

Commentary on Egan and Wilson

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A. SOME THOUGHTS ON EGAN'S "THE ANALYTIC AND THE ARBITRARY IN EDUCATIONAL RESEARCH"

There are many ways to examine the field of educational research. One way is to use Glass's (1971) distinction between *evaluative* and *elucidatory* research. According to this partition, elucidatory research is conclusion-oriented, nomothetic, and motivated by curiosity. Evaluative research is decision-oriented, ideographic, and motivated by the search for solutions to practical problems. Although Egan talks of educational research as having as its aim the improvement of education, I believe his paper is primarily directed toward elucidatory research. If my reading is correct, then a few brief comments may be helpful in establishing context for what follows.

First, even if we extend the boundaries of elucidatory research so that it covers all of the questionable cases, there are very few people doing elucidatory educational research. In Canada at any one time we may be talking about a few dozen people. Given the size of the country, the density of effort is very low. This may account for some of the inadequacies that Egan refers to, but at the same time it gives cause for optimism for bringing about change.

Second, most Canadian educational researchers (with the possible exception of those interested in curriculum research) are ambivalent about paradigm arguments. Evaluative research demands quick response, and elucidatory research requires in-depth commitment to the field of study. Arguing about paradigms is a task for others not involved in actually doing research. This characteristic prompts some pessimism.

Finally, education is an extremely complex phenomenon, dealing as it does with people, ideas, values, social goals, economics, traditions, and even buildings. It may be more complex than other social sciences, and it is certainly more complex than any biological or physical science. It is no wonder that progress has been painfully slow.

These three contextual comments may help the reader to understand the origin of my reactions to Egan's paper. My view of the research enterprise may be much different from his, yet there is much of value in the paper even for those of us who take a grain-belt realist's position toward our research.

The central theme of Egan's paper is that much, perhaps most, of educational research aims at establishing connections between concepts which upon analysis prove to be logically connected. The sub-theme is that these logical connections are often camouflaged by what are referred to as arbitrary components. Arbitrary components are empirical factors not generalizable beyond the circumstances and subjects of the experiment. My reactions to the paper cluster around six points.

Concept Drift

One of the problems of educational research is the way in which concepts change to meet the different demands of educational stakeholders. Years ago, *brain damage* referred to some physical trauma to the brain such as occurs through an accident or stroke. Over time, it became an inferred property often suggested by the difference in elevation between WISC non-verbal and verbal profiles. It was noted that the nonverbal skill of many brain-damaged people were higher than their verbal skills. By and by, the connection was reversed so that people with no history of trauma were referred to as brain-damaged whenever the differential profile existed. This kind of concept drift leads almost inevitably to the kind of analytical problem that Egan describes: brain-damaged people have lower verbal skills because it is implicit in the definition.

It is my contention that, as time passes, concepts change until they co-opt other concepts. When viewed at a mature stage, the logical relationships are clear. When viewed in development, they are not. For example, Egan says, "A detailed definition of learning would imply or involve notions of order." This may be so now, but was it always? Was there a time when reasonable psychologists defined learning without implicit reference to order, and are we now looking at an evolved definition that takes evidence into account?

Consider two other concepts: intelligence and social class. Until recently, each was defined without reference to the other. For years educational researchers have known that a statistical relationship exists between them. In the past decade or so, we have begun to see shifts in the definition of the two concepts until it will soon be safe to say that they are tied analytically. Two questions arise: Why does this drift occur? and Is it good for educational research? The answer to the first takes us to the second point. The response to the second relates to a distinction between *concepts* and *constructs*.

I am not sure that Egan would make a strong distinction in this context between concepts and constructs. I am taking concepts to refer to general notions in education whereas the term construct is more specific, being used in the sense of Cronbach and Meehl (1955). A construct is a concept, but many concepts are not constructs. Regardless of whether Egan

subscribes to this distinction, his criticism is particularly devastating when applied to constructs because, if elucidatory research in education is going to succeed, it will be built on the blocks of carefully explicated constructs. Thus haphazard construct drift will make theory construction very difficult.

Conceptual Distinctness, Statistical Independence and Construct Validity

Conceptual distinctness implies separability or discriminability. Two constructs may have many things in common, but if they are distinct, they can be distinguished from each other. Their manifestations are not the same, and their relations with other constructs differ. In Cronbach and Meehl's terms, they occupy different positions in the nomological network.

Statistical independence refers to covariation between or co-occurrence of two variables (manifestations of constructs). If the conditional probability of the occurrence of one variable in the presence of the other is equal to the probability of the occurrence of the first variable regardless of the second, then the two variables are said to be statistically independent. Statistical independence implies lack of covariation, although the reverse need not be true.

