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Developing a Scale for Intuitive Decision-Making Styles: Enhancing Measurement of Deliberation, Heuristics, Unconscious Thought, Emotions, and Anticipation

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Abstract: Intuitive Decision-Making is a multi-dimensional, complex phenomenon that has to be researched in an interdisciplinary approach. Most studies have a dual approach – deliberation or intuition – others already distinct two or three different types of intuition. Latest research reveals however, intuition needs a multi-dimensional approach. The target of this study is to better describe intuition in four different styles of intuitive decision-making based on the preferences by participants from different cultures – describing a multicultural measurement instrument. This is important because most studies on scale development were done on a national level. The study aims to improve business and economic theory by describing intuition in an approach usable for various types of jobs in different industries. Therefore, the study is conducted across a sample of people from different cultures, over 30 countries, and over 35 different industries and various different job types. In the first step, the authors confirmed the measurement tool for Preference for Intuition & Deliberation (PID) in the multi-cultural sample, shortened the items catalogue, and made the items understandable in different cultures. Second, the authors improved the different styles of intuition by using adapted and new items. The cognitive decision-making style was shortened to three items, making it very usable for further studies. The dimension experienced-based intuition was better described based on the heuristic theory. The intuition style affective emotional was divided into two separate dimensions, describing the item hunches in more detail, now named: Anticipation. The newly proposed intuition style is Unconscious Thoughts which are not measured in the former studies. This analysis is based on the findings of a European Union funded project called RHIA, which used a self-rated scale to ask 5574 employees about their preferences at work. After using established testing approaches, like Exploratory Factor Analysis (EFA), a Confirmatory Factor Analysis (CFA), the Cronbach's Alpha coefficients, as well as the Primary Component Analysis (PCA), Maximum Reliability (Hancock's H), and Classical Test Theory, the results presented are robust, valid and reliable new and improved intuition decision-making styles for the use in measurement instruments and practice.

Keywords: Intuition, Deliberation, Rationality, Emotional, Unconscious Thought, Anticipation, Decision Making, Experienced-Based Heuristics.

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INTRODUCTION

Intuitive decision-making in international contexts is inherently complex, shaped by cultural diversity and the accumulation of experience in managing intricate systems. Individuals draw on their past experiences to navigate and control these systems effectively, leveraging insights gained over time to enhance decision quality (Gonzalez et al., 2003). When confronted with seemingly familiar decision-making dilemmas, people rely on the wisdom derived from their experiences, allowing them to discern which options are advantageous and which should be avoided (Betsch, 2005b). This process highlights the nuanced interplay between intuition, culture, and learned expertise in shaping decision-making outcomes across diverse environments.

Experiences and the associated learning and memory processes are necessary for an adequate explanation of decisions in the context of everyday life (Betsch, 2005b). There is a vivid exchange between researchers in the field of decision making as well and cognitive science to solve puzzles in dynamic decision-making (e.g., Fellows, 2018; Harman et al., 2019). Betsch's (2005a) preference theory illustrates that affects are largely a reflection of one's past experiences, particularly one's successes and failures in achieving one's goals through the conduct in question. This theory posits that our thoughts (about potential outcomes, hazards, and so on) do not directly influence our

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actions, but rather are mediated by the feelings we connect with those thoughts. The drawback of intuition is that even the most seasoned decision-makers might fail to accomplish the intended target as the circumstance evolves (Betsch, 2005b).

Research has shown that trust in intuition varies significantly among individuals from different cultural backgrounds (Hofstede, 1980, 1994; Blinded for review, Çetin, Ermasova & Launer, 2023) and may respond to the same question differently depending on their own worldview (Dorfmann et al., 1997; Norenzayan et al., 2010). For expatriates working in another culture, it is difficult to understand local decision making (Brock et al, 2008; Fletcher & Fang, 2006). The psychic difference plays a big role in intuition across nations (Dow & Karunaratna, 2006; Håkanson & Ambos, 2010) as well as different leadership styles (House et al., 2004; Shenkar, 2001) and across foreign subsidiaries (Launer, 2005a and 2005b). Similar to Betsch (2004), this research puts the PID scale through its paces in a domain-specific setting. To ensure the PID concept can be applied across cultures, it needs to be tested in such a context.

