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The Psychology of Intuition: Theoretical Cognitive Mechanisms and Empirical Insights

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ABSTRACT

This paper uses theoretical analysis and empirical synthesis to explore the intuition's psychological foundations. Many times, intuitions are perceived as automatic and non-conscious processes which are automatic. But for decades, it has been given very little research or no due consideration in scientific fields. There are many empirical and theoretical supports from cognitive psychology, neuroscience, as well as decision-making science, which acknowledge the role of intuitions. These highlights are in terms of moral reasoning in difficult situations, creativity, as well as decision-making skills in trying or uncertain times. This research paper examines essential theories which support intuitions. For instance, it includes the dual-process model, cognitive and emotional mechanisms in decision making, neurological sciences, and heuristic theories underlying intuitions. Furthermore, along with this, empirical support is also given. Empirical support includes clinical decision-making, creative insights, and morals-based psychology. Both theory and empirical research discuss the reliability and validity of intuitions in terms of the real-world context .

Keyword: *Intuition, Cognitive Psychology, Neuroscience, and Decision-making.*

1. INTRODUCTION

For decades, intuitions have been perceived as something which cannot be defined or many times ill-defined by many scholars. It is considered unreliable and invalid from the perspective of logical reasoning. Often, it is portrayed as irrational or emotionally driven. In recent times, there has been an increase in research done on intuition in terms of cognitive sciences and psychology. Intuitions are considered one of the sophisticated cognitive processes in psychology, which are automatic subconscious process patterns. It involves both emotional and experiential factors. In different situations, it is proven to be one of the adaptive mechanisms that helps in making effective decisions depending on time pressure or uncertain situations. There is a need to consider the theoretical as well as empirical aspects. This research paper aims to provide a comprehensive exploration of intuition. Thus, it reports that intuitions, when perceived and approached from scientific fields, can enhance the cognitive functions and better outcomes of decision making.

Theoretical Foundations of Intuition

Dual-Process Models of Cognition:

Dual-process model is the only model which provides the strongest support for intuitions. This model states that there are two distinct cognitive systems of decision making. The first system is the *intuitive (system 1)*, which operates automatically and is very prompt in action. It is based on the unconscious mental shortcuts. The second system is the *analytical (system 2)*. It is based on reason and logical thinking. It is comparatively slow in action. These systems were reported by Kahneman (2011). It was stated by them that intuitive thinking involves heuristic-based and rapid thinking. It is highly compatible with situations or circumstances which require speed and efficiency. The analytical system is highly reflective and controlled. It required the proper usage of resources along with conscious efforts and cognitive resources.

If we take the empirical viewpoint of both systems (intuitive and analytical), it can be seen that they are both required for a human's adaptive functioning. System 1 processes allow for a quick and assertive decision-making in a normal situation, and system 2 requires more complex and heavy mental processes present in uncertain or high-demanding situations. One drawback of an intuitive system, according to the dual-process model, is that it can lead to cognitive biases because it is based on heuristics. And Heuristics can lead to partial judgment (Tversky & Kahneman, 1974).

The interaction effect between these systems is dynamic, however, an intuitive (system 1) nature provides fast judgment, which might seem illogical to analytical reasoning (system 2). But both these systems are essential for an individual's ability to decide when to use intuitive thinking and when to rely upon logical reasoning. Additionally, when it comes to situations which require less cognition but are at high stakes, intuitive thoughts can dominate the decisions even when they require complex information processing.

Affective Neuroscience (positive and negative experiences) and Somatic Markers:

When intuitions are analysed from the neurosciences lens, work conducted by Antonio Damasio comes into perspective. His *somatic marker hypothesis* (1994) suggested that emotions are essential for guiding any decision as an individual perceives the bodily-based signals or somatic markers. In other words, how their body feels towards that particular decision. These somatic markers are automatically generated by the body based on past experiences and positive and negative responses towards them. In layman's language, it is often said in terms of "Gut feeling or Racing heart". This gut feeling acts as a signal for an emotional reaction to specific situations. When the decision-making time arises, these somatic markers act as an intuition without conscious awareness.

Studies which were based on neuroimaging have reported that the ventromedial prefrontal cortex (an area in the brain associated with emotions) is highly activated when an individual makes intuitive judgements (Bechara et al., 2000). This research seemingly supports the sensation of gut feeling in the body, as emotional changes are taking place in the body (gut reaction) when making an intuitive decision. When talking about clinical decision-making, the somatic markers hypothesis has been influenced. For instance, when doctors rely on the intuitive cue to diagnose any medical condition, to perform a surgery, or to prescribe a medication.

Heuristics and Expertise:

After dual-process and somatic markers, heuristics are also another factor in this theoretical framework, which explains intuition. Heuristics are explained as the shortcuts or rules of thumb which are used by the subjects whenever making any decision. Although it can lead to quick and effective decision-making, it can also lead to biases as well as missing information. More recently, Gigerenzer (2007) reported that despite the biases, decision making can lead to effective real-world decision making in terms of expertise (like Doctors) in a specific field.

