From Noise to Wisdom

A Transformative Model for Data: An Integral Creation

The data-transformation framework, which follows the progression of information, from noise, i.e., undifferentiated bits of non-information, to wisdom, i.e., a complete "informational" state change, was first introduced to me by Dee Hock (1999). He is the founder and CEO emeritus of Visa International, and as a businessman, has been cited by experts in chaos and complexity theory and systems thinking, as someone who has successfully applied the theory's principles to businesses (Waldrop, 1996).

He knew the elements for a healthy, adaptive system include both chaos and order, and as an acknowledgment of the dynamic tension required between the two, named his subsequent organization The Chaordic Alliance, and his theoretical framework, *chaordic*. His interpretation of the chaordic principles, i.e., distributed power, diversity and transparency, has led to the company he founded growing exponentially every year and surpassing one trillion dollars in annual sales volume. Hock has been recognized by the Business Hall of Fame as one of the eight individuals who most changed the way people think in the past quarter century.

The historical threads of this Noise to Wisdom data-transformation model epitomize an integral approach, as many wise people from disparate fields contributed to its rich texture. And, there is little in the literature acknowledging the contributions to the model from the various

perspectives. This speaks volumes about the lack of connection or collaboration among the many areas of study. From poetry, to information science, knowledge management, systems thinking, geography, human and technological relations and communication systems, many have brought new eyes to the model (Sharma, 2005). The poet, T.S Eliot wrote these words in his poem, *The Rock*,

> Where is the life we have lost in living? Where is the wisdom we have lost in knowledge? Where is the knowledge we have lost in information? (1934, p. 2)

Harlan Cleveland (1982), a futurist, diplomat, and informational scientist, referred to the poem in a futurist article, "Information as Resource," in which he connected Information-Knowledge-Wisdom. Yi-Fu Tuan and Daniel Bell are credited by Cleveland as having included *data* to the model because data to become useful has "to be linked to another rung or category of data" (Cleveland, 1982, p. 36), i.e., information. Milan Zeleny (1987), a management systems professor and consultant adds to the model by equating Data, to "know-nothing," Information to "know-what," " Knowledge to "know-how" and Wisdom to "know-why." Russell Ackoff (n.d.), professor of management sciences and organizational consultant, is most often associated with the "Data to Wisdom hierarchy," as it has been called by both information scientists and knowledge managers. He added *understanding* to the flow, because as a systems thinker he knew it was the way the aspects of the model related that mattered.

> You cannot examine a system by looking at its parts; you must look at it as a part of a larger whole. So analysis, we discovered, yields information about the structure of something, and how it works, that's knowledge, know how. Explanations lie outside, that's synthetic thinking. Synthesis yields understanding, analysis yields knowledge, and it was that distinction that was critical for the emergence of the systems sciences. It uses both. To understand systems, particularly those that involve people, synthetic thinking is required. (p. 2)

Ackoff classified the content of the human mind into five categories: 1) data: symbols; 2) information: data that are processed to be useful; provides answers to "who," "what," "where," and "when" questions; 3) knowledge: application of data and information; answers "how" questions; 4) understanding: appreciation of "why"; and 5) wisdom: systemic; a uniquely human state, as it requires one to have a soul, for it resides as much in the heart as in the mind (Bellinger, Castro, & Mills, 2004, pp. 1- 4).

Ackoff also offered a temporal explanation of the various expressions of data. Information "ages rapidly," knowledge "has a longer life-span" and only understanding "has an aura of permanence." It is wisdom that he considers to be "permanent." Wisdom, deals with the future because it incorporates vision and design. With wisdom, people can create the future rather than just grasp the present and past (as cited in Sharma, 2005, p. 5).

Sri Aurobindo although never directly connected with this hierarchy model, has written about data, information, knowledge, understanding, and wisdom. During a lecture about Sri Aurobindo, scholar Matthys Cornelssen (2005), from the Sri Aurobindo ashram in Pondicherry, referred to the model but transposed it to start with wisdom: wisdom-understanding-knowledge-information-data. The teachings of Sri Aurobindo and The Mother that relate to this theme are summarized in the following manner.

