Decision Making and Depth of Knowledge

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People are constantly making decisions. When these decisions impact the lives of others, they have great significance and those making the decisions have an awesome responsibility. While I have a background of many years in education, it was when I changed roles to an elected municipal official that I began to analyse the basis on which decisions are made. Municipal officials are faced with decision- making, some of crucial importance, on a continuous basis and it easy to observe decision making in action. By being one of the elected officials, I also had the advantage of knowing what information might be available to assist that decision making. I also realized the similarity of the process of decision making in the fields of municipal government and education and used the framework I developed to analyse educational episodes, and in teaching a graduate course at Memorial University.

A Decision Making Framework

To develop this framework I worked from a "bottom-up" approach and during the decision making and in retrospect started to identify the factors that were brought into play. Any help at interpretation came from older publications. Mayer's' (1989) model and the work of Freire and Macedo (1987), Johnson (1981) and Prawat (1993) were helpful. Mayer's work provided an overall framework of Material, Method, Participant, Outcome, and Performance. We need to know what material is available, how this is presented or attained (small group discussion, read, etc.), what is the orientation of the participants, and their background knowledge of the issue, the cognitive and/or affective outcome on the participant, and performance or what happens afterwards. These were easily analysed. For example, an application for a permit to build a dwelling contained information on the location, size, etc. The Municipal Plan and Development Regulations contains information on land use, where dwellings can be built, distances that must be observed from road boundaries, other buildings, waterways, etc. This information is usually read by the councilors who may have varying degrees of interest or prior knowledge of the matter. The applicant may have spoken to some or all of the councilors. After discussing the application in terms of land use regulations, a decision is made and depending on how neat a fit the application is to the regulations and considering extenuating factors, councilors may vote for or against and may have different feelings when the decision is made. If it is favourable for the applicant, then he/she is notified and construction on the dwelling may proceed.

But in spite of being in receipt of similar information, there was often considerable variation in the arguments put forth by participants (or silence) which seemed to relate to the level at which they were processing knowledge. This led to further analysis and a framework for rating depth of knowledge on a 5 point scale, 5 being the highest, was developed.

1. SHALLOW - an awareness/heard of it; read about it in a literal manner but with mistakes in comprehension, told/advised to do it.
2. SUPERFICIAL - heard about it in a factual, literal way; read it in a factual/literal manner; knows the bits and pieces in sequence.
3. WITHIN TEXT - recognizes text type; summarizes information; infers; classifies/ categorizes; organizes information; compares; contrasts; distinguishes fact and opinion.
4. AUTHOR/TEXT AUTHENTICITY - understands purpose for text, qualifications of author; publisher information; date written/ published.
5. BEYOND TEXT - generalizes; hypothesizes; explains by connecting to information from other sources; determines its applicability to other contexts in terms of problem solving, resolves issues, etc.

While materials, method of input, outcome, and performance can be rather easily described in terms how they relate to depth of knowledge, understanding the participant is more complex. The participant, of course, engages in processing knowledge at different depths, but the challenge, almost like understanding the black box, is understanding what knowledge, and biases, the participant brings to processing knowledge. This interrelates with the level of processing for it is difficult for a participant to engage Levels 4 and 5 without relevant prior knowledge. This is evident in beginning teachers or beginning municipal councilors, who are trying to understand some of the key concepts of their field. Unfortunately, biases, too play a part, for it may occasionally happen that a councilor may not be willing to entertain full knowledge in deciding if a resident will get a permit for a dwelling, or a teacher may not want to fully understand the situation of a particular child. Collins et al (1975) are harsh in their description of such people:

It does not trouble people much that their heads are full of incomplete, inconsistent, and uncertain information. With little trepidation they go about drawing rather doubtful conclusions from their tangled mass of knowledge, for the most part unaware of the tenuousness of their reasoning (p. 383).

