Conceptions of Intelligence in an Academic Community

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A phenomenological stance is adopted in this inquiry into the concept of intelligence. The term *intelligence* is discussed as a uniquely Western concept that has been defined and refined, with significant implications for people in educational settings. A brief critical literature review includes discussion of some influential models of human thought and intelligence measurement and their application in school settings. Three practicing University of Hawaii at Manoa professors are engaged individually in reflective conversations, during which they discuss their notions of intelligence together with the researcher. From their shared conversations, meanings emerge which are expressed here in separate descriptive interpretations for each professor. The emergent understandings are intended to explore and illuminate some current conceptions of intelligence in an academic setting. From these descriptions educators and researchers may recognize relevant meanings for themselves regarding the improvement of the school learning situation.

C'est une position phénoménologique du concept de l'intelligence qui est adoptée dans cette recherche. Le concept d'intelligence est compris uniquement comme un concept occidental qui a été défini et raffiné avec des implications importantes pour des individus en contextes académiques. Une brève revue de la littérature présente une discussion sur des modèles de la pensée humaine et sur des mesures de l'intelligence et de leurs applications dans des contextes scolaires. Trois universitaires de l'Université de Hawaï à Manoa sont impliqués individuellement dans des conversations dans lesquelles ils discutent de leurs notions de l'intelligence avec le présent chercheur. On voit emerger de ces échanges des significations qui se traduisent ici par des interprétations descriptives pour chaque universitaire. La compréhension qui émerge vis à explorer et à éclairer les conceptions de l'intelligence dans des contextes académiques. C'est à partir de ces différentes compréhensions que les éducateurs et les chercheurs peuvent retrouver des significations destinées à améliorer le climat de l'apprentissage.

> The controlling intelligence understands its own nature, and what it does, and whereon it works. (Marcus Aurelius Antoninius, 121-180 A.D.).

As teachers and educational researchers, we often find ourselves using the term *intelligence* with reference to our students and our professional practice. There is likely no concept in psychology or education which has generated more controversy and debate, and yet, despite almost a century of formal measurement and analysis of intelligence, researchers have yet to agree conclusively on any definition. As Weinberg (1989) recognizes, "often ignored in tackling the definition problem of psychological concepts such as intelligence are the implicit theories, the constructions which reside in people's minds" (p. 98).

My intention here is to seek a better understanding of how the term *intelligence* is actually used and conceptualized by individuals in a university setting. I engaged in reflective dialogue with three practicing higher education teachers about the topic of intelligence in order to *deconstruct* the term — and its embedded concepts and implications — to reveal aspects of its contemporary use and application in the academic environment.

In seeking both formal and informal notions of the concept of intelligence from university professors in diverse disciplines, I sought to elicit some honest reflection and exploration of a commonly used term in education and society in general. I also found it helpful to consult current and historical sources on the topic of educational measurement.

Models of Thought

Psychologists such as Binet and other developers of the first "mental tests" saw intelligence as a single, measurable human faculty, which researchers like Spearman (1923) defined as "the actual exercise of the faculty of intellect" (p. 21). Using factor analysis of test scores, he posited a general intelligence factor which is common to all such measurements. Piaget (1950) conceptualized intelligence as part of our biological act of adaptation, and proposed that "intelligence constitutes the state of

equilibrium towards which tend all the successive adaptations of a sensori-motor and cognitive nature, as well as all assimilatory and accommodatory interactions between the organism and the environment" (p. 11). In his experiments he treated intelligence as a single biological and logical dimension of people, "a primary irreducible fact" (p. 17).

The aforementioned researchers hypothesize about the nature and structure of human intelligence with the common proposition that they are describing a single entity which resides in the human mind. Numerous tests have been constructed to measure the elusive quality as it is presented in these various models. A recent collection by Kaufman (1990) lists a massive battery of test forms and schedules designed to provide reliable and valid measurements of an individual's intelligence. In recent decades, these tests have come under increasing criticism as being too narrow a vision of what human thinking is all about.

Recent models of human thinking have been proposed by psychometric researchers, and by information-processing, developmental, and humanistic theorists; more integrated models combine elements of each in their views of how humans think (Kail & Pellegrino, 1985). Vernon (1979) acknowledges a growing opposition to intelligence testing, along with several possible sources of error and bias in testing and the misuse of test scores. Nonetheless, he asserts that psychologists must avoid these, and proposes a hierarchical format to describe mental abilities.

Many psychologists now refer to intelligence as being composed of many separate mental abilities that operate more or less independently. Thurstone (1960) recommended the use of multiple scores and the development of a comprehensive profile for each individual being tested. His theory initially included seven primary mental abilities which were identified through factor analysis. Building on this theory, Guilford (1967) added many other factors which comprise a composite intelligence measurement. Included in his model are 120 discrete mental abilities to be tested and inter-correlated. Missing in all of these factorial theories of intelligence is any clear idea of the processes actually involved in intelligence.

Currently, widely accepted models of multiple intelligences are being promoted by Harvard University's Howard Gardner and Richard Sternberg of Yale University. According to Gardner (1983) each person possesses innate potentials — intellectual strengths or weaknesses — in particular intelligences and may be taught to improve in one or more of these areas. He identifies seven independent intelligences, each of which follows a somewhat different developmental path. Testing these should emphasize studying the interaction of the individual with the everyday environment rather than with traditional IQ tests. Sternberg's (1988) triarchic theory of intelligence also acknowledges the environmental context for all intelligence and emphasizes cognitive component analysis to measure information-processing skills and strategies.

