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Integrative Insights into Rational and Intuitive Decision-Making: A PRISMA-Based Systematic Review

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Abstract: Decision-making processes integrate both rational and intuitive approaches, crucial across disciplines like management, psychology, and neuroscience. This study systematically reviews 152 eligible studies using PRISMA 2020 methodology, examining key theoretical frameworks. Single-process approaches highlight structured, logical analysis, while dual-process theories differentiate deliberate rationality from intuition. Emerging multidimensional perspectives frame intuition as a complex construct encompassing emotional, experiential, and holistic mechanisms.The review proposes an integrated framework with 12 dimensions, including analytical, planning, and knowing (rational) alongside emotional, holistic, and anticipatory (intuitive) styles. It also introduces new dimensions such as body impulses, anticipation, unconscious thought processes, and technology-based decisions, bridging gaps in current models. Advanced technologies like AI are reshaping decision-making, challenging traditional boundaries between rationality and intuition.This study unites diverse theoretical approaches and provides a foundation for interdisciplinary research and applications. It emphasizes integrating rational and intuitive dimensions to enhance decision-making efficiency and adaptability across fields.

Keywords: Rational decision-making, Intuition, PRISMA Methodology, Multidimensional Frameworks,

Decision-making processes

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INTRODUCTION

Today, intuition is an important decision-making theory around different disciplines, e.g management,, psychology and philosophy, and sociology combined (Sinclair & Ashkanasy, 2005; Hodgkinson et al., 2008; Dane & Prat, 2009; Hogarth, 2010) as well as in neuroscience (LeDoux 1996; Barais et al, 2015, 2017, 2018; Craig, 2002; Damasio, 1999; Korteling and Toet, 2020), behavioural sciences (Hodgkinson et al., 2008) para-psyachology (Bem, 2011; Bem et al., 2015, Radin, 2017) as well as health and medical sciences (Glatzer et al., 2020; Chlupsa et al., 2021) or design and engineering (Cash & Maier, 2021; de Rooij et al., 2021).

Intuition is described in various ways in management (Simon, 1987; Agor, 1989; Behling & Eckel, 1991; Shapiro & Spence, 1997; Burke & Miller, 1999; Andersen, 2000; Akinci & Sadler-Smith, 2011; Gore & Sadler-Smith, 2011; Hodgkinson & Sadler-Smith, 2018; Cristofaro, 2019; Sadler-Smith, 2022; Paliszkiewicz, Çetin, Launer, 2023), strategic decision-making (Wally & Baum, 1997; Brockmann & Anthony, 1998; Hodgkinson et al., 2009a; Callabnretty et al., 2017;), in different industries (Launer, Çetin, Svenson, Ohler, 2021), supply chain management (Carter et al., 2017), as well as different management level (Paliszkiewicz, Çetin, Launer, 2021).

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There are many measurement studies and instruments on rational and intuitive decision-making. However, each study uses different approaches. There is no literature study out there yet describing all dimension. The latest literature study by Pietrzak, Launer and Svenson (2022) is a great starting point.

Theoretical Foundation based on existing Studies

Single Process Approaches:Rational Decision-Making

Rational decision-making is often described as an Information processing (Epstein, 1990) or cognitive style (Messick, 1984; Riding & Rayner, 1998; Antonietti, 2003; Pachur & Bröder, 2013). Scott and Bruce (1995), in their General Decision-Making Style (GDMS) framework, characterize the Analytical Style as a methodical and logical process of search and evaluation aimed at achieving clearly defined objectives (Keen, 1974; Mitroff, 1983). This concept aligns with theories proposed by Allinson and Hayes (1996) and Riding (1997), which also emphasize an analytical approach to decision-making. Burns & D`Zurilla, (PMPI, 1999) describe the rational processing style as a structured thinking process, goal-oriented, facts based and evaluating alternatives based on stress (Aldwin, 1994; Lazarus & Folkman, 1984) and problem solving (D'Zurilla & Goldfrid, 1971; D'Zurilla & Nezu, 1990, Mayde u-Olivare s & D'Zurilla, 1996).