Intuition is now widely acknowledged as a legitimate approach to decision-making, particularly in scenarios requiring rapid responses and complex problem-solving (Schoppek et al., 2019; Brehmer, 1992). While some researchers regard intuition as a single, unified construct (Behling & Eckel, 1991; Ambady, 2010), the field of psychology has long differentiated between rational, deliberative decision-making and intuitive processes (Pachur & Spaar, 2015). Dual-process models further reinforce this distinction, highlighting the separate roles and mechanisms of intuitive and deliberative cognitive systems in human decision-making (Svenson, Steffen, Harteis & Launer, 2022). This duality underscores the complexity of cognitive processes and their contextual applications.

Intuitive decision-making is a multifaceted construct encompassing a variety of cognitive mechanisms rather than a single, uniform approach (Gobet & Chassy, 2009; Glöckner & Witteman, 2010). Hill (1981) identified distinct styles of intuition, categorizing them into two primary types: classical holistic intuition and inferential intuition. Classical holistic intuition is characterized by a spontaneous, uncritical perception of the whole, emphasizing the entirety of a situation rather than its discrete components. In contrast, inferential intuition involves a heuristic process, which Hill (1987) described as "a logical (inferential) process in which several intermediary steps have been omitted or obscured" (p. 138). This distinction underscores the complexity and variability inherent in intuitive processes, highlighting their nuanced application in decision-making contexts. Therefore, multi-dimensional approaches are researched.

The General Decision-Making Style Inventory (GDMS) was developed by Scott and Bruce in 1995, advancing earlier theoretical models to enhance the understanding of decision-making processes. The GDMS was specifically crafted to evaluate four distinct decision-making dimensions: rational, avoidant, intuitive, and dependent (support by colleagues). Each dimension captures a unique strategy individuals employ in processing information and making decisions, offering a structured and comprehensive framework for analyzing decision-making styles. This instrument has since provided valuable insights into the diverse cognitive approaches underlying human decision-making.

Rational Experiential Inventory (REI), which was first introduced by Epstein and Pacini in 1999, provides a comprehensive model of studying the processes of decision-making through an integration of the heuristics of experience, holistic, and affective (emotional) factors. This inventory is used to distinguish rational and experiential styles of thinking, which is an effective way to describe how people strike a balance between analytical thinking and an emotionally motivated process. The REI offers a holistic view on the relationship between logic and intuition in decision-making by covering these two dimensions.

Burns and D'Zurilla (1999) created a measurement instrument, the Perceived Modes of Processing Inventory (PMPI) to determine three types of cognitive processing styles: rational, emotional and automatic (spontaneous and experienced-based intuition). The PMPI offers a way of understanding how people interpret and use these cognitive strategies in different decision-making and problem-solving situations and provides a systematic approach to understanding the interaction between analytical thinking and emotional manipulation and the instinctive reactions. Cools and Van den Broeck (2007) subsequently formulated the Cognitive Style Indicator (CoSI) , and focused on the continuum of analytic-intuitive cognitive style. This tool offered a more refined insight into the analytic dimension as it divides it into two different styles: a knowing style, which is defined by an interest in factual knowledge and logical thinking, and the planning style, which is typified by structured and goal-oriented thinking. Besides, the CoSI had a creative aspect, which emphasized the differences in the way people make decisions and

solve problems in various situations.

Pretz et al. (2014) formulated the Types of Intuition Scale (TIntS) as an instrument first theorized and tested by Pretz and his associates (Pretz and Brooking, 2007; Pretz and Totz, 2007). The TintS was created to measure intuition in three different dimensions including holistic intuition (the capacity to identify patterns and relationships in the context of a larger whole); inferential intuition (logical processes that do not involve explicit reasoning); and affective intuition (judgment based on emotion). The scale provides an in-depth and systematic way of quantifying the multivariate nature of intuitive processing.

Pachur and Spaar (2015) summarized the results of prior studies to create a model (USID) that divides the styles of decision-making into two main dimensions: rationality and intuition. The rationality dimension is the area of structured approaches, including planning and knowing, where analytical thinking and systematic decision-making are in the spotlight. In contrast, the intuition dimension comprises the processes of affect, which are motivated by emotion and the processes of spontaneity, which are characterized by the quick and instinctive judgments. This model is a holistic approach to the interaction between deliberative and intuitive methods of decision-making.