Understanding what knowledge a participant brings to a decision making event invokes a plethora of literature of schemas and frames that became prominent in the 1970's and 1980's through the Centre for the Study of Reading, at the University of Illinois, with such publications as: A Schema Theoretic View of Reading (Adams & Collins, 1977), Prior Knowledge, Connectivity, and the Assessment of Reading Comprehension (Johnson & Pearson, 1982) and The Nature and Functions of Schemas (Brewer & Nakamura,1984). Freire and Macedo (1987), perhaps best highlighted the relationship between what is known and what needs to be known by their writing on 'reading the world and reading the word'. It is their assertion that in order to read the word, or what needs to be known, a person must have read the world, in terms of what is known.

Application 1 - Understanding an Educational Episode

Material. Individual Student Support Plan (ISSP) reports of a grade 3 child, initial IQ report, re-administered IQ report, school program, volunteer program.

Method. Small group discussion at the school involving parent, parent-advocate (volunteer), homeroom teacher, special education teacher, principal, counselor.

Participant Characteristics. The school was aware of and operated within the strict guidelines of the ISSP model and regulations from the school board. These were to be accepted, not questioned. The schemas represented by the school personnel suggested they knew what was best for the child, in spite of the child being a non-reader after four years in school, and "outsiders", including the parent advocate who was a psychologist and reading specialist and a member of teacher organizations in two provinces, were not welcome. This parent advocate, whose background was working with children with challenging learning problems, had demonstrated in another setting (community centre) that a special program developed for the child, worked.

Processes/Depth of Knowledge.

School Position: The initial IQ test administered when the child was in kindergarten indicated the child was experiencing many problems and according to the test manual, the child was labeled "borderline" with little expectation of learning, based on an understanding of "borderline" (Level 3). When the volunteer asked the school counselor if he had considered the standard error of measurement in interpreting the IQ test scores, it was obvious that this concept was not understood (Level 1) The child's program was phonics based and by grade 3, the child was still confusing the letters of the alphabet, only to be drilled more on these in isolation. This was used to confirm the "borderline" conclusion (Level 2). The school personnel refused to accept the results of a recently administered IQ test by the parent advocate (qualified psychologist) as they claimed it had not been endorsed by the school board (Level 1). They produced samples of the child's writing which were used to affirm the borderline status (Level 2). The parent advocate offered to work with the child during the time she spent in a special education room using a program that had been especially developed for the child in a community centre and was shown to be producing results. This was immediately opposed by the principal who stated that it was against Board regulations for volunteers to tutor children (Level 1). When the volunteer suggested making it a research project in partnership with the special education teacher, which would fit the Board's guidelines, this too, was rejected (Level 1).

Parent Advocate Position: The PA pointed out that at the time the child was administered the IQ test in kindergarten she was experiencing social, emotional, physical, and home problems, and skipped school frequently (Level 3). A brief talk with the child showed her to be very outgoing, talkative, with a wide range of vocabulary, and with definite views on various issues (Level 5). The validity of the lower-cut off points of

the IQ test, which was normed on children in the US, was questionable (Level 4). If the standard error of measurement was taken into account in interpreting the scores on this early test, in spite of the failings of the test and the circumstances of the child, the child could be performing in the low-average range (Level 5). The results of the re-administered IQ test (normed on Canadian children) showed that considering the standard errror measurement the child could be functioning in the average range of intelligence (Levels 4 and 5). The PA concluded the child was so confused about information presented in isolation, she suffered a mental block when presented with more of this meaningless material, namely, letters and sounds in isolation (Level 5). The PA pointed out a comment by the child's teacher that the child wasted time in school by passing notes to other children and asked how this could be reconciled with their conclusion that the child could not write (Level 5). (There was no response.) The PA showed results of the child's success on a program especially developed for her at a community centre (Level 5).

Outcomes. The school personnel disregarded all input from the Parent Advocate and continued with the work they were doing with the child. The parent advocate and parent went away discouraged. The child did not make any progress and continued to become more frustrated.

Performance. Decision making in this case was mainly based on shallow and superficial knowledge (Level 1 and 2). Everything continued as was. ISSP forms were still signed by the parent, educators, and health specialists and life continued for all, while the child was headed for a future of academic failure.