Cools and van den Broek (2007) and Pachur and Spaar (2015) identify distinct rational decision-making styles rooted in educational and psychological frameworks (Grigorenko & Sternberg, 1995; Rayner & Riding, 1997, 1998). These styles encompass aspects like learning,perception, problem-solving, and communication (Hayes & Allinson, 1994; Kirton, 2003) and integrate concepts from industrial and organizational psychology (Hodgkinson, 2003) as well as management (Hodgkinson & Sadler-Smith, 2003). One dimension, the Knowing Style, emphasizes logical, precise, and objective decision-making (Allinson & Hayes, 1996; Miller, 1987; Riding & Cheema, 1991), aligning with the analytic pole of Allinson and Hayes' theory and Riding's (1997) analytic style. It is empirically linked to Pacini and Epstein's (1999) REI study.

The Planning Style, in contrast, is structured, sequential, and systematic (Allinson & Hayes, 1996; Kirton, 1994). This style corresponds with the adaptive pole in Kirton's KAI and the REI study (Pacini & Epstein, 1999). A third style, the Creating Style, not included in this study, reflects intuitive and innovative traits (Myers et al., 2003; Kirton, 1994) as conceptualized in Allinson and Hayes' theory (1996).

Dual Process Approaches

The fundamental, historical approach is the dual process theory identifying between (deliberate) rational decision-making and intuition. Several frameworks in psychology assume a dual-process (Chaiken & Trope, 1999; Epstein, 2008; Hammond, 1996; Ham & Van den Bos, 2011; Kahneman, 2011; Mukherjee, 2010; Sloman, 1996; Stanovich & West, 2000; Evans & Stanovich, 2013; Evans, 2008; Keck & Tang, 2020). There are two perspectives within the dual process theory: the unitary view proposition is that cognition and intuition are different poles of a single dimension, whereas the dual-process view proposes that they are autonomous constructs (Hodgkinson et al., 2009b). There are two major studies with a dual approach that develop scales and items.

The Rational-Experiential Inventory (REI), developed by Epstein, Pacini, and Norris (1998) and later updated by Pacini and Epstein (1999), is grounded in Cognitive-Experiential Self-Theory (CEST) as established by Epstein, Pacini, Denes-Raj, and Heier (1996). This framework conceptualizes decision-making through two distinct dimensions: the Rationality Scale, which reflects the "Need for Cognition" or analytical and systematic reasoning, and the Experiential Scale, which captures reliance on intuition or "faith in intuition." These constructs build upon earlier theoretical perspectives, such as Jung's (1964/1968) dichotomy of rational and intuitive processes, Tversky and Kahneman's (1983) exploration of natural decision-making, Bargh's (1989) studies on automatic processes, and Higgins' (1989) work on systematic processing.

These scales are associated with various cognitive constructs, such as heuristic decision-making (e.g., Chaiken, 1980; Fiske & Taylor, 1991), schematic processing (Leventhal, 1984), and prototypical reasoning (Rosch, 1983). They also relate to narrative frameworks (Bruner, 1986), implicit cognition (Weinberger & McClelland, 1991), and imagistic or nonverbal processing (Bucci, 1985; Paivio, 1986). Additionally, experiential approaches (Epstein, 1983) and mythos-based reasoning (Labouvie-Vief, 1990) contribute to the conceptual foundation of these scales. Pacini and Epstein (1999) further link their inventory to the Big Five

personality model, which originated with Fiske (1949) and was later developed by researchers such as Norman (1967), Smith (1967), Goldberg (1981), and McCrae and Costa (1987).

Intuition, as captured by the Experiential Scale, is defined in terms of reliance on gut feelings, instincts, and rapid judgments, often described as hunches or emotional responses. This conceptualization aligns with Jung's (1964/1968) theoretical framework, as well as studies on affective and implicit processes (Buck, 1985; Leventhal, 1984), systematic and deliberate reasoning (Bargh, 1989; Chaiken, 1980; Higgins, 1989), and extensional, verbal, and imagistic thought processes (Tversky & Kahneman, 1983; Bucci, 1985; Paivio, 1986). The dual nature of intuitive and rational processing is further reflected in logos and mythos frameworks (Labouvie-Vief, 1990).

