Chapter 1:    Ideas, Essential Data

        Ideas have been used in creativity throughout the centuries.  However, the idea is defined as the result of private, mysterious, and miraculous interaction between the subconscious and the conscious.  If the idea is restricted to that definition, the ability to duplicate the process would require long periods of time emulating experts.  That practice has been routinized in graduate studies.  The success of that, however, is questionable, with about 50% of would-be graduates dropping out of their programs before attaining the final result.

The more recent definition of an idea separates creation from recognition.  The modern definition involves a pair of informative terms (nouns, adjectives, or gerunds) presented by the author in the same sentence.  The sentence is the boundary for contextual meaning and pairs of informative terms within those bounds provide this meaning. This definition further facilitates software recognition of individual sentences, informative terms (by endings and contextual connections), and combinations of terms within the sentence. T he ability of software to accomplish the recognition, extraction, organization, and subsequent utilization satisfies the next important definition, namely, artificial intelligence.

Exhibit 1 illustrates the occurrence of the idea – prevention & accidents – within the sentence.

Exhibit 1. Illustration of an Embedded Idea.

[Goniewicz K](https://www.ncbi.nlm.nih.gov/pubmed/?term=Goniewicz%20K%5BAuthor%5D&cauthor=true&cauthor_uid=26162937)1, [Goniewicz M](https://www.ncbi.nlm.nih.gov/pubmed/?term=Goniewicz%20M%5BAuthor%5D&cauthor=true&cauthor_uid=26162937)2, [Pawłowski W](https://www.ncbi.nlm.nih.gov/pubmed/?term=Paw%C5%82owski%20W%5BAuthor%5D&cauthor=true&cauthor_uid=26162937)3, [Fiedor P](https://www.ncbi.nlm.nih.gov/pubmed/?term=Fiedor%20P%5BAuthor%5D&cauthor=true&cauthor_uid=26162937)4. **Road accident rates: strategies and programmes for improving road traffic safety.** [Eur J Trauma Emerg Surg.](https://www.ncbi.nlm.nih.gov/pubmed/?term=26162937) 2016 Aug;42(4):433-8. doi: 10.1007/s00068-015-0544-6. Epub 2015 Jul 11. PMID: 26162937

**The strategies and programmes for improving road traffic should include the following measures: reducing the risk of exposure to an accident, prevention of accidents, reduction in bodily injuries sustained in accidents, and reduction of the effects of injuries by improvement of post-accident medical care.**

In the example, the authors make it easy for the software to identify the related term – accident. In addition, the idea – prevention & accidents – was easy to identify. In processing this sentence, each pair of informative terms would be included in a record and stored in the database.

The precursor to the current method was introduced by Bloom (1956) who presented an instructional strategy called the Taxonomy of Educational Objectives. The different cognitive functions were identified. Weiner (1979) rearranged those functions to conform with those in data management. The results were labeled as critical thinking. The revised functions were:

***Retrieval*** – The search and retrieval of documents based on the most general index term(s) available. That brought a large number of documents into consideration. Presumably, in that set would be the maximum number of documents actually describing some aspect of the subject of interest. The retrieved set could be processed by the software in less time than other methods, thus realizing efficiency in the exercise.

***Analysis*** – The breakdown of the text from sentences. Within those sentences, informative terms (nouns, adjectives, or gerunds) would be identified. The informative terms would be paired within each sentence to form ideas. Those ideas, together with identifying bibliographic data, would be stored in a database.

***Synthesis***: Combinations of ideas would be developed. Construction depends on classifying the ideas into dimensions. Those are:

Personal – attributes of the subjects (individuals) studied

Environmental – climate, physical terrain, social structure, etc. representing the characteristics of the physical, psychological, social, educational and political categories.

Subject – physical, chemical, clinical, psychological, etc. attributes making up the knowledge representing the subject studied.

Interventional – physical, clinical, psychological, pharmacological, or educational attributes intended to influence or change one of more subject factors.

Outcome – improvement or worsening and quality of the change experienced.

Methods – procedures employed in accomplishing each of the cognitive function

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***Comparison***: Development of measures representing the attributes in each synthesis.

***Evaluation***: Development of criteria dealing with the measures.

***Judgment***: Development of decisions dealing with the measures and criteria.

***Application***: Selection of the “best” synthesis for execution.

These cognitive functions were applied to the disaster management literature and an idea database was constructed (researchdisaster.com). This resource is freely available. The advantages are as in other databases. They are:  reduction in time spent in text analysis, the virtual elimination of clerical functions by the human, the increased accuracy in processing, and the shift to performing higher cognitive functions by the human.