Application 2 - Teaching a Graduate Class

The class was focused on understanding the role of home, school, and community in the early learning of children. There were 14 students. At the beginning of the course the students were introduced to the Depth of Knowledge Framework and to give them a better understanding, one of their assignments was:

> Based on a discussion of decision making through depth of knowledge, from your personal experience, or from knowledge of others, describe: (a) an educational decision that was based on shallow or superficial knowledge OR b) on Levels 3, 4, and 5 (c) What are the implications of using various levels of knowledge in making decisions affecting early childhood learning? Indicate the focus of the decision, the people involved in the decision making (pseudonyms of names, positions, and location), the outcome, and performance. Paper will be graded on awareness of depth knowledge in decision making.

This produced rather interesting results with a range of issues from the closure of a primary school to completing report cards being addressed. It was clear that all understood the relationship of depth of knowledge to decision making. Two students

commented that they had never fully understood how a decision had been made until they retrospected from a framework of decision making, including depth of knowledge.

I have long used Journal Writing in classes but this time phrased it within the decision making model. The directions given were:

> One or two things I <u>learned in class today</u> (Level 3)
> How did this <u>relate to previous learning?</u> (Level 5)
> What were my <u>reactions from what I learned?</u> (Level 4)
> <u>Questions</u> that come to mind (Level 3, 4 or 5)
> <u>Implications</u> – how might this affect my future involvement with young children's learning? (Level 5)

Below is one response from one student:

<u>One thing I learned today</u>: *Fluency is the ability to quickly, expressively and correctly read materials. Because of its association with oral language, its significance has been somewhat sidelined over the years because we tend to diminish oral reading once we have 'mastered' silent reading.*

Fluency is somewhat akin to automaticity in that focus on words becomes second nature; with fluency there is fluidity in reading. The connection between fluidity and comprehension is integral and complex. Without one, the other collapses. Furthermore, fluency cannot be gauged just by the speed by which one reads; it must consider how the child uses all graphophonic cues and how meaning through expression supercedes all the others.

<u>Relation to previous learning</u>

We have discussed the increasing gaps in student learning - the more able or gifted learners develop their own strategies from different learning activities and develop fluency and comprehension. Those who are challenged learners fall farther behind, unless specifically taught the strategies for success (The Matthew effect). This is something I see with boys who have been pushed into high school without mastering some key skills for reading and writing. Silent reading then becomes a mask; there is little to indicate fluency and comprehension in such a forum. Oral reading and choral reading with purpose may assist these students to gain the confidence to continue the necessary skills.

<u>Reactions</u>

Understanding the relationship between fluency and comprehension must take into consideration how the child learns. The child must be understood from a pedagogical and a psychological point of view. From a pedagogical point of view we have distinguished 'acivity' from 'action' learning, where the first is immersing children in a

learning environment with a broad topic, focus on social learning, and enjoyment. Intended learning is directed informally versus formally. The context describes the learning situation. Action learning, on the other hand, is all about strategy development, enabling of a child to control a learning situation and move on to its application. Just having children read as part of an activity project will not likely develop fluency for a number of students. Helping students develop fluency means planning for mental or cognitive action to make this happen. The desired and achievable outcome is progression from the teacher-directed stand to independent self-direction. Development and application of strategies makes this desired goal quite soundly possible.

Questions

At what point do fluency and comprehension interact? Or in other words, at what point does comprehension become bogged down without fluency, or fluency bogged down without comprehension?

What strategies are in place in elementary language arts programs to assist struggling readers to become fluent readers?

Implications

Unless we bridge the gap between the fluent readers (who may also be referred to as 'af-fluent' readers and those who struggle, much may be lost within the increasingly visually directed society of the modern world. We must recognize that a key characteristic of an accomplished reader is fluency. I look forward to trying out some of the strategies we discussed.