A related dual-process study, the Preference for Intuition and Deliberation (PID), proposed by Betsch (2014), builds on the foundations of Epstein et al. (1996). This model distinguishes between two key decision-making styles: deliberative or analytical reasoning, which emphasizes systematic planning (Cacioppo & Petty, 1982), and affective intuition, characterized by emotional and instinctual judgments (Jung, 1962; Slovic, Finucane, Peters, & MacGregor, 2001; Loewenstein, Weber, Hsee, & Welch, 2001; Myers & McCaulley, 1986; Keller et al., 2000).

She bases her theory on the concept of Interoception (Wilson & Schooler, 1991; Wilson, Lisle, Schooler, Hodges, Klaaren, & LaFleur, 1993), routinized decision making (Betsch, Haberstroh, Molter, Glöckner, 2004; Betsch, Haberstroh, Hohle, 2002), implicit attitude formation (Betsch, Plessner, Schwieren, & Gütig, 2001), predictive behavior (Epstein, 1983), the processes, contents, and correlates of intuition (Hogarth, 2001); reasoning (Sloman, 1996), the context of discovery (Bowers, Regher, Balthazard, & Parker, 1990), and behavioral interests, personality, and experiences (Langan-Fox & Shirley, 2003).

More and more, theories view the relationship between the rationality and intuition as more complex (Thompson et al., 2009). Krajbich et al. (2015), De Neys and Pennycook (2019) and De Neys, (2021) show a revised dual-process models comparing fast and slow intuition. Bago and De Neys (2017) sketch a revised dual process model in which the relative strength of different types of intuitions determines reasoning performance. Pennycook et al. (2015) showed a three-stage model to explain what causes analytic thinking to occur. Therefore, the concept of rationality needs to be described more comprehensively.

On The Way to A Multidimensional Approach of Intuition

Today, researchers in the field of intuition more and more follow a multi-dimensional and interdisciplinary approach (Shirley & Langan-Fox, Sadler-Smith & Shefy, 2007, 1996; Cristofaro, 2019; Sinclair, 2011, 2014, 2020). Based on Dane & Pratt`s and Sinclair`s constructs, many scholars followed developed a broader theory on intuition (Hodgkinson et al., 2008, 2009a, 2009b; Sadler-Smith, 2010, 2015, 2016; Blume and Covin, 2011; Akinci and Sadler-Smith, 2012, 2013, 2019; Baldacchino, 2013, 2019; Baldacchino et al., 2015; Healey et al., 2015; Sadler-Smith et al., 2021; Okoli et al., 2021). Gore and Sadler-Smith (2011) dis-aggregate intuition by discriminating between domain-general mechanisms and domain-specific processes, primary and secondary types of intuition. Cristofaro (2020) describes in depth an Affect-Cognitive Theory. But there is still a need for comprehensive model due to the lack of synergies between scholars from different disciplines (Adinolfi & Loia, 2022).

Intuition is not a homogenized concept, it is rather a description used for various cognitive processes (Glöckner & Witteman, 2010; Hogarth, 2010; Pratt & Crosina, 2016). There were conceptual shortcomings stemming from the tendency to ignore the philosophical heritage of intuition or to dismiss the relevance of this heritage to contemporary theory (Osbeck, 1999, 2001).

