 'forms of things of nature'. It is the assumed existence of forms in nature as the perfect existence toward which the imperfect things of nature move. 'Metaphysical' means the kind of existence which is commonly called 'spiritual existence'. It is the existence of a being that has supernatural existence and power. Dewey does not include the existence of perfect forms nor supernatural spirits in his theory of existence. The terms 'sensations' and 'ideas', as applied to a subjective realm, are terms referring to a realm of mental existence set over against a realm of physical existence.

Ontological, metaphysical, and mental existences are not objective existences in human experience. That is, they are not observable existences nor can they be connected with by enactive behavior. The authors of classic logic believed in ontological existence and they believed that it could be connected with by linguistic language behavior. They denied metaphysical existence but affirmed mental existence as intuition or immediate apprehension of ontological existence assertable in linguistic language operations and tools.

Symbols and language are objective events in human experience in that words and sentences, and their linguistic operations of defining, describing, comparing and contrasting, explaining, and evaluating, for examples, have an enactive behavioral aspect to them. Physical tools are involved such as pencils, pens, paper, typewriters and computers. Also involved are enactive operations such as grasping pencils and pens with hands, making physical marks on paper, and touching and pushing keys on typewriters and computers, making physical marks on paper or on a screen. This is the enactive behavioral aspect of writing. The enactive behavioral aspect of speaking is the use of lungs, vocal chords, tongue, and mouth and the movement of air molecules to cause physical sound waves.

The physical marks and sounds, as marks and sounds, though having significance, do not have meaning. Meaning is a function of logical existence which is what words and sentences, as words and sentences, have. More specifically words and sentences, as words and sentences, are logical existences connected with, but not by enactive behavioral operations. Meaning, in contrast to things of
nature, can not be crushed in a crucible, weighed on a balance beam, heated in a test tube, sawed with a saw, punched holes in with an awl, or plowed with a plow.

Meaning is connected with by the linguistic tools of words and sentences in the linguistic operations of symbolic behavior. Meaning is connected with by the symbolic behavior of listening for and to, speaking, reading, and writing it. Signs, as things of nature, are connected with by physical tools in enactive behavior and their significance is determined by the enactive operations performed on them. Symbols, as words and sentences of society, are used as language tools in linguistic behavior and their meaning is determined by the linguistic operations performed with them. Things--signs--of nature are enactively operated on to determine their significance, and words and sentences--symbols--of society are linguistically operated with to determine meaning.

It has been pointed out that physical tools come into compelling connection with things of nature by enactive operations on them. In this way the significance of the thing can be determined. A chemical can be crushed in a crucible, weighed on a balance beam, and heated in a test tube to determine it significance. Salt has thusly been operated on to determine that it signifies sodium and chlorine. This connection between physical tools and things of nature is compelling. But, it is not as compelling as the connection between linguistic language tools--words and sentences--and meaning.

The question of what is meaning and how is it connected with was asked earlier. It can now be answered as that which originates out of suggestions and becomes what it is--meaning--by being embodied in words and sentences. Meaning is not inducted nor deduct- ed out of suggestions by the linguistic language tools of words and sentences. It is abducted out of suggestions by these tools and their operations. Meaning is abducted out of suggestions, impressions, mental pictures--mental existence--and embodied, instituted, constituted by and in linguistic language behavior which brings it into existence--logical existence. Meaning and linguistic language behavior are so compellingly connected that they can be said to be one.

VIII

General human behavior is involved in education. In education, enactive, iconic, and symbolic--linguistic and body language--behaviors are observed to be associated for the purposes of teaching, studying, and learning something in a setting. Of this general behavior, it is linguistic language behavior that permeates and directs other behavior with meaning in education. This fact about human behavior ought to be carried into the inquiry about education--educology--and focused upon. Educological inquiry is itself one in which its object--education--is connected with by linguistic language tools and their operations, not by enactive tools and their operations.
The terms 'enactive', 'iconic', and 'symbolic' have been used to classify human behavior in general. Symbolic behavior has been divided into linguistic and body language behavior so as to focus on the former. These terms were then used to interpret quotes from Dewey's Logic: The Theory of Inquiry. Quotes from Dewey were selected because of his influence on education and its inquiry. A criticism of Dewey is that he focused on enactive tools and their operations more than on linguistic tools and their operations. This was pointed out in the interpretation of his quotes, especially his ambiguous use of the term 'language', his model of the productive worker, and his suggestion of the eloquence of the language of physical tools in their enactive operations.

