**Editorial Commentaries**

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**Why Disaster Science?**

Some disaster research specialists have suggested that research dealing with disasters has been marking time waiting for the next wave of innovation. Other specialists have adopted the attitude that opinion should be based on demonstrable evidence. Using ideas from earthquakes, floods, hurricanes, and tornados, research designs explore ideas considered by investigators but not yet included in the descriptive-interventional design. While the intent is to show the ease involved in identifying questions for study, the role of research in meeting the needs of modern adult learning also is considered.

**Simulation and Disaster Science:** Some investigators have introduced simulation models in attempting to describe real situations and develop potential solutions. Simulation is a valuable attempt to reduce a complex problem so that the elemental components can be carefully considered. However, the frequently missing ingredient in such reports is the process and steps leading to the model.

**Enhancing Study of Disaster Science:** This book seeks to correct the omission by capturing and organizing the almost 2 million ideas representing disaster science acquired during the period 1990 – 2013 and presented in scholarly publications. This new organization is called an idea database. The records consist of the ideas presented by authors in their sentences. The emphasis on ideas allows the analyst the freedom to consider how the authors used those thoughts as well as to build new arrangements suggesting new thoughts. By incorporating computer and technical algorithms, the potential improvements in knowledge utilization are accelerated.

**Formalized Learning:** Formalized learning has been and is accomplished by using textbooks and lectures. A more recent approach emphasizes the importance of experiential learning. Of those opportunities to learn by experience, research facilitates learning new information and represents an important component of intellectual creativity. As such, the process requires the most effective information processing tools. Unfortunately, the tools used most frequently are based on paper-oriented methods. Those tools tend to involve private and personal behaviors rather than transparent, quality-controlled procedures. The latter would be associated with computer-related tools.

1. If author-ideas were used as the essential data, management of the information could begin by construction of databases similar to those used for numeric data. The experience with numeric data suggested that algorithmic procedures enhanced resulting intellectual accomplishments. Similar outcomes could be anticipated using text.
2. The scholarly publications entered into PubMed during the period 1990 to 2013 dealing with disaster-related events were retrieved and analyzed using software to identify the authors’ ideas presented within each sentence.
3. These ideas could be used to construct new descriptions of the topics associated with disaster-related events and to develop new knowledge-generating strategies. The latter are the intent and result of the research process as formalized learning.
4. Learning by students, new to the subject, can be accelerated by organizing the most frequently occurring ideas into various possible research designs, using an algorithmic process. The process involves dealing with content and procedures in the construction, a more effective and long term approach than memorization. The act of developing and evaluating these designs offers examples of creative and critical thinking in action as well as transparency of the creative process selected.
5. This book explores the advantages of the research design template and a particular design called the descriptive-interventional one. That design provides enhanced descriptions of specific situations while exploring the advantages and deficits associated with interventions designed to alter the original situation. The major benefit of using the template is the ease of developing multiple research designs. This array of designs can be assessed for the information provided by each. The process enhances the development of overt behaviors that could be described as creative or critical thinking.

**Shifts in Effort and Accomplishment:** The topics include the intersect between:

1. Research as a learning process.
2. Identification of essential data in depicting topics.
3. Development of central analytic resources.
4. Transparent critical and creative thinking.

As a result of adopting newer information processing methods, there is a significant shift in effort from the clerical/mechanical tasks associated with data identification and organization to the intellectual tasks representing cognition. In addition to this shift in behavior, the focus could change to a more transparent approach to the thought process.

**Learning Objectives:** As a consequence of using the idea database and associated book, students should:

1. Have an enhanced understanding of research possibilities in disaster science.
2. Acquire experience in describing topics relevant in disaster science.
3. Acquire experience in developing knowledge expanding strategies in this discipline.
4. Develop confidence in performing transparent and quality-controlled critical and creative thinking.