Multi-dimensional Approaches of Intuitive Decision-Making

There are five multidimensional researches with a more elaborated, and structured dimensions on intuition. Intuition according to Scott & Bruce (1995, GDMS) was decribed in four styles based on the items by Bruce (1991). The first style is intuitive-based (Hunt et al, 1989; Harren, 1979), based on feelings (Keen, 1973), and a learned habit (Driver, 1979; Driver et al.,1990). The second style was dependent decisions (Harren, 1979; Philips, Pazienza & Ferrin, 1984). This was also described by Simon (1987) as intuition based on interpersonal interaction or women`s intuition (Snodgrass, 1985) and lately in neurobiology (Marks-Tarlow, 2014). Later Lieberman (2007) goes even beyond describing dependent decision based on social cognitive neuroscience in: (a) understanding others, (b) understanding oneself, (c) controlling oneself, and (d) the processes that occur at

the interface of self and others. The third subdimension Avoidant was not used in this study (Driver, 1970; Behling, Gifford & Tolliver, 1980; Driver et al, 1990). In their stiudy they found the fourth dimension called Spontaneous.

Burns & D`Zurilla (1999, PMPI) describe intuitive decision-making designed to assess a person's awareness and perception of his or her dominant mode of processing across stressful situations (Aldwin, 1994; Folkman & Lazarus, 1980; Pearlin & Schooler, 1987; Carver, Scheier, & Weintraub, 1989; Tobin et al., 1989) and the cognitive -experiential self-theory (CEST) by Epstein (1990, 1994). The CEST theory described intuition as an experiential intuition focusing on such qualities as the speed and impulses of processing (minimal time and mental effort); the reliance on feelings, vibes, hunches, and instincts) and the recall of past coping experiences and familiar coping responses (Burns & D`Zurilla, 1999). Based on a content analysis of the item clusters, exploratory and confirmatory factor analyses, the three factors were named emotional processing, rational processing, and automatic processing. The Automated Processing is described as quickly and efficiently, aware,swiftly, and experience-based and repetitive (Burns & D`Zurilla, 1999).

In the literature, it was described as fast and efficient, outside of awareness, unintentional, and uncontrolled (Bargh, 1994; Smith, 1994; Shiffrin & Schneider, 1977) based on expertise (Carter et al., 2017). Logan (1988, 1989) described it as an automatic memory retrieval, Bargh (1994) as a goal-dependent automaticity and for Smith (1994) it was all about speed and efficiency. It is an immediate knowing of how to cope based on past coping experiences (Burns & D`Zurilla, 1999). The Emotional Processing described as instincts, feelings, vibes, gut feeling, hunches, and emotions (Burns & D`Zurilla, 1999). People with a preference to emotional processing are more extroverted, preferring emotional and interpersonal relationships, and are more adaptive for emotion-focused coping, expressing emotions and seeking social support. Later Miller and Ireland (2005) describe strategic decision making based on holistic hunches and automated expertise.

Pretz et al (2014, TintS; Denin et al., 2022) described intuitive decision-making in three dimensions based on the literature review by Pretz & Totz (2007). Intuition has a holistic nature of intuition (Jung, 1971; Hammond, 1996) described as knowing without being able to explain how we know (Vaughan, 1979). The first sub dimension is Affective Intuition based on feelings (Bastick, 1982), a feeling of certainty (Hogarth, 2001), or emotional processing (Epstein, 1998; Bechara, Damasio, & Damasio, 2000). Affective intuition was described as body impulses incl. heart-based, emotions, hunches (anticipation), and gut feeling decisions (Pretz et al., 2014). The second type of intuition is Inferential Intuition (Hill, 1987) as an automated (Vaughan, 1979) and heuristical (Wescott, 1968; Forgas, 1994) type of intuition in an implicit judgmental sense (Greenwald & Banaji, 1995). It is also described as experience-based, quick, familiar decisions with reasoning, logic (Klein, 1998, Sternberg et al., 2001). Third type of intuition is a Holistic Style (Jung, 1926; Hammond, 1996) or holistic mechanism (Bowers, Regehr, Balthazard, & Parker, 1990; Dijksterhuis, 2004; Wilson & Schooler, 1991) which was divided by an factor analysis into a Holistic Big Picture Intuition and a Holistic Abstract Intuition (Pretz et al., 2014). The holistic-associative view of intuition is acknowledged also by psychology researchers (Agor, 1986; Kihlstrom, 1987; Shapiro & Spence, 1997; Betsch & Glöckner, 2010; Glöckner & Witteman, 2010) as well as management scholars (Dreyfus & Dreyfus, 1986; Simon, 1987; Prietula & Simon, 1989; Kahneman & Tversky, 2000😉 and lately by Adinolfi & Loia (2022).