A quote from Dewey's Human Nature and Conduct, in the chapter on customs and morality, will now be interpreted. It indicates that linguistic language behavior should be focused on in education and its inquiry—educology—as an end. He says that:

Language grew out of unintelligent babbling, instinctive motions called gestures, and the pressure of circumstances. But nevertheless language once called into existence is language and operates as language. It operates not to perpetuate the forces which produced it but to modify and redirect them. It has such transcendent importance that pains are taken with its use. Literatures are produced, rhetoric, dictionaries, literary criticism, reviews, essays, a derived literature ad lib. Education, schooling, becomes a necessity, literacy an end. In short language when it is produced meets old needs and opens new possibilities. 19

In this quote Dewey give a behavioral sequential explanation for language behavior coming into existence and then evaluates the importance of language behavior in that it modifies and redirects behavior in general. Because of its importance, literacy is an end of education. The quote clearly makes the point that linguistic language behavior should be focused on in education and in inquiry about education.

General human behavior in education represents too broad a domain to be encompassed within the body of educological inquiry, without a focus on linguistic language behavior. Using the object-language and meta-language distinction, at the object-language level of educological inquiry (1) normative philosophy of education should focus on questions like "What is worthwhile linguistic language behavior in education?" (2) science of education should focus on questions like "What linguistic language behavior is now extant in education?" and (3) praxiology of education should focus on such questions like "What enactive and iconic behaviors are effective at promoting worthwhile linguistic language behavior in education?"
At the meta-language level, analytical philosophy of educology should continue to focus on questions like "How is linguistic language behavior being conducted at the object-language levels of educological inquiry?"

By focusing on linguistic language behavior--literacy--as the end, or more accurately as the end-in-view, the empirical inquiries of science and praxiology of education and the normative inquiry of normative philosophy of education can begin to mature. They can begin to mature because they will have, what Toulmin calls, a collectively agreed upon ideal, or, as here called, a focus or end-in-view. Analytical philosophy of educology, which is already focused on linguistic language behavior in empirical and normative inquiries about education, can continue maturing by keeping the collective ideal--focus, end-in-view--alive and well.
Bibliography


2. Bruner, Jerome--The terms 'enactive', 'iconic', and 'symbolic' have been used by Bruner to refer to representative behavior. They have been used here to refer to classes of human behavior in general.


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5. Ibid, pg. 46

6. Ibid, pg. 51

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THE EDUCOLOGY OF CLASSROOM ENVIRONMENTS
AND THE QUALITY OF STUDENT LEARNING

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Research has shown that the nature of the psychosocial
environment of the classroom is an important determinant of the
quality of student learning. The environment can be conceptualized
and measured at primary, secondary and tertiary levels. Furthermore,
a methodical, economical and acceptable strategy is available to
change the environment in order that it aligns more closely with
environmental preferences of students, so that, in turn, student
learning is enhanced.

Walberg (1984) took an educological perspective when
he claimed that
Nine [potent, consistent, and widely
generalizable] factors require
optimization to increase affective,
behavioral, and cognitive learning.

He saw these nine factors falling into three groups:
Student Aptitude, i.e., their ability, stage
of development, and motivation;
Instruction, both amount and quality; and
Environment, of the home, classroom, peer group,
and student use of leisure time.

It was held that these factors have a major causal impact
on student learning, that they influence each other, and
that they themselves are also affected by the quality of
student learning through a feedback mechanism. These
propositions are depicted in Figure 1. Here we focus
upon one important part of this schema: the psychosocial
environment of the classroom and its impact upon student
learning.
The Education Department of Tasmania (1986) listed what it considered to be the "competencies and characteristics that are essential for life and work in our society." The list included "the set of competencies associated with learning to converse, read and write, and calculate." It went further, though, to include competencies associated with acquiring and conveying information, applying logical processes, undertaking practical tasks as an individual and as a member of a group, making judgements and decisions, working creatively, acting autonomously and responsibly, showing care and concern for other people, and being concerned about questions of right and wrong.

