



INTUITION CATEGORISATION USING A TIME-INFORMATION BASED MATRIX

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Abstract

Intuition research has garnered widespread attention in management studies over the past 20–30 years. Numerous theoretical and empirical frameworks have been developed for intuition-based decision-making and creativity. Nevertheless, numerous aspects of intuition remain to be clarified, and a unified framework for intuition research is required. The present study proposes a new categorisation matrix, namely the time–information-based (TIB) matrix. The TIB matrix divides time into present and past and future dimensions and information sources into knowable and unknowable dimensions. The TIB matrix can be used to categorise intuition. This clear and simple categorisation approach may provide a definition of intuition and assist in the selection of appropriate research tools in future studies.

Keywords: Intuition, Intuitive types, TIB matrix, Framework of intuition

INTRODUCTION

In the face of a complex and rapidly changing environment, managers must make decisions with limited information. Dynamic environmental changes reduce the efficacy of conventional data analytics prediction, which adds to the uncertainty of corporate environments. Consequently, many managers have come to rely on intuition in decision-making. People rely on reason, mathematical models and predictions, empirical advice, and expert guidance to make safe decisions with predictable outcomes. However, this decision-making model has become unreliable and erroneous in a world in which information is growing exponentially and technology evolves in a complex, rapid, and disruptive manner. With the future becoming



increasingly unpredictable, decision outcomes have become increasingly uncertain (Ranade, 2022).

Making major decisions has generally become more difficult. Management studies have reported that many business managers are influenced by and rely on their intuition when making decisions and that intuition-driven decision-making is positively associated with organisational effectiveness (Andersen, 2000; Burke & Miller, 1999). In other words, many modern organisation managers rely on intuition rather than data analysis in making decisions (Bonabeau, 2003). Because people do not possess the ability to consciously process all relevant information (Sinclair, 2010), intuition is more effective than data analysis in facilitating decision-making to address complex problems. Therefore, the function of intuition has been reported to have considerable value in management research as a means of efficient decision-making.

Intuition has been researched since the 1930s, and the academic attention given to its application and efficacy as a means of decision-making has continually increased. Studies have indicated that intuition has been broadly applied in entrepreneurial decision-making (Kickul et al., 2009), strategy identification and selection (Elbanna et al., 2013), and new product development (Dayan & Elbanna, 2011) and has positively influenced business performance (Dayan & Elbanna, 2011; Dane et al., 2012). In the past 20–30 years, intuition has garnered considerable attention in management research, particularly with respect to its application in creativity and decision-making. According to Sinclair (2020), intuition research has become common in management studies; in addition, studies have transitioned away from solely analysing expert intuition with a psychology-based focus to conducting extensive surveys to enrich and improve the depth of such research.

Although studies on intuition have increased in number, no unified research structure has been developed. Sinclair (2011) published the *Handbook of Intuition Research* to generalise the theoretical findings made by many scholars to develop a structured and multifaceted understanding of intuition and a framework for intuition research. However, according to Sinclair (2011), the framework remains tentative, and many unknown factors remain undiscovered by researchers. Akinci and Sadler-Smith (2012) also reported that conscientious conceptual framing is required for intuition research.

The current study reexamines the taxonomy and structure of intuition. A matrix is developed with two dimensions, namely information and time, to analyse the types of intuition. This matrix may serve as a framework to provide a simple, accessible tool for studying intuition.

INTUITION DEFINITION

In his theory of psychological types, the famous psychologist Carl Jung considered intuition to be one of the four main psychological functions (i.e., thinking, feeling, seeing/sensing, and intuition). His inclusion of this concept marked the beginning of academic focus on intuition.

Jung defined intuition as the function that “mediates perceptions in an unconscious way... and has the character of being *given*.” In contrast to his view of thinking, which he saw as conscious and willful, Jung envisioned intuition as working more passively, with little need for conscious effort. Rather than being deliberately formulated, intuitions are like gifts from the unconscious.