Pachur and Spaar (2015, USID) distinguish in domain-specific perspective based on previous studies e.g. PID, REI, GDMS, CoSI, PMPI) two major dimensions. The Spontaneous Intuition and Experience-Based Style is characterized by rapid, instinctive decision-making informed by experience and repeated patterns (Boucouvalas, 1997; Gigerenzer et al., 2011). This approach involves swift judgments, heuristic use, and heightened awareness, often demonstrated by experts in their fields (Pachur, 1986; Marinello, 2013). The importance of experience has been researched best by Klein (1998) in his recognition-primed decision model. Pachur and Marinello (2013) described that expert are more likely to rely on a lexicographic heuristic, whereas the non-experts used a more complex strategy, that aggregates across different cues (Garcia-Retamero & Dhami, 2009).

Second is the Affective Intuition based on feelings, body mpulses, and hunches knowledge of human nature, inner reactions, life experience,hunches, gut feeling heart (Burns & D`Zurilla, 1999; Pretz et al., 2014; Betsch, 2014). Affective intuition is still a rather broad description of many different feelings, body impulses, and moods. Therefore this dimension on intuition will be deepened (Launer,2022).

New Dimensions for intuitive Decision-Making

Launer and Cetin (2023) describe new dimensions and styles in their Measurement and Instrument Study. The new dimension are described briefly;

Body Impulses

Different kind of feelings are a source of intuitive decision-making (Bonabeau, 2003; Burke & Miller, 1999; Dane, Pratt, 2006; Klein, 2003; Sinclair, Ashkanasy. 2005) and relief or certitude (Cappon, 1994; Petitmengin-Peugeot, 1999). Results of the collection of senses in the internal state of the body (interoception or body Impulsess) from neurology and medicine (LeDoux 1996; Barais et al, 2015, 2017, 2018; Craig, 2002; Cameron, 2002; 2009; Barrett, Simmons, 2015; Khalsa, Lapidus, 2016; Damasio, 2008; Damasio, Tranel & Damasio, 1991) showed that emotional processes guide (or bias) decision-making, e.g. in the homoestatic sensory activity (Craig, 2002, 2009). The idea of "gut feeling" should be redefined, transitioning from a broader and non-specific notion to a more nuanced perspective that encompasses physiological sensations initiating from the stomach, colon, and the visceral sensory system. This approach is supported by research on the enteric nervous system and its complex interactions with the brain (Gershon, 2001; Hooper et al., 2001; Mayer, 2001; Barbosa & Rescigno, 2010; Arumugam et al., 2011; Brandtzaeg, 2011; Cryan & Dinan, 2012; Haller & Hörmannsperger, 2013; Schemann, 2020).

Additionally, interoceptive processes, such as heart rate perception, significantly influence decision-making. This relationship is explained by theories of somatic markers and interoceptive accuracy (Schandry, 1981; Pollatos & Schandry, 2004; Dunn et al., 2007; Pollatos, Herbert, Matthias, & Schandry, 2007; Garfinkel et al., 2015; Schulz, 2016; Launer, Ali, Khattak, & Umair,2024). Similarly, arousal responses, including skin conductance and sensory feedback, play a crucial role in emotional and cognitive processes, as indicated by studies on tactile and thermal stimuli (Loggia, Juneau, & Bushnell, 2011; Breimhorst et al., 2011).