If this view matches that held by Tasmanian society at large, then it is clear that any worthwhile perspective of quality learning, for Tasmania at least, must go beyond "performance" in "tests". The Hoy and Miskel (1982) model of organizational effectiveness led us to the conclusion that high quality learning should be seen as encompassing student achievement, adaptability, satisfaction and interest in on-going learning. In other words, it is our view that educators should be seeking effective and efficient means of promoting, simultaneously, Walberg's "affective, behavioral, and cognitive" student outcomes.
THE CLASSROOM ENVIRONMENT

There are a number of ways to conceptualize and assess human environments, and these have been described fully by Moos (1974). Recent work by Tasmanian teachers has focussed on the psychosocial environment of the classroom. Through the use of My Class Inventory (MCI), Classroom Environment Scale (CES), Individualized Classroom Environment Questionnaire (ICQ?), or College and University Classroom Environment Inventory (C&UCEI), aspects of the psychological and social dimensions of the classroom environment, at primary, secondary and tertiary levels have been highlighted and enhanced. Figure 2 provides a brief summary of the dimensions involved and the scales which may be given attention.

<table>
<thead>
<tr>
<th>RELATIONSHIP DIMENSIONS</th>
<th>the nature and intensity of personal relationships, the extent of involvement</th>
<th>e.g., the degree of teacher support, affiliation, cohesiveness, friction</th>
</tr>
</thead>
<tbody>
<tr>
<td>which identify</td>
<td>- and the extent of support for others</td>
<td></td>
</tr>
<tr>
<td>PERSONAL DEVELOPMENT DIMENSIONS</td>
<td>the basic directions along which personal growth and self-enhancement occur</td>
<td>e.g., the degree of competition, task orientation, independence</td>
</tr>
<tr>
<td>which assess</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>SYSTEM MAINTENANCE AND CHANGE DIMENSIONS</td>
<td>the extent to which the environment is orderly, clear in expectations, maintains control and is responsive to change</td>
<td>e.g., the degree of teacher control, rule clarity, democracy, diversity</td>
</tr>
<tr>
<td>which involve</td>
<td>-</td>
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</table>
It has been demonstrated (Fisher and Fraser, 1983) that teachers frequently perceive classroom environments differently and in a more favourable light than do their students. Therefore it seems that, since student perceptions can be measured validly (Moos, 1979; Walberg, 1982a), student perceptions should be the stimulus for improvement efforts; after all, it is their perceptions which influence their learning.

Research findings which point to the importance of the classroom psychosocial environment as a determinant of student learning have been reviewed in a number of publications. These include those by Fraser (1980, 1981a), Fraser and Walberg (1981), Haertel, Walberg and Haertel (1981), Moos (1979), and Walberg (1982b).

A selection of notable claims that have emerged from research includes:

Under a highly stringent probe of causal direction and influence ... ONLY the classroom social-psychological morale appears as an UNEQUIVOCAL AND POTENTIALLY MANIPULABLE influence on learning. (Walberg et al., 1981)(our emphasis)

... research shows that student perceptions [of the psychosocial environment of the classroom] can be validly measured and they serve as indexes, for classes or individual students, of the amount of cognitive, affective, and behavioral learning that takes place during the school year or during shorter periods of time. (Walberg, 1982a)

The results...confirmed the existence of sizeable and statistically significant associations between student learning outcomes and their classroom environment perceptions.... (Fisher and Fraser, 1983)

PERSON-ENVIRONMENT FIT

Studies by Hunt (1975), Fraser and Rentoul (1980), Fraser (1981b), Fisher (1982), Fisher and Fraser (1983), Fraser and Fisher (1983), among others, have indicated that desirable student learning outcomes are fostered when students are working in their preferred classroom environment; that is, when students perceive their actual environment being congruent or aligned with their preferences.
In attempting to align student-actual with student-preferred perceptions, and thereby promote high quality learning, a number of teachers have pursued a strategy proposed by Fraser (1981). A summary of this strategy follows.

1. ASSESSMENT OF CLASSROOM ENVIRONMENT

Valid and reliable instruments, such as MCI, CES, ICEQ and C&UCEI, enable the teacher to survey student perceptions of the classroom environment as it actually is and of how they would prefer it to be. The preferred and actual forms of each particular instrument contain identical items, but the instructions are somewhat different.

The CES, for example, is available in both long form and short form. The long form asks 90 questions, requiring True-False responses, and data are obtained on student perceptions of Involvement, Affiliation, Teacher Support, Task Orientation, Competitiveness, Order and Organization, Rule Clarity, Teacher Control and Innovativeness. The short form of the CES is highly economical in its use of testing and scoring time, while retaining adequate validity and reliability. It asks 24 True-False questions to assess student sense of Involvement, Affiliation, Teacher Support, Task Orientation, Order and Organization and Rule Clarity.