Underlying all theories of intelligence is the belief that we all carry around something (or things) called intelligence that can be measured by the right tests and, with the right educational program, enhanced. These beliefs are inherent in the testing practices currently in use in our schools, all with the prediction and improvement of students' school performance purported as their primary goal.

Measuring Intelligence

As members of a Western culture, we may observe with some dismay our society's burgeoning interest in the ranking and streaming of individuals based on measures of their performance on various tests of intelligence and aptitude. We are constantly bombarded with research reports and stories in print and television media regarding some aspect of this preoccupation with the measurement and "improvement" of intelligence. We read, almost daily, of local and national controversies surrounding discrepancies in performance measures based on racial, ethnic, regional, or gender differences. Campus and community bulletin boards and newspapers are plastered with glossy, often sensational advertisements for learning assistance courses, help books, tapes and seminars promising improved test scores in school, or on standardized examinations like the SAT (Scholastic Aptitude Test), LSAT (Law School Admission Test), and GRE (Graduate Record Examination), among others.

As social scientists of the past several decades have struggled to come to better understand human behavior, much of the research and theorizing has focused on attempts to measure human thought. Gould (1981) presents a thorough and compelling account of the numerous scholars and scientists from past centuries who have tried to quantify and explain our thinking. Many of the past measures seem absurd based on current perceptions, yet they were the basis for widespread racial and gender oppression.

Of course, hindsight always provides us with the best possible view of any situation and cognition research and measurement are not exceptions. We may ask ourselves how much more efficacious our programs and policies would be in education if we were better able to self-reflect critically on our present practices. One outspoken educational critic, Frank Smith, admonishes school bureaucracies which insist on frequent system-wide testing across grade levels. In his book *Insult to Intelligence: The Bureaucratic Invasion of our Classrooms* (1986) he warns that "children learn not to learn, and teachers learn not to teach" due to the inevitable "teaching to the tests" which occurs when performance on standardized testing is given primary emphasis in schools (pp. 129-130). My own experience teaching high school English in Alberta bears out this observation; with 50% of each student's final grade contingent on two test scores, a teacher has no choice but to teach to these tests.

Smith also reminds us that "the systematic testing of school children that began in Britain in the early years of the present century was already linked with an influential eugenics movement, primarily motivated by a fear of uncontrolled poverty and inherited intellectual inadequacy among the poorer classes" (pp. 132-133). We should know that the geneticist Francie Galton, who proposed that the government should deliberately breed its most intelligent men and women to increase the genius of the race, was also the first individual to undertake a systematic measurement of a school population. It is the descendants of these earliest educational tests "which underlie the efforts to evaluate constantly the learning of children, no matter how trivial and disruptive that learning might have to be to facilitate the testing" (p. 134).

The efficacious nature of the typical testing scenario remains questionable today. Schiff and Lewontin (1986) suggest that we have become so accustomed to the routine institutional testing of aptitudes and abilities that we fail to notice that such testing situations could appear ludicrous:

> An adult asks a child questions which are meaningless to the child and to which the adult already knows the answer. This sort of make-believe situation is typical of the middle-class culture and of the current school culture as a whole. (p. 21)

Even when efforts are undertaken by teachers and social scientists to ensure the most valid use is made from the most reliable intelligence testing, it is an inescapable fact that the

> procedures used to validate 'intelligence' tests are as socially determined as the tests themselves. The high degree of sophistication of some of these procedures only serves to mask an unwillingness to face the social, psychological, and ethical questions posed by the construction and use of IQ tests. (p. 32)

Social Context

Much attention has been paid in recent years to the obvious recognition that much of our Western measurement of intelligence has been culturally, ethnically, and class-biased. Despite calls for more "culture-fair" intelligence testing (Gardner, 1989; Schiff & Lewontin, 1986), any such discussion seems inextricably culture-bound. Scholars and educational critics often accept the conventions of our institutions and the accompanying beliefs and values unchallenged, simply because these represent the best available information. We all are so deeply enmeshed within our society's present values that it seems almost impossible to distance ourselves enough to make useful critical judgments regarding possible shortcomings.

This study involves the engagement in reflective discussion with educators in order to explore some of this field's accepted terms and concepts. However, the very use of our English language to express the

terms and establish the parameters of our theorizing reveals yet another deeply embedded bias in all of our work in education and education research. Just as we shape our language to fit the ever-evolving demands of our world, so our linguistic terms act to shape our cognition. This reflexive nature of language as a sense-making tool as explored by Vygotsky (1962) has an influence on how our use of a particular word can affect how we view all of the meanings associated with it. To a large extent, these meanings are shared and shaped by the social context in which we live and work. When we as teachers refer to intelligence, we must also reflect on the possible implications implicit in this concept within the context of our educational system.

Through engagement in phenomenological inquiry, I have sought a closer examination of the above ideas in the context of their use in an academic setting. By reflecting on these models and practices against the backdrop of our own beliefs, we are better able to challenge some accepted principles, and perhaps conceptualize and implement viable alternatives.