Anticipation

The scales described for intuition primarily characterize an affective decision-making process based on hunches (Scott & Bruce, 1995; Pacini & Epstein, 1999; Pretz et al., 2014; Pachur & Spaar, 2015). This research expands on these characteristics by introducing a distinct dimension termed Anticipation (Launer, 2020). This concept relates to the processing of information that originates externally to the individual, as discussed by Sinclair (2011, 2014). Various researchers have sought to explore and explain non-conventional or anomalous decision-making phenomena. For instance, studies address concepts like solution anticipation—such as premonitory emotions (Radin, 2004), precognition (conscious awareness of future events), and premonition (emotional apprehension)—as highlighted by Bem et al. (2015). Research also examines extrasensory perception (ESP) (Thalbourne & Haraldsson, 1980), paranormal beliefs and experiences (Lange & Thalbourne, 2002), and automatic evaluations (Ferguson & Zayas, 2009).

Whereas in sports, anticipating opponents' next actions is often conceptualized within the framework of heuristics (Grush, 2004; Williams & Ward, 2007; Schultz, 2013). However, this concept is more appropriately situated within heuristic theory (Launer, 2018).

Unconscious Thoughts

Carlson's (2008) study, building on the TIntS framework proposed by Pretz and Totz (2007), incorporated the incubation dimension, drawing from Dijksterhuis's (2004) theoretical model. This approach suggests that decisions can be made not only rapidly but also following a period of unconscious activation and reflection (Bowers et al., 1990; Waroquier et al., 2010). The concept of incubation, as described by Wallas (1920) and further explored by Shirley and Langan-Fox (1996), involves unconscious thought processes (Dijksterhuis & Nordgren, 2006), distraction as a cognitive tool (Kohler, 1969), overcoming mental blockages (Duncker, 1945), completing cognitive schema (Mayer, 1996), and intuitive advancements (Nicholson, 2000). Although the quality of decisions derived through these processes has been questioned (González-Vallejo et al., 2008; Srinivasan et al., 2013; Newell & Shanks, 2014; Čavojová & Mikušková, 2014; Abbott, 2015; Nieuwenstein et al., 2015), slow decision-making remains a predominant approach in management practices (Pachur & Aebi Forrer, 2013).

New Dimension Technology Based Decisions

Rosak and Launer (2023) describe in their presentation and short paper the decision-making based on new

technologies. Today, decision-making is more and more performed using Artificial Intelligence.

Modern technology has significantly transformed decision-making in companies, including the IT industry (Selart et al., 2008). Intuitive decision-making has shifted towards a more data-driven approach, though research on intuition and IT remains limited due to challenges in defining and measuring intuition (Ramrathan & Sibanda, 2017). IT investment decisions are often riskier than other capital investments, making decision-making a key managerial task (Kusumawati & Subriadi, 2019). Since the 1960s, decision support systems (DSS) have evolved, with modern technologies like dashboards and web tools enhancing decision-making by offering advanced functionalities such as data analysis, modeling, and collaboration (Bhargava et al., 2007). Despite these advances, early-stage technology-based service innovations still face high failure rates (van Riel et al., 2011).

Businesses are increasingly adapting their processes, structures, and models due to rapid advancements in digital technologies (Kraus et al., 2021). This technology revolution has made modern tech essential in daily operations, strategies, and decision-making. Intuitive decision-making is now shifting to a more data-driven approach, especially in the IT industry (Selart et al., 2008). However, research on intuition and technology remains limited, partly due to challenges in defining and measuring intuition (Ramrathan & Sibanda, 2017). IT investment decisions carry higher risks than other capital investments, making decision-making a critical aspect of management (Kusumawati & Subriadi, 2019).