Table 1: . Overview of existing Measurement Instruments for Rational and Intuitive Decision-Making Dimensions

		CEST 1994 Epstein	GDMS 1995 Scott / Bruce	REI 1999 Pacini / Epstein	PM PI 1999 Pacini / D'Zurilla	Co SI 2007 Cools / Van Den Broek	PID 2024 Betsch	TIn tS 2014 Pretz et al	U SID 2015 Pachur / Spaar	2022 Launer/ Svenson
Rational	Analytical	Cognitive system	Rational: Analytical	Rational Thinking	Rational Processing: Thinking fact-based		Deliberation / Analytical			
	Knowing					Cognitive Knowing			Deliberation Knowing	
	Planning					Cognitive Planning	Deliberation/Planning		Deliberation: Planning	

Table 2: . Continue...

		CEST 1994 Epstein	GDMS 1995 Scott / Bruce	REI 1999 Pacini / Epstein	PM PI 1999 Pacini / D'Zurilla	Co SI 2007 Cools / Van Den Broek	PID 2024 Betsch	TIn tS 2014 Pretz et al	U SID 2015 Pachur / Spaar	2022 Launer/ Svenson
Intuition	Emotional		Intuition: Emotional/ Feelings/ Instincts	Experiential: Feelings/ Instinct	Emotional processing: Feelings / Instincts		Intuition: Feelings	Affective: Feelings	Affective: Feelings	Clarification Needed
	Body Impulses			Experiential: Gut feeling/ Heart	Emotional Processing: Gut Feeling		Intuition: Gut Feeling	Affective: Heart/Feeling	Affective Hearts	Clarification Needed
	Holistic							Holistic Abstract and Big Picture		
	Spontaneous				Automatic Processing: Swift Decisions				Spontaneous	

Table 3: . Continue...

		CEST 1994 Epstein	GDMS 1995 Scott / Bruce	REI 1999 Pacini / Epstein	PMPI 1999 Pacini / D'Zurilla	CoSI 2007 Cools / Van Den Broek	PID 2024 Betsch	TInS 2014 Pretz et al	USID 2015 Pachur / Spaar	2022 Launer/ Svenson
	Experience based heuristics	Experiential Associative Automatic Learning			Automatic Processing Experience		Intuition: Life experience, human understanding	Inferential experience based	Affective: Life experience, human understanding	Deeper Understanding necessary
	Anticipation			Experiential: Hunches	Emotional: Hunches			Affective: Hunches	Affective: Hunches	Deeper Understanding necessary
	Dependent		Dependent							
	Unconscious thoughts									Needs to be added
Other	Avoidant		Avoidant							
	Creating					Creating				

However, there are additional dimensions of intuition that have not been accounted for in existing measures and assessments (Launer et al., 2020; Svenson et al., 2021). There appears to be a lack of a more nuanced description of the dimension of experience-based heuristics that would make them applicable in cross-cultural contexts. Betsch (2004) combines feelings, life experience, and human knowledge in one item. This should be separated and based on a new theory and complemented by the rule of thumb. The more cognitive and thinking-style type is called Experienced-based Heuristics, which has been investigated in further details as a really rapid dimension of intuition, backed by long-term experience and numerous job trainings (Gigerenzer et al., 2012).Clarity and precision are brought to the emotional intuition style after heuristics and emotions are separated in the PID scale.

All intuition styles in the existing literature are based on a fast and quick unconscious decision process. However, many people decide in a slow process and still intuitively (Wallas, 1920; Shirley & Langan-Fox, 1996). They might get distracted by other duties before deciding intuitively (Kohler, 1969). From conducting an analysis to attending a board meeting, managers have time to make decisions. When people have barriers to their intuition removed, they are better able to make decisions (Duncker, 1945). This phenomenon is perfectly described by the Unconscious

Thoughts theory (Dijksterhuis, 2004). Carlson (2008), building on the TIntS of Pretz and Totz (2007), successfully incorporated the Unconscious Thought Theory dimension of incubation into his study.

The ability to forecast outcomes in the future, also known as the anticipative decision-making style, is a separate line of scholarly research (Bem, 2011; Bem et al., 2015). This field is often investigated by the means of the original notion of "Hunches" which is discussed in various major works. The construct has been studied with the help of some of the most recognized instruments of measurement, such as the General Decision-Making Style (GDMS) Inventory by Scott and Bruce (1996), the Rational-Experiential Inventory (REI) by Pacini and Epstein (1995), the Preference of Intuition and Deliberation (PID) scale by Betsch (2004), and the more recent works of Pachur and Spaar (2015).