Adopting a Phenomenological Stance

The descriptions of the conversations which appear here are interpretive accounts of open-ended dialogues between other teachers and me. As a phenomenologist I view the shared world of educational experiences as a personal construction of each individual situated within a particular social context. Adopting this perspective in an educational setting reminds us, as van Manen (1982) expresses it, "that the question of knowledge always refers us back to our world, to our lives, to who we are, and to what makes us write, read, and talk together as educators" (p. 298). More recently, he describes phenomenology as a unique research endeavor, in that it "attempts to gain insightful descriptions of the way we experience the world ... without taxonomizing, classifying, or abstracting" (1990, p. 9).

The primary aim of such research is to illuminate the personal understandings and experiences as they are lived and felt by individuals. As Carr and Kemmis (1983) suggest, the explanations sought by a phenomenological enquiry should "deepen and extend our knowledge of

why everyday reality ... is perceived and experienced in the way that it is" (p. 90). Any deeper understanding of the concept of intelligence in this setting emerges from the open sharing of ideas and experiences with others in this academic setting.

I spoke with three professors at the University of Hawaii at Manoa over a period of three weeks in the fall of 1990. By engaging with my participants in conversations, I was not conducting "interviews" in a traditional or ethnographic sense. Rather than seeking objectivity I submerged myself into the experiences of the professors, and became engaged with each person on the topic of intelligence. In this way, I could draw upon and share my own educational experiences as a high school teacher with experience in college and university classes as we explored the topic together. As Smith (1983) discovered in his research, I have found that phenomenology "involves a form of reconciliation in which researcher and subject are bound together in a common search for common understanding" (p. 75).

Using Conversation as a Means of Inquiry

Two of the conversations were tape-recorded with a small audio cassette recorder; for the unrecorded discussion, I took notes during the meeting. Also, I wrote additional notes on emerging ideas and impressions after each of the talks. Though the conversations would occasionally digress into other seemingly unrelated topics, I transcribed the talks in their entirety. I interpreted the texts of our transcribed conversations with a hermeneutic approach based on the ideas set forth by Gadamer (1975) and Heidegger (1962). I have found that, as Gadamer observes, "conversation has a spirit of its own, and the language used in it bears its own truth within it, i.e., it reveals something which henceforth exists" (p. 345). Further details on the theoretical justification and practical implementation of this methodology are reported in greater detail elsewhere (Lund, 1988).

These interpretations are firmly grounded in what the professors said about intelligence. Our conversations and my interpretations of the resulting texts serve as the basis for the descriptions which follow. I wish

to present in the most easily understandable form the meanings which were revealed in this exploration of the concept. Therefore, I have expressed my interpretations in separate written, descriptive pieces for each teacher. Wherever possible, the actual words of the professors themselves are included verbatim, noted by quotation marks; occasional mistakes or hesitations common in spoken English have been corrected for clarity.

Each narrative account has been read and validated by the educator whom it concerns. The professors were each encouraged to identify any possible misunderstandings and to elaborate or clarify any aspect of the account. One of the participants requested I use a pseudonym for him in the description, while Duane and Joe are the actual names of University of Hawaii professors who gave their permission to be quoted. The accounts are written in the first person and present tense in order to capture most effectively the immediacy and vitality of spoken language.

Discussing Intelligence

Entering into the conversations. In each case, I contacted the professor and arranged an appointment to meet for about one hour, either in the professor's office or in one case, over lunch in an informal setting. Initially, I explained my intention to explore the concept of intelligence in an academic setting for a project in a doctoral seminar on intelligence in Educational Psychology. Each professor has a unique manner of conversing, and obviously, three very different conversations resulted from my interaction with each of them. Just as in any natural conversation, there were moments of quiet reflection, humor, and numerous digressions onto other topics, ranging among career and car choices, mutual acquaintances, culture and consciousness, religion and politics. Few of these digressions are addressed directly in the excerpts from the written account of the conversations included here.

Also missing from these accounts are the subtle nuances of vocal inflection and tone, gestures and other nonverbal communication that cannot be captured easily in written form. In talk, we sometimes omit words and assume our thought has been communicated nonetheless. These

losses are noticeable in the transition of the data from the actual experience of the conversation to raw audio cassette data, to transcribed language, to the final writing and editing. In order to compensate and correct for this, I have taken each of the descriptive accounts back to the professors to have them add to or modify the text of their words and my interpretations to express their thoughts most accurately.

I believe that I was able to elicit from all of the professors an accurate sense of their own conceptions of intelligence in an honest manner. As one of them told me:

> You are very receptive. Because you are already tuned in to some of these ideas on your own, and you are aware of them, we can talk. You're giving me the space to come out with a lot of stuff that I normally wouldn't be able to come up with.

Duane on Intelligence

I meet with Duane in his department office, and we walk toward his own office upstairs. On the way, he stops and asks if I'd like to join him to look at a new "kinesthetic" art display. The pieces are all students' work and he studies each carefully for a few minutes. Soon, we continue on our way to his office, where we converse for about an hour. I learn that he has been teaching in and around the University of Hawaii for the past 30 years in the Art Department and will be retiring later this year.

Defining intelligence. We begin to talk about the concept of intelligence. He suggests that it has "something to do with telling a story, with how the mind makes sense of things." This reflects his view of an ideal teaching scenario, in which "a community of inquiry is developed where the student and teacher come together as equals and learn from each other. Each person has something to contribute. Each person's story needs to be heard."