The selected instrument, in its preferred form, is administered to the whole class on one occasion, and this is followed several days later by the administration of the actual form of the instrument. In the search for economy, some teachers have administered the preferred form to half the class and, simultaneously, the actual form to the other half.

2. FEEDBACK

Feedback information is obtained by scoring student responses to the preferred and actual forms of the instrument, and data are summarized by drawing profiles of the class means of the preferred and actual scores. These profiles, as illustrated in Figure 3, permit ready identification of any major discrepancies which exist between student-actual and student-preferred perceptions.

Although the class is usually the unit of analysis, the value of an individual's score on various dimensions need not be ignored. Some teachers have found it useful to compare these scores with the class means.
3. DETERMINING INTERVENTION STRATEGIES

Through private reflection and discussion with colleagues and students, teachers are able to identify areas of the environment which concern them, and then search for strategies which they feel will narrow any worrying preferred-actual gap in the profiles. In this search for appropriate strategies, many teachers have found that an analysis of student responses to the items of the instrument is a valuable starting point. Relevant literature, too, has offered some teachers a stimulus for change.

Frequently, at primary, secondary and tertiary levels, co-operative learning strategies such as those proposed by Slavin (1980) have emerged as a "global" means of enhancing the nature of the environment. For example, the teacher who was confronted with the profiles illustrated in Figure 3 decided to base her lessons on the following activities during a planned intervention period of five weeks.
Students were to be assigned to small heterogeneous teams on the basis of their previous performance in typing. Each team was to adopt a name to identify it, and captains were to be elected. It was planned that captains would allocate tasks to members in order to complete team products to be determined by the teacher. Teams rather than individuals were to be praised, and the best products were to yield rewards for the teams responsible for them. In typing speed and accuracy tests, the average scores for each team were to be displayed publicly. Team members would be encouraged to work together on drills to enhance their performance, and rewards were to be given to teams which made most improvement in average scores. These activities were developed on the assumptions that it was desirable that:

a) one student's success should depend upon other students' success;
b) each student's contribution to the team's product/score be identifiable;
c) a balance be struck between teacher-imposed and student-imposed structure; and
d) fair, inter-team competition should exist.

Another teacher, of business communication in the TAFE sector, upon drawing student-preferred and student-actual profiles, discovered that her students perceived a deficiency in Task Orientation. She read in the area of effective time management and decided to invite a colleague to observe, in a structured way, the use/misuse of time during several teaching segments. It was decided, too, that the students should be fully informed about the purpose and format of these observations.

4. INTERVENTION

This phase normally continues for four, five or six weeks. The teacher, armed with the strategies developed during the foregoing reflection/discussion stage, consciously attempts to engineer the environment in desirable directions.

5. REASSESSMENT

Following the intervention period, the teacher reassesses the students' perceptions of the actual environment and draws a profile to reflect the data obtained. The purpose of this is to determine whether or not the actual environment has moved, in the eyes of students, towards their preferred environment. Figure 4 shows the post-intervention profile superimposed upon the pre-intervention profiles depicted earlier in Figure 3. It is clear that the teacher of this class was successful in improving the classroom environment in the areas of Involvement, Affiliation, Teacher Support and Order and Organization.
The Task Orientation scale seemed unaffected, while the Rule Clarity scale deteriorated slightly.

This reassessment step can be viewed as the first step in a further cycle to monitor and enhance the environment in an on-going fashion. For example, the teacher of the class depicted in Figures 3 and 4 might feel that the Task Orientation and Rule Clarity scales deserve special attention over the next month or so.

CONCLUSION

Scores of Tasmanian teachers have adopted the strategy for improving classroom environments overviewed here. In every case reported to us, the teacher has been delighted with the results. Clearly the nature of the classroom psychosocial environment is an important determinant of student learning, and, equally clearly, the classroom teacher can enhance the environment in the eyes of students.
There is little doubt that a "Hawthorne Effect" emerges, indeed is at times actively sought, during the process. Students observe that their teacher is showing interest in them, regards them as being important, and is attempting to improve their lot. In a number of cases students and their teacher see themselves as becoming collaborators in the teaching/learning process.

The strategy outlined in this paper provides the teacher with an understandable, methodical technique which enables her to focus on and solve concrete, specific questions that she sees relevant to her day-to-day classroom routine. The experience is frequently enjoyable and educationally rewarding for the teacher and his students.
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