Clearly constructs and their manifestations can be conceptually distinct without being statistically independent. The fact that many interesting variables in educational research are related leads in part to the Egan problem. As statistical relations are established, a change occurs in the common lore. Concepts (and constructs) become so associated with each other that over time the conceptual distinctions become blurred. And an analysis of their use would lead observers to suggest that they had become logically tied to each other.

For example, *ability* and *achievement* have been used distinctively for 50 or 60 years. They are separable in the minds of most educators. Yet recently, Anastasi (1980) proposed that achievements should be viewed as "developed abilities." If this suggestion should gain acceptance, then we would have a clear case of an analytical relationship. But, at the moment, they are discriminable constructs that are highly related.

A great inconvenience of abandoning positivism is that a single construct may have many manifestations. Unfortunately, psychometrics is a primitive technology at best, so that the statistical relationship between two manifestations of the same construct can easily be smaller than the relationship between manifestations of two different constructs. (This contradicts the clever validation scheme suggested by Campbell and Fiske, 1959.) The result is that even the data encourage the blurring of conceptual boundaries. I believe that this is a difficult technical problem, not an impossible logical one.

Educational Research and the Bandwagon Effect

There are few educational researchers, and those that we have are subject to certain market forces. Funding at provincial levels is most likely to favour evaluative research, so investigators tend to adjust their work to fit the resources. Learning disabilities, French immersion, and giftedness attract more attention than mathemagenic learning or abstract reasoning.

Unfortunately this situation has had a negative impact on the definitions of constructs. *Learning disability* has shown a dramatic change in meaning as money has been pumped in to support children with learning problems. Whereas, initially, learning disability applied to a small group of children with specific problems, in some places it now refers to “underachievers” in general, while in others it is equivalent to “slow learner.” The politics of schooling have a chaotic impact on the definition of concepts like learning disability. Furthermore, as the popularity of an educational issue wanes, so does the research on the issue. (Whatever happened to *cultural deprivation*?)

The result is that the conceptual analysis that is so necessary to a cleaner act does not occur because concepts are created, changed, and abandoned with astonishing speed. It is simply not worthwhile to engage in the necessary and difficult task of conceptual clarification in the shifting sands of evaluative research. Greater payoff accrues to those who jump on approaching bandwagons.

Arbitrary Elements, Uncertainty and Error

The notion of an arbitrary element is not entirely clear. On the one hand, it seems to refer to psychometric error and statistical uncertainty—it is tied to the person by occasion interaction, and it leads to contradictory findings. On the other hand, there is an element of the analytic about it—it is that part of the outcome which is not analytic and is therefore immune to control.

As in modern physics, most of the interesting concepts in education are characterized by uncertainty. If this is what is meant by “immune to control,” then there is no difficulty. But if “immune to control” means impossible to investigate, then there is disagreement. There is a remarkable consistency within and among people if we choose to look for it. Further, by freeing ourselves from operationalism, we can begin to build models of educational phenomena that contain both the unseen and the uncertain. In physics, many nuclear particles are essentially unseeable, yet they are building blocks. *Motivation, control, perception, and conceptual schema* are not merely analytic, they are immature concepts that are the shaky first step toward constructing models of learning.

My ambition for educational research is conditioned by two things: the complexity of the field and the sparseness of current effort. I do not anticipate well-fitting models soon. Yet I think that our current paths are not entirely inappropriate. Having said that, let me hasten to agree with Egan that uncertainty may lie at the very basis of human behaviour. But, as in physics, this does not make educational research immune to control or unworthy of our effort. It merely directs our search toward probabilistic relations.

The Aim of Elucidatory Research

As in all applied fields—engineering, medicine, social work, education, and the rest—elucidatory research will look remarkably like the research carried out in the adjacent basic areas. In education, this means that the research will look like that in economics, psychology, history, sociology, philosophy, and political science. Speaking only of the boundary between education and the behavioural sciences, the aim of elucidatory research should be to elucidate, to explain, to illuminate. I believe that we cannot do this without constructs.

In physics, theory drives research. Results that are incompatible with theory lead to adjustments in theory until the theory can no longer be sustained because of its weight and complexity *and*, more importantly, because a new theory appears that accounts for the data better. In education, constructs seem to drive research. Unexpected results lead to modification of constructs. Even expected results encourage us to change their meaning. Maybe this is why theory construction in education is in such disarray.

Egan's Contribution

If he accomplishes nothing else with the paper, Egan may shame educational researchers into thinking more carefully about their constructs. I doubt that a life spent developing theorems will be attractive to many of the small cadre of elucidatory researchers, but the discipline of untangling the analytical from the accidental universal from the truly explanatory will be well worth the effort to those who rise to the challenge. As Haig (1979) notes, theory construction and theory appraisal are central tasks for educational researchers.

I think that Egan has placed the challenging standard well above the mere exhortation to do better. Education is neither physics nor geometry, but a small shift of attention from action to reflection would enhance our efforts. Careful analysis of constructs, even by beginning with common-sense theorems, might just clean up some of the current sloppiness.