Duane confesses to a love of word etymologies, and wishes he had an adequate dictionary in which we could look up the possible origins of the word "intelligence." He doesn't, and so the conversation continues, but

later I read in a Webster's dictionary (1971) that the word "intellect" shares roots with the Greek word *legein* (collect, choose, speak) and with *logos* (word, speak, account). Duane has intuitively identified a link between his own conception of the word and its earlier connections with oral expression.

When he talks of particular individuals in terms of their intelligence, Duane explains it to mean "one's level of mental awareness — how conscious is that person" and later relates this to a more universal human consciousness. When I ask if he conceives of "it" as an entity, he says that he views it

> more as a vehicle. We each have our own configuration of intellectual skills that we find are our mental strengths, and there is a strong body-mind link. Physical body strengths and mental strengths often interrelate and reinforce each other. For example, dancers, actors, sculptors, and athletes all seem to be thinking through their bodies as they perform.

This interrelated association between a set of "intelligences" reminds him of Gardner's work, and he begins to discuss this in relation to his own views.

Multiple intelligences. Duane professes to hold a special respect for Gardner's recent popular theories of "multiple intelligences," saying

> I feel very strongly that Howard Gardner is on the right track when he is talking about multiple intelligences, and that there could be many more than those he has already identified. It's clear that there are different forms of intelligences; we all have multiple intelligences, and some of us have much stronger areas than others.

This reinforces his belief that individuals may choose to develop their intelligences in more than one area. As an example, in the next few years following his retirement, Duane intends to "move more into [his] own areas of strength, such as visual thinking, general perceptual and sensory awareness, intuitive thinking, and a sense of people."

As with much of our conversation, these thoughts are grounded in actual examples from his own life and the people he knows. He confesses to having difficulty with "linear kinds of thinking" and feels almost "intellectually handicapped in a sense" with regard to paper work in the context of his academic career. For contrast, he cites his son-in-law who is in graduate school at a prestigious university, who has a tremendous intelligence in math and physics. Here, Duane has predicted Sternberg's (1992) pronouncement that an individual's pattern of thinking and learning style must be considered in assessing performance in a particular setting.

Communicating intelligences through performance art. As an instructor of art and an artist himself, Duane views much of human behavior in terms of its relationship to creative expression. He proposes that "an awful lot of what human beings do is a kind of performance art. We do things that are more than purely functional, and when we excel in these things we are communicating something"; this coincides nicely with what Sternberg (1988) views as the creative side of the intellect — our ability to generate new ideas, to cope with novelty, and to redefine ordinary problems in extraordinary ways.

"However," he continues, "we may find ourselves limited in our ability to express our intelligences in this creative way, since many people may become 'detached' from the world around them." Duane is concerned that such a

> detachment blocks us, as so many people feel that everything is so overwhelming and complex with enormous problems in the world — environmental problems, financial problems, war and so on — a lot of people find it a lot more comforting to just sort of coast along and take what comes instead of creating their own reality.

He views the individual as in need of "a positive link with the outside world, through a constructive use of personally accessible symbolic form languages such as words, as well as the impersonal 'media' which tend to dominate our lives in these times."

Testing as a mediation between the self and the world. The focus of our conversation turns to issues surrounding the testing of intelligence, and other performances in school settings, and Duane recalls a quotation attributed to Winston Churchill: "We shape the buildings along our streets, and then they in turn shape us." He then uses this as a metaphor for all "media" — any of the material we put between ourselves and the "reality" of the outside world. He includes in this layer of existence all the products of our own creation, such as a "drawing, tv program, essay, physics equation, math formula, or car diagram." Again the link to art is made: "Creative art is doing well with the media that we have available, while 'non-art' is being limited or destructive in the use of the media."

To Duane, testing impacts on our self-concepts and the development of our multiple intelligences. He states that "the IQ test is a medium; it influences our ideas of who we are," and to be ranked and quantified in schools on such a measure "can be devastating to individuals." He asks rhetorically: "What does that do to you? There aren't any adults alive who could not go back through their school years and find a teacher who crushed them or at least diminished their self-confidence." Again, he grounds his statement with an actual example:

> My own son was told by a math teacher that his scores indicated he was not good in math, and should therefore give up thinking about a career in science, and he believed it — he still believes it, and he's 29 years old. It has changed his view of himself in relation to the world.

Reflecting on his profession as a teacher of art in a higher education setting, Duane is ambivalent on the need for evaluating and assigning a grade on individual creative expressions. He knows that, as part of our educational process, "we obviously have to categorize and quantify sometimes, but we always need to have a balance." There is a conflict for him as he perceives his own role in that instructional and evaluative process;

> on one hand you are an encourager, coach, resource person, and then bang, you have to put a number or letter on it. I would much

> rather write brief or long written evaluations on people. It is a system that has major problems and I'd almost rather get somebody else to do the evaluation; I'd rather just be the encourager.

He does not question the absolute need for quantification of the process and products of our educational system, but would rather redefine his role within it.

The humanizing function of art. Duane is frustrated by the common notion that "the creative arts are considered a frill, and non-essential, and are often the first to get cut from the schools' budgets .... In fact," he asserts,

> the creative arts are the most primal foundation of human existence. They were and are our first languages. If you ask 'What is it that makes us human?' it is the ability to perceive, to imagine, to remember and to create, and all those things come together in what we call the arts.