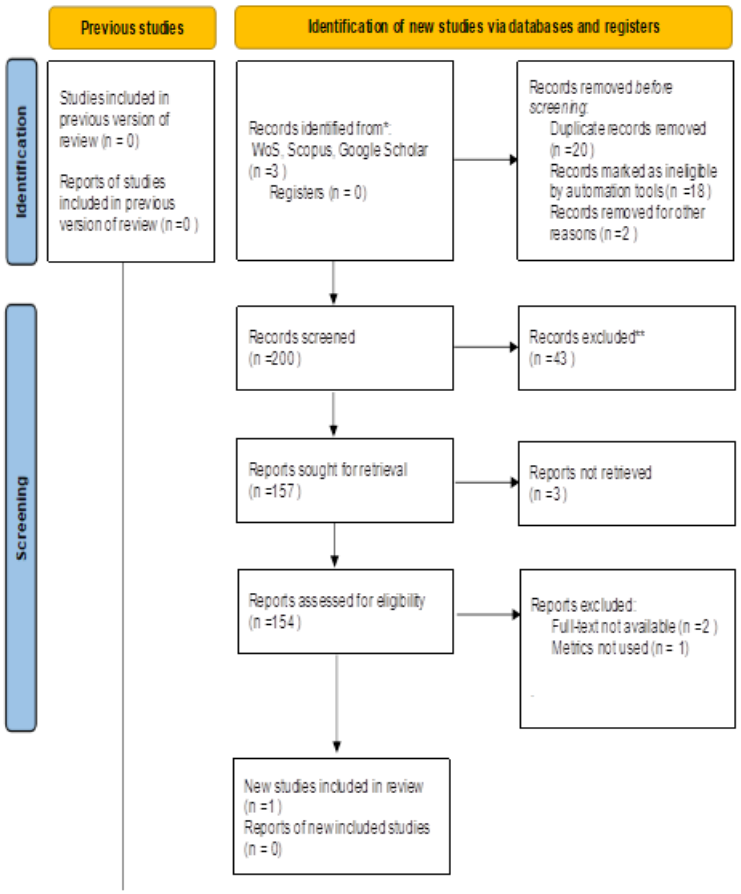
Integrated, multi-dimensional and multi-disciplinary Framework

When combing all approaches on how to measure intuition in an integrated, multi-dimensional and multi-disciplinary framework, a rather broad definition on intuition is needed. Intuition seems to be an unconscious, spontaneous inferential or slow decision making process based on holistic abstract or big picture (Holistic), experience-learned heuristics, affective and emotional feelings and body impulses, decision based on technology-perception without awareness, environmental influences by people as well as the capability for per-cognition based on hunches (Launer et al., 2020).

PRISMA: A systematic Literature Methodology

The PRISMA 2020 flowchart outlines the systematic review process for Rational and Intuitive Decision-Making studies. Initially, 3 records were identified from databases such as Web of Science, Scopus, and Google Scholar, with no additional records from registers. Before screening, 40 records were excluded due to duplication (20), ineligibility by automation tools (18), or other reasons (2). A total of 200 records underwent screening, with 43 excluded for irrelevance. Of the 157 reports sought, 3 were not retrieved, leaving 154 reports assessed for eligibility. During this phase, 3 reports were excluded (2 lacked full texts, and 1 did not use metrics). Ultimately, 152 studies were included in the review, reflecting a comprehensive and transparent selection process. This ensures the inclusion of high-quality evidence, crucial for a robust synthesis of Rational and Intuitive Decision-Making literature. One new study was added to the review, while no additional reports were included.