For instance, as mentioned earlier, a doctor can diagnose the disease based on their intuition. Such experts in the field, including medicine, law or firefighters, often rely on their intuitions when practising in their field for so many years. One reason for such action is believed to be the amount of experience in the working field. It allows them to identify the patterns quickly and make decisions, even with very limited information. These patterns are usually developed when they are encountered repeatedly, which enables them to develop a *mental library*. Such a mental library consists of patterns and responses. This sense of pattern recognition is known as 'pattern recognition'. This allows they to bypass the need for conscious, rational decision making. Based on expertise and heuristics, the behaviour of the subject is more oriented towards intuitions, which do not fit into the established mental structure of the society.

Embodied Cognition and Intuition:

This perspective gives focus on the acknowledgement of intuitions based on our bodily experiences and secondary interactions with the given environment. In other words, it is the bodily sensations towards the event along with the emotions attached towards them. Such emotions are deeply rooted. This emotional reaction of the body leads to intuitive decision-making.

Many research on embodied cognition has given importance to the human body's state in shaping intuitive judgement. For instance, the perception of sensation of tension in the body is perceived as a negative intuition response, in comparison to a feeling of relaxation or warmth is a signal of positive intuition responses. These embodied cues of intuitions give the subject a direction towards the decision which they make. Such decisions do not need any conscious analysis. This gives way to the integration of primary responses of body and emotional input from cognitions. Such cognitions help in understanding complex intuitions with their association with what the body is feeling compared to the logical mind

Empirical Insights of Intuition

Clinical Decision-Making

As mentioned earlier, clinical decision making is seen when doctors or physicians diagnose a disease based on their intuition, which is developed through years of experience. The term used for such action is "*clinical intuition*". When dealing with similar cases, allow the doctor to recognise such patterns and identify similar cases. These cases are unique, where logical analysis is not seen. A study conducted by Wolpe et al. (2015) has shown that with said amount of experience, doctors can diagnose the disease even in the absence of a clear diagnosis by just relying on their intuitive sense.

But such an intuitive diagnosis is not without problems. Doctors may be called upon to address their cognitive biases, which include confirmation bias. It can lead to the favouring of information, which can lead to the beginning of the diagnosis and not giving due consideration to the medical evidence. This problem of diagnosis can be resolved when intuitions work together with the reasoning mind. This can lead to the removal of clinical decision-making errors. Along with this, a structural diagnostic framework and checklists can also be used instead of solely relying on intuition, which can lead to an objective and systematic analysis.

Moral and Ethical Decision-Making

Research has highlighted the significance of moral and ethical decision-making. For instance, Greene et al. (2001) demonstrate that whenever a moral dilemma is faced, their intuitive responses are based on the emotional response and not on the rational, logical reaction. They mention that "in the classic trolley problem, participants are more likely to endorse a utilitarian solution (e.g., sacrificing one person to save many) when they can engage with the problem analytically." But such a decision involves direct harm to the subject, and intuition supports the deontological reasoning, i.e. "thou shalt not kill."

Neuroscientific studies have also depicted that any kind of moral decision is closely associated with the emotional and affective regions of the brain, especially, ventromedial prefrontal cortex. It can be perceived that moral intuitions are not illogical or irrational, but they are deeply rooted in the physiology of the brain and emotional responses for our moral judgment.

Creativity and Problem-Solving:

Intuition is often depicted in the form of creativity. One of the forms of creativity is *creative problem-solving*, which involves insight or the 'aha' experience in life. This 'aha' experience is when there is an instant recognition of the solution to the problem. The research done by Bowden et al. (2005) found that "individuals who take breaks or engage in activities unrelated to the problem are more likely to experience insight, as this allows unconscious processing to occur." There are a lot of advantages of creative thinking, for instance, it can lead to ground-breaking innovations and experimentation. Creativity can be increased by adding insight with reflective thinking and critical reasoning.

2. CONCLUSION

Intuition is a multi-faceted phenomenon which plays a dominating role in everyday life. Intuitions are observed to be rapid and unconscious processes which facilitate effective decision-making skills. Such decisions involve moral judgement and emotional reactions. Thus, it can act as an adaptive tool. There are many theoretical frameworks, such as dual-process models, affective neuroscience, and embodied cognition. These mechanisms offer valuable insight into intuition. The empirical framework also gives a deep-rooted insight into it by stating clinical decision-making, moral reasoning, creativity and problem solving. Even neurological support is also found for intuitive actions.

Along with the advantages, intuitions are infallible and influenced by cognitive biases. Thus, it is vital to understand when intuitions should be followed and when they are biased. Whenever they are biased, it is essential to have a follow-up with reasoning and analytical thinking. Future research should emphasise the cognitive and neural mechanisms involved in intuition. There is also a need to develop a strategy to develop intuitions and increase their awareness about different situations. Such can lead to better decision-making in both professional and everyday life

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