In Duane's conception of human behavior, our intelligence is expressed in our ability to shape our environment, and to create and mold the media around us to maximize our own potential creative talents in several domains.

He simplifies human evolution of this creative intelligence with a synopsis:

> The first thing that distinguishes us from most other animals is that we can design tools. And then our lives improve when we can make a female figure, or a male figure, then paint a bison. Then we find out we can construct a shelter and that's the beginning of architecture! Now, we are so sheltered and "over-mediated." Meditation allows us to cut through all of that mediation to achieve a neutral state so that we can be receptive vehicles for the universal creative consciousness to come through.

Optimizing teaching for individual intelligences. Bringing the discussion back down to the actual environment in which he must perform his daily instruction, Duane fantasizes about the ideal teaching experience. To best

enhance the learning environment and opportunity for individuals to develop and express their individual intelligences, both the student and teachers alike must be there out of a true wish to engage: "I am there because I really have something I want to teach and they are there because there is something they really want to learn."

Recalling his own favorite teaching memories, Duane tells of the times when he taught university courses while aboard a ship sailing around the world. This offered the best possible learning scenario, where "the classroom environment itself was mobile so we could move around, and go to the places we wanted to go. Ideally such a 'classroom without walls' would be able to move all around the world." In that way the instruction may best reflect "how different people think, moving off in multiple directions with instant access to the kind of information that arises out of an experience or discussion."

I suspect that his teaching career is actually far from ending. Rather, Duane seems poised to take a new direction in his lifelong journey, likely toward a fuller realization of his own creative expression, ever fueled by the talents and energies he continues to foster in others.

Hal on Intelligence

Hal is a college instructor with 14 years of teaching experience, currently in transition between the fields of natural sciences and education. He admits to having a strong interest in cognitive research, with an emphasis on critical thinking. We meet at a pizza restaurant near the university and our conversation seems immediately comfortable and natural. When the tape recorder comes on, there is a slight hesitation, with longer pauses as if he is now forming his sentences more consciously before uttering them. Soon, our talk moves to the topic of intelligence, and he puts in words his conceptualizations of the word, the concept and its implications in our lives.

His initial explorations when trying to define intelligence reveal a general perspective related to perceived lay conceptions; he explains that

"what most people probably mean by intelligence is some combination of a good command of language or verbal ability, math abilities, and creative abilities, like the artist or poet" and he asks rhetorically: "But are creative people intelligent?" Our dialogue opens up a lot of questions, many of which remain unanswered, or lead to other questions to consider.

He offers a definition of intelligence now commonly accepted in the academic community, particularly in the field of Educational Psychology. Hal also quotes Gardner, who writes that intelligence is "the ability to solve problems, or to fashion products, which are valued in one or more cultural settings" (1989, p. 113). This one feels right to him, "because you have to put it in a cultural context," but he adds that "it's such a messy, complex issue; here we have such an enormous variety of abilities and talents and we're trying to pin it down to one single entity." This frustration with the single-entity explanation of our human cognition, also expressed by the two other participants in this study, suggests that the time is right for such "multiple intelligences" theories.

On the biology of intelligence. It is not surprising that Hal seeks to explain his conceptions of intelligence within the context of a biological framework. He is a natural scientist by training, and views human intellect as innate, a biologically determined potential for problem-solving. He explains:

> As a biologist new to cognitive science I have never had any problem in thinking that some component of behavior which includes "intelligence" — whatever that means — has a genetic basis to it. In DNA, part of what is being coded in terms of the neural system is how the neurons are laid down, how they connect, maybe even how many there are, and the amount of neurotransmitters that are secreted; all are, in part, genetically determined.

His views on human cognition generalize to all animals since studies seem to indicate a "correlation between the amount of nervous tissue available and its complexity of organization and problem-solving capability." He poses questions surrounding the issue of animal intelligence, and wonders

aloud if "animals have different 'intelligences' in terms of their problem-solving abilities, or even a sense of self."

While he is aware of the myriad of culture differences in conceptions of intelligence, Hal speaks of it as a universal problem-solving ability that would be valued in all conceivable human cultures. He asks: "If you took somebody from some culture other than Western and raised them in a Western culture, wouldn't they be doing the same kinds of things as our children?" His belief is that "there is a basic human 'intelligence' that is extremely flexible and adaptable, and if you're lucky, you will be born into a historical/cultural context that appreciates your abilities," reflecting the views of both Sternberg and Gardner in their emphasis on the importance of the environmental contexts in determining how our intelligences are displayed and valued.

When the conversation turns to possible "measured or actual" gender differences in intelligence, Hal says cautiously that he believes there are some substantive measurable differences between male and female brains. He cites "evidence which may indicate that female brains are less lateralized than male brains, [and that] females have a 50% larger corpus callosum." But what might these physiological and morphological differences suggest about male and female thinking processes? He hypothesizes that perhaps "women can use various aspects of their brains simultaneously, while men are more 'specialists.' Doesn't this affect their perception of the world, how their intelligence is expressed?" To Hal, these differences in biological cognitive predispositions have an inevitable differential effect within the context of testing in our educational system, "especially when those tests are designed by men."