> Data are unrelated facts accumulated. Information is organized data so that it can be readily used. The essence of information is an idea. An idea becomes knowledge when it becomes practically usable. Understanding is an organization of the mental energies (including the physical and vital) around an idea that takes a direction so that future thought and action will have its full benefit of support and sure guidance. It is in silence that one can enter into communication with 'integral knowledge and understanding. Wisdom is not consummate knowledge of the world; it is to know the relationship between God and the world. (Ghose, n.d. [b])

A last piece of the richly textured history of the data-transformation model is that Eliot, before writing *The Rock*, had spent two years studying Indian philosophy, e.g., the *Bhagavad Gita* and *Upanishads* in Sanskrit and acknowledged that, "My own poetry shows the influence of Indian thought and sensibility' (Eliot, n.d.). He certainly had engaged with the wisdom of the East. Coming full circle, it points to the integral nature of this model. Hock (1999) added *noise* to the model and differentiated his interpretations of relating to data - moving from undifferentiated "noise" to wisdom.

The Transformation of Data: Noise to Wisdom

Hock (1999) contributes his interpretations of the "hierarchy" model by presenting it in a flow, which connects these qualities of knowing in a transformative manner. It brings a greater intelligibility to the process of bridging the collection of data with its analysis and application. He begins with noise and completes the process with wisdom, which for the purposes of relating to data, is indeed a significant contribution to make to research. As a researcher, I intend to have this research data and information transform, i.e., to bring new life, in the form of knowledge, understanding, and wisdom to the reader. The flow model looks like this:

Noise > Data > Information > Understanding > Knowledge > Wisdom

He begins clarifying the distinctions inherent in knowing.

> *Noise* is any undifferentiated thing that assaults the senses–auditory, visual, or textural. *Noise* is pervasive and ubiquitous and it becomes *data* when it transcends the purely sensual and has cognitive pattern; when it can be discerned and differentiated by the mind. *Data* becomes *information* when it is assembled into a coherent whole, which can be related to other *information* in a way that adds meaning, e.g., Bateson's (1972) difference that makes a difference. *Information* becomes *knowledge* when it has interacted with other *information* in a form useful for deciding, acting or composing new *knowledge. Knowledge* becomes *understanding* when related to other *knowledge* in a

> manner useful in conceiving, anticipating evaluating and judging. *Understanding* becomes *wisdom* when informed by purpose, ethics, principle, memory of the past and projection into the future. *Data* is separable, objective, linear, mechanistic and abundant. *Wisdom* is holistic, subjective, spiritual, conceptual, creative and scarce. (Hock, 1999, p. 223)

The following sections take each phase of his model and relate it to the phases of data collection and initial analysis in this research.

Noise Becomes Data

> Noise is any undifferentiated thing that assaults the senses. It is pervasive and ubiquitous . . . auditory, visual, textural. Noise becomes data when it transcends the purely sensual and has cognitive pattern; when it can be discerned and differentiated by the mind. (Hock, 1999, p. 223)

Preparing for and visiting the schools initially had elements of noise for me . . . all the particles to remember: planning trips, travel arrangements, connecting with the schools; the students, the educators, the school campuses, the communities; the unfamiliar, the unknown, etc. As soon as I was introduced to the student and/or the various educators, the program's differentiated character began to take shape. The semi-structured interviews allowed for a sufficient framework to quickly shift noise into data.

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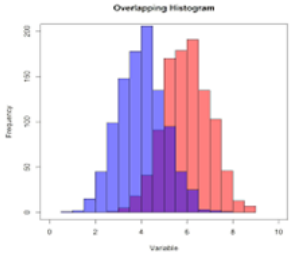

Data becomes Information

> Data becomes information when it is assembled into a coherent whole which can be related to other information in a way that adds meaning . . . a difference that makes a difference. (Hock, 1999, p. 223)

The initial readings of the transcripts and the listening or viewing of the tapes opened a window into the not-yet-known–the beginning formulations of initial themes and patterns to address at a later date. Over many months poring through the transcripts, video and audiotapes, I was interacting with the interviews as ongoing conversations with the participants. Each transcript contained notes that discerned specific data associated with the research question. Sections of each interview that pertained to the four domains of intelligence or the integration of those intelligences were placed in files. The interviewee's data was color coded; with both student and her/his parents receiving the same color to keep the narratives from the same educational program distinct and stored in separate categorical excel files. This allowed for ample room to view simultaneously all the responses in a particular area, i.e., emotional, physical, mental, and spiritual intelligence, and to maintain their integrity. In addition, files were set up for related themes and patterns that were showing up with each new interaction over time.

Because there were specific questions linked to each domain of intelligence in the interview, the initial distinguishing of some data was made easier. (For interview questions see

Appendix C.) Following this specific categorical sorting process, each interviewee's answers were continually reviewed for themes and patterns. The notes taken from program observations and conversations with integral educators were kept in a research notebook throughout the data gathering phase and were stored as information until later in the process.