As intuition research has developed, scholars from various disciplines have sought to define intuition. Table 1 lists the definitions of intuition proposed by scholars.

Table 1. Section of definitions of intuition

Definition	Source
I regard intuition as a basic psychological function. It is the function that mediates perceptions in an unconscious way.	Jung (1923)
mental processes 'not capable of being expressed in words or as reasoning, which are only made known by a judgment, decision or action	Barnard (1938)
Intuition is based on extensive experience both in analysis and problem solving and in implementation, and to the extent that the lessons of experience are logical and well-founded.	Isenberg (1984)
Immediate awareness of past, present, or future events without the conscious use of reasoning. Immediate sense of knowing. Gestalt experience based on the perception of cues linked together with the basic knowledge and past experiences. Intuition is synthesis rather than analysis.	Miller (1993)
One modes of processing information that has been variously referred to as intuitive, natural, automatic, heuristic, schematic, prototypical, narrative, implicit, imagistic-nonverbal, experiential, mythos, and first-signal system.	Epstein, Pacini, Denes-Raj and Heier (1996)
A feeling of knowing with certitude on the basis of inadequate information and without conscious awareness of rational thinking.	Shirley and Langan-Fox (1996: 564)
Cognitive conclusion based upon the culmination of a decision maker's previous experiences and emotional inputs.	Burke and Miller (1999: 92)

Definition	Source
A non-sequential information processing mode, which encompasses both cognitive and affective elements and results in direct knowing without any use of conscious reasoning.	Sinclair and Ashkanasy (2005: 357).
Affectively-charged judgements that arise through rapid, non-conscious and holistic associations.	Dane and Pratt (2007: 40)
(1) Intuition involves a sense of knowing without knowing how one knows.	Epstein (2010)
(2) Intuition involves a sense of knowing based on unconscious information processing.	
(3) Intuition is neither magical nor mystical. It is simply the recovery outside of awareness primarily of tacit information acquired from experience or, less often, responding to entirely new situations according to the principles and attributes of the experiential/intuitive system.	

In the management literature, Chester I. Barnard (1886-1961) was one of the first management writers to attempt to articulate what intuition is, to speculate on its nature and origins, and on the circumstances and particular job roles to which it is relevant. Barnard defined intuition as: "mental processes 'not capable of being expressed in words or as reasoning, which are only made known by a judgment, decision or action' (Barnard, 1938: 302). "Nobel Laureate Herbert Simon (1916-2001), who was influenced by Barnard's work, defined intuitions as 'analyses frozen into habit and the capacity for rapid response through recognition' (Simon, 1987: 63). Miller and Ireland (2005, p. 21) propose a description of the intuitive process based on Roy Rowan's work on the subject: "Intuition is knowledge gained without rational thought. And since it comes from some stratum of awareness just below the conscious level, it is slippery and elusive, to say the least. New ideas spring from a mind that organizes experiences, facts, relationships to discern a mental path that has not been taken before."

INTUITION TYPES

No unified framework for intuition has been developed. In a literature review, Sadler-Smith and Hélot (2021) reported intuition to be categorised into five types: creative, expert, moral, social, and spiritual.

- **Creative intuition** : *Slow-to-form affectively-charged judgment occurring in advance of an insight that combines knowledge in novel ways based on divergent associations,*

and which orients behaviour in a direction that may lead to a creative outcome (Gore and Sadler-Smith, 2011)

- **Expert intuition** : Domain-specific, expertise-based response to a tightly-structured problem based on non-conscious processing of information, activated automatically, eliciting matching of complex patterns of multiple cues against previously acquired prototypes and scripts held in long-term memory (Gore and Sadler-Smith, 2011)
- **Moral intuition** : Automatic, rapid, affect-based judgment made in response to an ethical dilemma, arrived at non-consciously, rationalized post-hoc, and relatively impervious to disconfirmation (Gore and Sadler-Smith, 2011)
- **Social intuition** : Rapid and automatic evaluation of another person's cognitive and/or affective state through the perception and non-conscious processing of verbal and/or non-verbal indicators (Gore and Sadler-Smith, 2011)
- **Spiritual intuition** : A holistic perception of reality that transcends rational, dualistic ways of knowing and gives the individual a direct transpersonal experience of the underlying oneness of life (Vaughan, 1979)