On quantification in the social sciences. We talk of the historical context of our present educational system, and Hal speaks with candor regarding the research and testing choices which have been made in the social sciences in the past few decades. "Natural science has been so legitimized for the last several centuries that people want to adopt it," he explains. Perhaps somewhat sardonically, he adds that "a lot of social scientists and educators are natural science 'wanna-be's,' but they can't be in some ways

because the type of research they're doing doesn't lend itself to those kinds of empirical, quantitative, and statistical approaches." For the natural sciences, he suggest that "quantification allows one to be more objective, [though] certainly we can bias the results in different ways, but it has the potential for being more exacting and specific. However, there are different kinds of insights into people, and numbers give us just one picture."

His sentiments as expressed here are shared by other scholars such as Shipley (1990), who also believes that Western psychologists have lost the respect of much of the scholarly community. By embracing behaviorism, which "attempts at its core to reduce every human wish and aspiration to ephemera," early experimental psychologists have "contributed to the widespread disrespect today ... for psychology as a science upon the part of many scholars in biology, physics and mathematics" (p. 11). This seems a harsh criticism of experimental psychologists whose methods have undoubtedly contributed to advances in quantitative research in these and other fields. It also downplays the shift away from behaviorism to cognitivism in recent decades.

On the purpose of schools. Our talk revolves around his views on intelligence, and moves toward a discussion of the school system in our society. Since past and present efforts at "intelligence testing" have been undertaken ostensibly for the improvement of education, we share our views on this process in our Western culture. According to Hal, current testing in the schools may be viewed by some as a form of "brainwashing by the system," with a potential for "personal failures and unfair teacher treatment," resulting in "socialization, indoctrination [leading to] training individuals in some discipline."

At first glance, these may seem rather cynical comments to be coming from an experienced educator, but Hal also recognizes that ideally, schools are designed "to foster creative and critical thinking abilities" in students. He says that as educators, we must ask ourselves "'How can we do that best of all?' We have to know where they're starting from, where we want to bring them, and to be able to measure along the way to see if we're

doing the right thing." This is where he sees the need for testing arising, and with the pragmatic reality of IQ tests comes "the potential disastrous effects of the systematic categorization of students based on their performance on standardized tests."

On the effects of testing and ranking. When addressing the issue of standardized testing in educational settings, Hal expresses concerns about possible negative ramifications. He says that in many cases,

> it's not fair; it does great injustice to people, especially in the school system. Some poor little kid is tested for IQ or whatever, is given a number, and goes through life with that number. It's in the files, and people look at it and treat you accordingly. It's horrible. It's scary.

He believes that he has been victimized somewhat by this system of intelligence testing, when his own life was affected by the accepted routine of quantifying intelligence in the schools. When he was in the third grade, a test revealed that Hal had a very high IQ, and the decision was made to move him ahead one grade. According to Hal, this made him "perpetually the youngest kid in class, with sometimes negative social consequences."

Working within the system. Regarding the use of test results, Hal says frankly: "I don't think those numbers really mean anything. You've got to question the whole thing. We would be much better off without such a system." Early in this century, Harvard psychologist E. G. Boring (1923) admitted that "intelligence as a measurable capacity must at the start be defined as the capacity to do well on an intelligence test" (p. 35).

Hal exhorts, perhaps facetiously, "Throw [IQ tests] out. They're destructive." In explaining why we who teach and research education fail to do just that, he says resignedly that "IQ testing is a by-product of our educational system. Humans love to categorize; if I can put a label on you then I know who you are. Otherwise it's too nebulous, too open-ended." An even more cynical view appears in Sternberg (1992) who explains the current proliferation of standardized testing as a direct result of

profit-driven testing companies which strive to sell their tests with limited regard for their relevance or potential misuse.

Hal concedes, "I recognize that if you want to maximize education, then you have to have some way of measuring things." Also, he accepts the financial considerations: "We have to justify our curriculum, apply for grants, and must test it somehow for justification." Perhaps as educators we all acquiesce more readily to the potentially restrictive or damaging conventions of our institutional settings when the issue of money is involved.

Joe on Intelligence

My conversation with Joe takes place in his small and cluttered office. On the desks and tables are an assortment of manuscripts, students' work, and numerous texts, apparently in various stages of being read. From atop a work table, the glow of a computer screen adds illumination to the windowless room.

As a former anthropologist now researching and teaching in Curriculum and Instruction in the Faculty of Education, Joe reveals his more critical stance on cultural conventions that many of us seem to take for granted. When I explain my intent to explore how "intelligence" is conceptualized by professors, he makes the suggestion that we might "use a form of 'linguistic mapping' or 'cognitive mapping' to see the range of uses in this culture, to explore how it is being used, how we talk about it now."

Cultural perspectives. I seek his definition of the term, and he admits it is not easily put into words. He sees it as a highly culturally-bound concept, with myriad components and aspects, including "moral, cultural, and genetic considerations" to be addressed. Joe cites his own experience of living and conducting anthropological research in Japan as an example of the cultural component in present conceptions of the term. He notes how most definitions in Western educational settings imply "some set of fixed characteristics, with potential development of each set," whereas

Japanese teachers tended to "downplay or even deny innate differences in children, and stress learned behavior instead."