Information Becomes Knowledge

> Information becomes knowledge when it has interacted with other information in a form useful for deciding, acting or composing new knowledge. (Hock, 1999, p. 223)

Lieblich, Tuval-Mashiach and Zilber (1998) distinguish *classifications* and *organizations* of types of narrative analysis that are critical to this study. They introduce analytical dimensions that lend themselves to the process of interpreting information in a way that highlights specific aspects of the narratives that relate to the research question: *What learning experiences support the development of the spiritual, emotional, physical, and mental intelligences of representative seniors in integral educational programs?* The learning experiences expressed in the interviews illustrate rich examples of relevant content, i.e., what happened, why, etc., from the participant's viewpoint, and the intelligence domains of the spiritual, emotional, physical and mental correspond to key categories that require deeper investigation in the research. The *classification* and *organization* contributed by Lieblich, Tuval-Mashiach and Zilber (1998) that shift the

research information to new knowledge are *Categorical-Content*. They have been utilized in formulating a picture of the content universe of each of the interviewees–their learning experiences in each of the intelligences; spiritual, emotional, physical, and mental.

In addition, significant thematic *categories* emerged throughout the analysis that extended knowledge about these intelligence domains and are included. Some of the meaningful recurring examples from the interviews include: students feeling safe to express themselves fully; being "listened to," being known and respected by parents and teachers from a very early age; having choices; influences of the surrounding culture, i.e., parents, teachers, family, friends, media and the school environment and classes; serving others and have sufficient space and time to reflect. The notes from the program observations and conversations with educators greatly supported this phase of the research as they provided another essential vantage point to the knowledge of the programs.

Knowledge Becomes Understanding

> Knowledge becomes understanding when related to other knowledge in a manner useful in conceiving, anticipating, evaluating and judging. (Hock, 1999, p. 223)

Both existing theoretical contributions and emergent content areas from the reading, listening, and viewing of the interviews were utilized in this study to support me in evaluating the subtext content. Because of the integral nature of the research inquiry, it was essential to have

both theoretical and empirically based *categories* to represent a holistic approach to the interview material. In order to answer the research question effectively, *categories* require rich and varied descriptions that do justice to the complexity of the human beings interviewed. The notes from the program observations and conversations with educators were utilized during this phase of research to write a composite picture of the educational program (see Chapter 4). The composite was shared with the program directors and/or representative educators and were validated by them in their feedback. This interaction also brought me and the educators a new depth of understanding of the programs.

Howard Gardner (2000), Linda Olds (1992), John Heron (1996), Fritjof Capra, (1996), Humberto Maturana and Francisco Varela (1992), Diana Whitney (1995), Dinah Zohar and Ian Marshall (2001), John D. Mayer, Peter Salovey and David R. Caruso (2000), Susan Griffin (1995), Tom Hanna (1993) and Daniel Goleman (1995), add significant insight into one or more of the intelligences categories: spiritual, mental, emotional and physical. These researchers are utilized in the research analysis to provide a theoretical contribution with which to correlate the interviewees' responses. The intention here is to begin a process of witnessing what is possible when scholar, student, parent and educator unite experiences and knowledge. The result is a deeper understanding of the spiritual, mental, emotional and physical intelligences. The development of these intelligences has a profound impact on the identity, i.e., the integral nature and consciousness of young people, their parents and educators.

Understanding Becomes Wisdom

> Understanding becomes wisdom when informed by purpose, ethics, principle, memory of the past and projection into the future. (Hock, 1999, p. 223)

In the final stages of analysis, the students, parents and educators of the integral education programs added the purpose, ethics, principles, memory of the past and projection into the future, to add wisdom to this study. Wisdom is a vital area of inquiry in this research as the development of the spiritual, emotional, physical, and mental intelligences may have more to do with learning how to be effective in transforming information into wisdom than acquiring and managing new information. It requires a different lens through which to view life. The intentional development and integration of the four intelligences provide an integral viewpoint with which to relate to the domains of knowing made distinct by Hock and his predecessors (for example, Cleveland and Ackoff). For him, wisdom is holistic, subjective, spiritual, conceptual, creative and scarce.

This holistic approach to data analysis focuses on the whole, e.g., the person, the phenomenon, the situation (Lieblich, Tuval-Mashiach , & Zilber, 1998). Because this research is interested in the integral experiences, expressions, behaviors and competencies of young people, this way of viewing the data is requisite. The most supportive learning experiences chosen by the students and their parents are presented in the next chapter. The integral dimension is also used

to create a composite picture, i.e., Polkinghorne's (1988) "understandable composite" of an integrally educated student taken from the data of the nine interviewees. Major themes that connect and highlight these integral programs will follow in Chapter 7.