B. COMMENTS ON WILSON'S "WHAT PHILOSOPHY CAN DO FOR EDUCATION"

Wilson's paper is interesting on several levels. The images that it evoked for me were varied and sometimes intense. Even in the third reading, I found points to ponder. Since each reading produced its own impression, I have organized the comments into three parts: substance, tone, and free association.

Substance

There are two sections to the paper, and as I read the first, about what "Philosophy in Principle" can do for education, I was reminded of arguments that I have had with colleagues whose major work lies in preparing professionals in counselling and in educational administration. Although Wilson does not say so, I think that he might agree with my contention that wisdom is often sacrificed for technical excellence in the training of professionals. For example, in the counsellor education programs that I am familiar with, much attention is directed toward techniques of enhancing the helping relationship. Graduates are appropriately warm, empathic, and genuine. They know when to support and when to direct; in short, they are skilled practitioners.

My casual observation is that most professional training programs are so full of practicum and content that there is little time for reflection. In counselling, for example, how are the goals of therapy influenced by the social surroundings? Is there an inherent contradiction for school counsellors whose clients are students but whose employer is the school system? Where should the primary allegiance lie? These are not simple issues, yet each counsellor needs to have a position. I fear that the positions may be taken without careful thought and analysis. There is a need for philosophical work not only as an inoculation against malpractice but throughout the evolution of each counsellor's self-definition.

On a larger scale, the educational fields are full of theories that not only contradict each other but are internally inconsistent. It seems to me that their disentanglement requires an injection of reflection and analysis that is unlikely to be stimulated by practice alone. This is Wilson's plea, and it rings true with me.

I also agree with Wilson that there is a *leadership* role to be played by philosophers in all aspects of the educational enterprise, but when he turns to "Philosophy in Practice" and talks about the opposition, I think that he has misread the situation. As I see it, the problem is indifference, perhaps even intense indifference. As Wilson points out, most people involved in education have little contact with philosophy, and few seek it out. This does

not surprise me, and perhaps it does not surprise Wilson either. Books and articles are not read because they do not cut close enough to the bone. I suspect that if philosophers of the calibre represented in this special issue were each to pick a specialty journal from the various branches of education and produce a critical review of one or two central themes, they could have the field attending to them almost overnight. There is nothing like guerrilla tactics to capture the attention of the establishment. In this case, anticipation of increased sales engendered by heated debate would prompt editorial cooperation.

On first reading, the institution suggestion was intriguing, but this is not the time to retreat to monasteries. If one does, anti-intellectualism will win by default. The enemies of rationality are sloth and greed, not dedicated anti-intellectualism. Abandoning the field to the ooze of mediocrity seems to me to be a repudiation of a sacred tradition.

Tone

In my second reading, I was struck initially by a tone of condescension and then of petulance. This paper was intended, of course, to be heard, and that may explain its tone. But there is a sense that philosophers have the answers and that, if only we would listen to them, our problems would be solved, but since we will not, they are going to take their marbles and go home—and then we will all be sorry. Perhaps it was just a May snowstorm that made me see Wilson's comments in this light. At any rate, the unfortunate tone deflected attention from the significance of the content.

In spite of my respect for philosophers, I am confident that like other competent academics they have their passions, their beliefs, their prejudices, and their feelings. While their contributions to education would be undeniable, it is surely overstating the case to suggest that their help in making us understand certain concepts and values would make most of education "go right." Not all educational problems are due to conceptual confusion.

But let's not dwell on tone. It may be more in the mind of the reader than the writer, although, if detected by many, it may have implications for the problems of acceptance mentioned earlier.

Free Association

In the final reading, I was captured by the image of the institution of philosophers. To be uncorrupted by contemporary vices, to be financially and politically independent, and to weather the storm that will last a long time made me think of a fortress on Baffin Island inhabited by characters from

Monty Python. Dawn breaks as the camera pans in on two resident epistemologists preparing breakfast....

C. CONCLUSION

In spite of my attempt to find points of contention, when the underlying ideas are exposed, there is little with which to disagree. Philosophy can do much for education and philosophers can accomplish a lot if they put their rubber boots on and get into it.

REFERENCES

- Anastasi, A. (1980). Abilities and the measurement of achievement. *New Directions for Testing and Measurement*, 5, 1–10.
- Campbell, D., & Fiske, D. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56, 81–105.
- Cronbach, L., & Meehl, P. (1955). Construct validity in psychological tests. *Psychological Bulletin*, 52, 281–302.
- Glass, G. V. (1971, March). *The wisdom of scientific inquiry on education*. Paper presented at the convention of the National Association for Research on Science Teaching, Silver Springs, Maryland.
- Haig, B. D. (1979). The redirection of educational research methodology. *New Zealand Journal of Educational Studies*, 14(Supp.), 50–67.

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