An example of a specific student drawn from one of his own collaborative research projects (Tobin, Wu, & Davidson, 1989) illustrates this significant cultural difference in perceptions of intelligence. An apparently bright and inquisitive Japanese student (at least in the eyes of the Western researchers) from a dysfunctional family is often disruptive in his preschool classroom. He finishes his work quickly and correctly, and then engages in numerous inappropriate and often aggressive activities. The teacher is asked later if she thinks the student may be "gifted," and not adequately challenged by the material presented in school. She seems to have difficulty even understanding such a concept which attributes superior inborn aptitudes to certain individuals.

Also, for the teacher in question and her colleagues, it is simply not conceivable that a misbehaving student can somehow be "smarter" than his well-behaved peers, but "rather, Japanese tend to view intelligence as closely linked to moral action" (p. 26). In the authors' words, they show a "reluctance to explain or excuse behavior in terms of differences in abilities" (p. 25), reconfirming the observation that our conceptions of intelligence inevitably reflect what attributes and behaviors are valued in our culture.

On testing and streaming in schools. Clearly, the educational use of intelligence testing is a contentious issue for Joe, who admits to having given it a great deal of thought recently. As a parent of school age children and an instructor of education students, he has adopted a cynical stance on the practical uses of the concept of intelligence in schools. He cautions of the need to look for the hidden agenda, and "believe[s] that the term is used in schools to defend failure and claim credit for successes" in various educational programs and methods.

For Joe, another disturbing aspect of intelligence tests is in the potential misappropriation of resources. He notes that

> the 'gifted' programs are usually for kids who have high IQ scores and show a low performance. So we see a funnelling of funds that might just as well go to poor, needy children, into special programs set up especially for 'underachieving' children of wealthy parents.

He warns that "all teachers and educational researchers have to look at the implications of intelligence testing in all forms, at the time and resource allocation in education."

On another level, Joe questions the individual impact of such testing on students. Recognizing how such measures tend to simplify and trivialize our perceptions of the people behind the numerical scores, he asks: "What are we silencing when we just look at this aspect of a person?" And from an instructional perspective, he recalls the research that shows how these standardized "measures of student performance can become self-fulfilling prophecies."

On Gardner's theories of intelligence. When our talk turns to "multiple intelligences" theories, Joe shares his harshly critical views of Howard Gardner in particular, to whom he refers as a "modern-day guru of educational research in intelligence." He believes Gardner's "views are not adequately challenged by the educational community." Despite Gardner's own claim that his "alternative ways of conceptualizing the human mind" make him feel as if he had "stepped on the toes of the Intelligence Mafia" (1989, p. 11), Joe argues that this "new and improved theory is really no improvement at all, since he still sees his multiple domains of intelligence as somehow stable and measurable, almost like mini-IQs." In Gardner's own words, "trained observers can take a precise measure of a child's intelligences in specific domains" (p. 202). "Won't we then need," Joe queries, "a theory of multiple dimensions of intelligence in each of these domains?"

Also, Joe complains that much of the current research in this field is based on "improving" intelligence, or as Gardner himself describes it, making "educational suggestions about how 'potentials' might be realized" (p. 111). According to Joe, this means that Gardner and his colleagues are "still following the agenda, with all of its inherent limitations and pitfalls,

of past systems of IQ testing, and the streaming of students according to their 'progression' along the measurement scales for particular tests." Gardner goes even further to demand that "it is essential that the child's own profile of intelligences be regularly monitored" (p. 294). It is interesting to note that Binet's earliest efforts were also aimed at facilitating learning in students, and we have witnessed the subsequent misuses possible with such a system of widespread intelligence testing.

Joe is especially critical of Gardner's recent book *To Open Minds: Chinese Clues to the Dilemma of Contemporary Education* (1989). He sees it as another example of the kind of ethnocentric and culturally-biased research that has been the dubious tradition of Western "intelligence researchers" in "underprivileged" countries in the past few centuries. From an anthropologist's perspective, Joe determines that as a whole, the book "is horrible; the first half is a premature autobiography, followed by a half-assed travelogue of China." He reads the descriptions of Gardner's conversations and lectures to the Chinese people as "justification of his self-appointed role as a patronizing missionary of creativity to China." Gardner's claim that his team "worked diligently to devise instruments that were 'intelligence-fair'" (p. 208) is unconvincing to Joe. In short, suggests this adamant reviewer, this book "is an awful example of ethnography, almost completely devoid of any critical self-reflection, or any fair treatment of cultural differences."

For Joe, the opening chapters are especially illuminating regarding what he sees as Gardner's undue emphasis on the innate intellectual talents of certain gifted individuals such as himself. Calling it "a narcissistic celebration of the triumph of his intellect over an adverse environment," Joe suggests Gardner is using this book to brag, as if to say: "I was born a genius, now stand back and watch me!" A brief example helps to illustrate the basis for this perception.

> I came to realize one burden that I would have to assume myself in the absence of a mentor in psychology: there was no one to steer me through the usual professional byways and past the annoying obstacles; I would have to learn them all at first hand, the

> hard way. Sometimes I yearned to be an anonymous apprentice instead of a headstrong iconoclast. (p. 77)

Though Joe and the other professors I interviewed may be overestimating the influence of Gardner on scholarly psychological research, they nonetheless acknowledge the current popularity of these newest conceptualizations of intelligence.