Another Scholar, Sinclair (2011), has published "Handbook of Intuition Research". In his paper "An integrated framework of intuition" grouped intuitive functions into Intuitive expertise, Intuitive creation, and Intuitive foresight. These define below:

- **Intuitive expertise** draws mostly on locally stored domain-specific patterns accumulated in the past. Following on the prior discussion about its convergent focus, it is likely that it will utilize predominantly the matching and constructive styles with little or no involvement of affect.
- **Intuitive creation** also tends to handle domain-specific information (however, not always), but it usually incorporates general experience, and cursory exposure. This means that the information has more breadth, and although it can be sourced from the past, it has a critical present element. Being of a local nature, it remains to be seen whether it can also tap into nonlocal sources, as implied by findings from entrepreneurial research.
- **Intuitive foresight**. It appears that it uses the broadest scope of information, possibly encompassing expertise, experience, and cursory exposure. Although it may utilize locally stored information from the past, conclusions from strategic intuition research hint at the coalescing effect of a present stimulus, while entrepreneurial research even suggests the possibility of sensing from the future. A collateral implication is that some of the information might be sourced nonlocally.

TIB MATRIX

The Time–Information-Based (TIB) matrix categorises intuition according to two dimensions, namely time (row) and information (column). Each dimension is divided into two elements, namely knowable and unknowable dimensions for information and present and past and future dimensions for time.

Information

Information is the basis of intuition. Sinclair (2011) used the nature of processed information as a foundation for categorising intuition in her intuition framework. Two schools of research with differing definitions of the sources of such information have developed. One school argues that intuitive information is obtained from past experience, knowledge, and social cognition. Isenberg (1984), Burke and Miller (1999), Khatri and Ng (2000), Ruth-Sahd (2004), Sinclair and Ashkanasy (2005), and Dane and Pratt (2007) have argued that intuition is not a magical, mysterious power or the sixth sense; rather, it is a learned behavioural sequence influenced by professional knowledge and experience; that is, intuition is a consequence of a decision-maker's views influenced by their experiences and feelings. This information is buried in the subconscious and exposed through intuition when required. Accordingly, the source of such information can be internally or externally traced and is knowable. This type of information affects expert, social, and moral intuition.

The other school of research argues that the source of intuitive information is the subconscious rather than experience or learning and that such information cannot be drawn upon prior to intuition occurring. Jung (1923), the originator of the concept of intuition, indicated that intuition is unique; it is not a feeling, emotion, or intellectual awareness but can manifest in any of the aforementioned forms. Jung indicated that intuition is instinctive comprehension independent of the nature of its content. In *Memories, Dreams, Reflections*, Jung stated, "In the course of my life it has often happened to me that I suddenly knew something which I really could not know at all. The knowledge came to me as though it were my own idea," (Jung, 1963, p. 85). Jung (1964, p. 53) also argued that intuition is not a product of conscious action or judgement; rather, it is an unconscious event caused by various internal and external environmental conditions. Like feelings, intuition is a nonrational perceptual function. Nonrationality is not the opposite of rationality; the term refers to a phenomenon that manifests beyond reason and cannot be constructed through rationality. Accordingly, intuition as defined by Jung is an unconscious overall perception that is derived from something beyond the internal and external stimuli of the world of concrete experience (Pretz & Totz, 2007). In his discussion

of intuitive jumping, Jung indicated that the unconscious possesses *a priori*¹ knowledge. Jung explored why people can form mental images of spatially and temporally distant events without being required to expend a considerable amount of mental effort. This hints at the existence of information similar to *a priori* knowledge in the unconscious or of immediacy without any basis of causation that enables people to intuitively acknowledge things that cannot be rationally identified. Deep intuition can provide fact-based knowledge rather than fanciful or speculative knowledge. To Jung, the unconscious transcends Kant's scope of knowledge and concept of consciousness being confined to the scope of available knowledge. In other words, because of the unconscious mind, people know what they do not realise that they know, which can manifest as thoughts without requiring conscious thinking or unconscious *a priori* knowledge (Stein, 1998). According to the school of which Jung was a part, the source of intuitive information is a *priori* knowledge that is unconscious and transcends time and space and that cannot be accessed at the time of its manifestation; that is, such information is unknowable. This type of information affects creative intuition, spiritual intuition, and intuitive foresight.