Discussion

Decision making is an integral part of our lives and is especially key when the outcome affects other individuals such as in an educational or municipal setting. The challenge of good decision making is aptly phrased by Luchins and Luchins (1970):

> Why is that some people, when they are faced with problems, get clever ideas, make inventions and discoveries? What happens? What are the processes that lead people to such solutions? What can be done to help people to be creative when they are faced with problems? (p. 1)

Adopting 'All About Phonics' program for grade 3 children just because the school counselor recommended it is not good decision making. Voting for a candidate because you know his wife, is not good decision making. Operating on Level 1, 2, or 3 knowledge, only, does not lead to good decision making.

In the discussions with the graduate class, perhaps the most challenging Level of Knowledge to address was Level 4, especially the Author/Text Authenticity. The

students were often unaware of the process by which a curriculum/materials program was adopted by the school, and were less knowledgeable of the credentials of the authors of these programs. Frameworks for analyzing writing, and miscue analysis, for example, are adopted by the schools. I find these questionable in terms of the theory/practice relationship. When challenged, as a point of argument, why the author of these should be right and I should be wrong in our decision making, or vice versa, the students were ill equipped to argue their points.

Because of the relevance of prior knowledge and credentials, it is crucial that participants who can engage in Levels 4 and 5 of depth of knowledge should be engaged in decision making. For example, in the original ISSP/Pathways Program in the Province of Newfoundland and Labrador there was a listing of 37 specialists who may play a role in helping children with challenging needs. These ranged from Addictions Counsellor to Secure Custody Services. There was not a single mention of a Reading Clinician or Clinical Reading Specialist, yet a large majority of children who are relegated for support within the ISSP/Pathways Program experience reading/writing problems. I have never seen a diagnosis in an ISSP file by a reading clinician/clinical reading specialist. I pointed this out in my submission to the Government when the Program was being revised. In Focusing on Students: A Report of the ISSP and Pathways Commission (2007) which included recommendations for the future of this program, what is important is who were involved in decision making about the future of children with challenging learning needs. Those acknowledged include: 1 Commissioner, 1 Vice-Commissioner, 2 Research and Administrative Support, 1 Writer, 8 Advisory Committee Members, and 98 Key informants for a total of 111 individuals. What is perhaps more important is who was not involved in decision making, for not one of the above was a reading clinician/clinical reading specialist. As a contrary example, in 1978 when special funding was made available in the Province of Alberta for support for learning disabled children, reading clinicians were initially excluded from being hired with this funding. As a group they organized and not only demonstrated that their expertise not only lay in working with children with challenged reading and writing needs, but also with children who were learning disabled (personal involvement). A group formed the Northern Alberta Reading Specialists' Council, which is one of the most highly recognized professional organizations in Canada. Furthermore, Alberta students score among the highest in Canada in terms of reading and writing levels.

The decision made is only as good as the decision makers!

Implications

The obvious implication is that good decision making cannot be made at a shallow or superficial level of knowledge. Decision makers must engage in Levels 3, 4, and 5. Since individuals cannot attain instant knowledge, this means including qualified people in the decision making. When this is not possible such as with beginning teachers or beginning municipal politicians, efforts must be made to provide the level of knowledge necessary.

The Decision Making Framework, Levels of Knowledge can be used to retroactively analyse decisions and hopefully to change those that were not made on basis of all levels of knowledge.

The Framework outlined has been shown to be a viable instructional tool in university classes. This framework may be used in other decision-making settings as well, for as Bereiter (2006) says, "... the pursuit of deep understanding is not something that comes naturally as an expression of normal curiousity." (p. 12).

Decision making should not be taken lightly. Perhaps one of the biggest challenges is when individuals do not know what they don't know. If they don't know information within Levels 4 and 5, they will not make good, informed decisions. This places an onus on leaders within the different fields, education, municipal government, and others to provide appropriate leadership in this area. An unfortunate assumption is that the title or position provides the knowledge rather than vice versa and leaders find themselves in positions for which they may not be qualified to make proper decisions.

One student's evaluation of the graduate course perhaps best sums up the importance of good decision making:

> Teaching is not just about doing; nor it is just about inspiring and motivating. It is about decision making, the continuous process of decision making, both for big decisions and small ones. Unless one engages in a valid decision making process, all the rest is by chance.

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