PRISMA 2020 flow diagram for Updated Systematic Review



Analysis of Intuition Dimensions		Scale Development Studies								Unconscious Thoughts	Theory on Personality (Book)	Para-Psychology		Literature Study
		Scott & Bruce	Pacini & Epstein	Burns & D'Zurilla	Cools & van den Broek	Pretz & Totz / Carlson	Betsch	Pachur & Spaar	Launer & Cetin	Dijksterhuis	Epstein	Bem	Thalbourne & Haraldsson	Khan & Launer
		1995	1999	1999	2007	2007/2008 (2014)	2014	2015	2023	2004	2003	2011/2015	1980	2024
		GDMS	REI	PMPI	CoSI	TIntS	PID	USID	RIDMS	UTT	CEST	Precognition	ASGS	
Rational Decision Making or deliberation in general			Rational analytical	Rational Processing			Deliberation				Rational, verbal reasoning			
	Analytics (search & evaluation)	Rational (Search & Evaluation) = analytical							Analytical Style					Analytical Style
	Planning				Cognitive Styles (Knowing)				Knowing Style					Knowing Style
	Knowing				Cognitive Styles (Planning)			Rational (Planning & Knowing Style	Planning Style					Planning Style
Holistic, uncritical perception and unconscious intuition			Thinking in abstract terms			Holistic abstract and holistic big picture			Holistic Big Pictutre					Holistic Big Pictutre
	Holistic Abstract													
	Holistic Big Picture													
Fast Decisions														
	Spontaneous decisions intuition	Spontaneous		Automated Processing				Spontaneous	Spontaneous					Spontaneous
	Experienced based inferential or heuristical Intuition			Automated Processing		Inferential			Experience-based heuristically		Experiental (Learning facts and emotions)			Experience-based heuristically
Emotional affective decisions (gut, heart and skin feeling as well as somatic markers)			Experiential	Emotional processing		Affective	Affective	Affective	Emitional Style					Emitional Style
	Feelings & Emotions	Intuitive incl. Feelings & hunches	Experiental = feeling)	Emotional (Feelings, Gut feeling)		Heart	Affective (Feelings)	Feelings /Gut & Heart)	Body Impulses					Body Impulses
	Mood													
	Anticipation, presentiments, pre-cognition and pre-monition		Experiential (Hunches)			Emotional hunches			Anticipation			Precognition	extrasensory perception (ESP), psychokinesis (PK), and life after death (LAD).	Anticipation
Support from others or environmental influences		Dependent	Experiential by feeling a person is wrong or right						Support by Colleagues					Support by Colleagues
Slow unconscious thinking, Incubation or Unconscious Thoughts						Incubation (Carlson)			Slow Unconscious Thoughts	Unconscious Thoughts Theory				Slow Unconscious Thoughts
Not used dimension in our study		Avoidant												Avoidant
					Creating									Creating
														Technology-based

DISCUSSION

Implications

Launer, Svenson, and Cetin developed 12 dimensions to measure rational and intuitive decision-making across various fields. Their framework includes categories such as Rational (Analytic, Planning, Knowing), Holistic (Abstract, Big Picture), Fast (Spontaneous, Heuristic), Slow (Incubation), Emotional decisions, and a new dimension, Anticipation (hunches). These dimensions offer a comprehensive and independent approach to understanding decision-making.

Their findings show that the rational decision types (planning, knowing, and analytical) correlate with each other, while affective intuition (emotions, body impulses, mood) forms a distinct, closely related group. The often vague "gut feeling" is now better defined, with anticipation emerging as a new dimension of intuition. The study also clarifies that fast and slow unconscious decision-making are distinct forms of intuition, and decisions influenced by others now have greater clarity as a factor of intuition.

Limitations and Future Research

The RIEHUAD approach has several limitations, necessitating caution when interpreting its findings. These limitations include reliance on self-report measures for evaluating validity (Burns & D'Zurilla, 1999; Hodgkinson & Sadler-Smith, 2011) and the lack of a process-based description of decision-making (Topolinski, 2011). The model overlooks contextual and environmental factors influencing intuition (Elsbach & Barr, 1999) and fails to address instinctual dimensions (Sun & Wilson, 2014). Additionally, interpersonal intuition, particularly in teaching and communication settings, remains under-explored, with "teacher intuition" as a potential new dimension (Akinbode, 2013).

The study does not consider wise decision-making, a blend of rational and intuitive choices (Sadler-Smith, 2012), nor does it assess the success or quality of decisions, as both rational and intuitive decisions can be imperfect or ambiguous (Watkins, 1970; Burke & Miller, 1999). Furthermore, the study does not examine decision speed or frequency, nor how much information is typically gathered before decisions are made. While the questionnaire measured participant preferences, some dimensions still require deeper testing through qualitative experiments.

CONCLUSION

This study introduces an Integrated multidisciplinary multidimensional framework based on existing, widely accepted studies and empirical studies. They provide a comprehensive collection of all dimensions for rational and intuitive decision-making and four additional dimensions for the emotional decision-making style. It is usable for all kind of decision-making in the broad research field. The methodology used for systematic review, is a PRISMA-based systematic literature approach.

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