Time

In the context of intuition, time refers to the time points at which intuitive information is acquired. Miller (1993) referred to intuition as the "immediate awareness of past, present, or future events without the conscious use of reasoning." In an intuition categorisation framework, Sinclair (2011) listed the point of time at which information is acquired as a categorisation factor. This indicates that the category of intuition is associated with the time of an event.

In the present study, time is categorised into the following dimensions: (1) Present and past: The present is a split time point involving an instant moment and including the past. Expert intuition is dependent on knowledge or experience accumulated in the past. Creative intuition involves an idea that appears in an instant. Social intuition involves subconscious, immediate judgement of others' expressions, voices, or emotions and can thus be associated with both the past and present. (2) Future: The future is a time point that has not yet arrived. This includes events that occur 1 or 2 s after the present. Intuitive foresight refers to the intuitive forecasting of events before they actually occur and has been reported to have occurred in several heart studies (Sinclair, 2011).

Although the current research has identified a lead-time only in terms of seconds. Moral intuition refers to the post hoc rationalisation of a judgement that has been made and can be

¹The Latin terms *a priori* and *a posteriori* are used to distinguish knowledge, proofs, or arguments as obtained from empirical evidence or experience. *A priori* knowledge is knowledge that is obtained independent of experience, whereas *a posteriori* knowledge is knowledge that is obtained through empirical evidence.

considered moral judgements made after predicting future outcomes. Spiritual intuition involves the forecasting of future events through intuition, as is performed by a psychic or a prophet. Based on the discussion above, this study proposes the TIB matrix categorising of intuition as Figure 1 shows.

		INFORMATION	
		Knowable	Unknowable
TIME	Present & Past	<i>Expert intuition</i> <i>Social intuition</i> <i>Intuitive expertise</i>	<i>Creative intuition</i> <i>Intuitive creation</i>
	Future	<i>Moral intuition</i> <i>intuitive foresight</i>	<i>Spiritual intuition</i>

Figure 1. TIB matrix of intuition categories

CONCLUSION

No unified framework has been developed for intuition research. Varying definitions and research frameworks have been proposed because each intuition-based study has had differing backgrounds, research goals, and perspectives. Another reason why no such framework has been proposed is intuition is an abstract psychological concept; it is a personality trait, an unconscious cognitive thinking process, and an extrasensory perception.

Because definitions of intuition have been numerous, complex, and difficult to integrate, the present study proposes a simple categorisation model to define the scope of intuition through a new perspective. This new framework, presented as a matrix, clearly and simply distinguishes the types of intuition. This framework can be applied in other academic disciplines. Future studies can incorporate additional dimensions into the framework to enable further definition of intuition through various perspectives. The TIB matrix can also be implemented in theoretical or empirical research to further supplement the data in each quadrant and improve the intuition framework.

It is the goal of every manager to enhance and utilize his or her intuitive abilities to make better decisions and innovations. However, there are many different aspects of intuitive research and different theories. Therefore, it is difficult to apply the existing theories in practice. Through the framework of TIB Matrix, we can understand the types and uses of intuition not

only in known knowledge, but also in unknown information. Furthermore, the source of information may be beyond time and space. Also, recent discoveries in quantum mechanics have opened up the possibility of intuitive telepathy that's beyond space and time. We expect that future research will revise, extend and modify the proposed matrix. Its goal is to help categorize various facets of intuition more clearly and to select appropriate tools to capture them.

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