Historical context. Joe's reading of Gould's *The Mismeasure of Man* (1981) reminds him how "blind and ignorant past scientists were in their measures of and beliefs about humans" citing how "man's former notions of our body's composition of 'elements' and 'humours' now seem insidious in retrospect, but somehow we seem blind to our own mismeasures today. How can we assume that our own practices can ever be 'culture-free'?" As a final warning he declares that we shouldn't be asking the question: "Are there differences in intelligence between individuals?" but rather: "What are the implications of a society which chooses to rank people based on their scores on intelligence tests?"

Conclusions

Limitations. It would be antithetical and perhaps impossible to draw any "generalizations" in an empirical sense from the interpretations above; they must stand their own as part of a phenomenological description of informal explanations of the concept of intelligence. The ideas expressed and reported here are a descriptive portrayal of some underlying conceptions of specific individuals in this environment. The validity or "truth" of these accounts must come from personal recognition by the reader of their veracity in other particular contexts.

Obviously a limitation of this study is the small number of people I spoke with. The "sample" is not random, but simply of convenience, and there is no attempt made at an adequate representation of racial or gender differences. However, this criticism seems more applicable to traditional empirical models of research, while here, such considerations must be held in mind by the reader. Future studies might engage in exploration of this

and other educational issues with a diverse assortment of people at various levels and in other settings.

Certainly the issue of "researcher bias" is a consideration in any study where conversation is used as a method. I realize that my own role in the conversation inevitably helped to shape and direct the dialogue in each case. The topic of conversation was my choice, and I elicited elaborations on several points that we discussed. It is even possible that my nonverbal signals may have helped to bring forth, however subconsciously, comments compatible with my own way of thinking.

Nonetheless, in such phenomenological conversations our idea sharing should not be considered as a "tainting" of the results, since it is the way of talking in most natural human conversations, and is likely the very reason that these people were about to say what they wished on this topic. As one person told me in retrospect: "This was the best possible dialogue; you came to me with an open question which we were able to discuss together. Your openness to my ideas allowed me the freedom and security to clarify and reaffirm my own underlying beliefs." Also, since I was a graduate student and neophyte college lecturer (29 years old at the time of the interviews) who conversed with three experienced university educators, I doubt that I was exercising much "power" over my participants as the researcher.

In the reporting and interpreting stage, I made every effort to present the views of each professor accurately and honestly. There is such an abundance of data generated by letting the individuals speak freely on a topic that collecting "relevant" ideas for discussion even in an abbreviated form is highly time consuming. As mentioned earlier, I brought the accounts back to the participants themselves to address any omissions or other important issues that we may have overlooked in our initial conversation. They also had the opportunity to rephrase or omit any of their comments, or my reporting of their words that they felt were irrelevant or inaccurate. Each person provided substantial notes and comments which were helpful to me at this editing and revising stage.

One of the participants admitted that he felt somewhat uncomfortable with reading his own spoken language in print. Even after being allowed to edit the resulting description, there was still a feeling of losing some of the original power and intent of the initial conversation. This sense of loss with the decontextualizing of language seems an inevitable element of such a study, and indeed, of any transcription of verbal language into a written form. Including passages of dialogue verbatim is one way of alleviating this, but we often do not say exactly what we think we mean. If the entire conversation were reported verbatim, the interpretations could be included in parenthetical asides, or following the raw data. Of course, the result would be a lengthy piece of writing, likely highly problematic in its original form; like the "text" of most natural conversations, it might appear disorganized and less accessible to readers.

Implications and directions. Researchers wishing to initiate further interpretive explorations of people's conceptions of intelligence in academic and other settings may wish to address some of the above concerns. If this study serves to open some relevant areas of interest for research in this field, then it will serve a useful purpose. In seeking meanings together in conversation, we do not expect to find any definitive or conclusive answers anyway.

When I reflect on the conversations and the ideas that we explored together, I realize that no matter how much critical reflection we may do regarding our own behaviors and beliefs, we cannot assume we actually have enough freedom or power to effect immediate or substantive changes. It is interesting to me that the "oppressive system" motif arose naturally in each of the dialogues I had with these instructors on the topic of intelligence and education. As educators at a state university they are all presently operating within a fairly rigid institutional framework. As part of our Western public education system, this domain is still relatively new when viewed from the historical perspective of human history.

Though we may recognize the inherent limitations and possible dangers inherent in our present conceptions and uses of intelligence within this system, we may feel frustrated by our apparent inability to effect positive

changes, or by our relative ignorance of viable possible alternatives. We may even find ourselves unconsciously or consciously accepting the definitions, conventions, and measures as an unavoidable by-product of the educational system, and of the very nature of the animal that has created that organization.

Through phenomenology we can continue to look critically at our present institutions and all of their instruments while adopting a humanistic stance in our critiques and suggestions for improvements. As Shipley (1990) contends, phenomenologists must constantly seek to

> comprehend what we mean by our human experience of reality, the quality of our thoughts, and the reciprocating expressions that we eventually strive at once to keep us in touch with and to move us apart from that reality .... We seek knowledge and understanding, and some wider public expression of compassion. We do not seek manipulation or control; quite the contrary, we seek liberation and release. (pp. 14-15)

With continuing critical self-reflection and open dialogue between concerned individuals, we may discover valuable insights and ideas to improve the instructional relationship between teachers and their students, and between our educational institutions and all the people they were formed to serve and nurture.

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