The literature has taken different approaches to the conceptualisation of this phenomenon that has always been viewed as unusual or even paranormal. Honorton and Ferrari (1989) emphasize its possibility as an extrasensory perception (ESP) whereas Radin (2004) presents it in the context of presentiment- an intuitive feeling of the emotion to come. A meta-analysis by Bem et al. (2015) also suggests that it can also be in the form of precognition (conscious awareness of future events) or premonition (an affective fear of what is to come). It is characterized by other researchers, e.g. Thalbourne and Haraldsson (1980), as a component of paranormal belief or mystical experience, or by Lange and Thalbourne (2002) as falling in a spectrum of extrasensory phenomena.

Ferguson and Zayas (2009) also theorize this ability as automatic assessment process. The information that underpins the anticipative decision-making is suggested to be a result of the interaction of the human body and its environment as theorised by Sinclair (2011, 2014). Despite its intriguing nature, this dimension of intuitive decision-making has not been widely incorporated into mainstream decision-making models as a distinct style (Honorton & Ferrari, 1989). In this paper, the authors aim to synthesise the existing conceptualisations of anticipation within intuitive decision-making. By incorporating original scales developed by Thalbourne and Delin (1993), this study seeks to advance understanding and integrate this underexplored dimension into a broader theoretical framework for decision-making research.

In the field of economic theory, the framework of behavioral economics notably lacks an integrated consideration of intuitive decision-making styles (Beck, 2014). Critics of behavioural economics often underscore its departure from the assumption of pure rationality traditionally attributed to economic agents (Myagkov & Plott, 1997). Some go so far as to argue that behavioural research fails to provide a foundation for a comprehensive economic theory (Maialeh, 2019). Despite these critiques, the primary aim of behavioral economics is to enhance the explanatory and predictive capabilities of economic models by grounding them in psychologically plausible assumptions and empirical findings (Angner & Loewenstein, 2012). The foundational work of Tversky and Kahneman (1973) was instrumental in identifying systematic deviations from rationality in human decision-making processes (Einhorn & Hogarth, 1981). Although this body of research introduced heuristically based decision-making—decisions informed by knowledge and past experience—into economic discourse (Gigerenzer & Selten, 2002), it has yet to fully integrate the broader and more nuanced dimensions of intuitive decision-making.

In business administration theory, existing frameworks for intuition styles fail to adequately capture job-specific forms of intuition (Dane & Pratt, 2007). To effectively incorporate intuition into organisational contexts, a revised conceptualisation tailored for workplace applications is required (Paliszkiewicz, 2019; Launer et al., 2020; Svenson et al., 2022; Paliszkiewicz, Çetin; Launer, 2023). Future action anticipation has been identified as a crucial element in a number of areas, such as the banking sector (Kandasamy et al., 2016), strategic management (Liebowitz et al., 2019), and the decision-making process of CEOs (Woiceshyn, 2009). This ability is commonly construed as some kind of affective intuition, commonly called a “hunch”.

Current theoretical models largely focus on intuition as a rapid, immediate decision-making process. However, in business contexts, particularly when managers are faced with significant strategic decisions, the process may not be instantaneous. Instead, it often involves deliberate contemplation, periods of distraction, and the integration of unconscious cognitive processing over time (Dijksterhuis, 2004). This broader understanding of intuitive decision-making highlights the need for more nuanced frameworks that align with the complex and dynamic nature of business environments.

The concept of differented types of intuitive decision-making is also important for the research of dynamic and complex decision making (Hotaling et al., 2015) in continuously changing environments (Busemeyer & Pleskac, 2009). This paper support a better understanding of unconscious decision-making styles (Busemeyer,

2002; Busemeyer & Townsend, 1993; Gonzalez et al., 2017) in dynamic, variable environments (Gonzalez, 2004; Gureckis & Love, 2009), and based on experience (Hertwig, 2015; Hertwig et al., 2004), under time pressure (Kerstholt, 1994; Kerstholt & Raaijmakers, 1997) as well after a distraction and a time-delay (Dijksterhuis, 2004).

Theory

The PID Scales : Betsch (2004, 2008) developed an inventory which better represents individual preference towards rational (deliberative) and intuitive decision-making, which is further developed by Betsch and Iannello (2010). The Preferences for Intuition and Deliberation (PID) scales were developed based on the previous work, such as the research of Burns and D'Zurilla (1999), Scott and Bruce (1995), Evans (2008), and Hodgkinson and Sadler-Smith (2003). Expanding on these premises, the authors further developed the PID framework with the addition of components of Cools and van den Broecks (2007) Cognitive Style Indicator (CoSI) and questions of the Rational Experiential Inventory (REI) by Pacini and Epstein (1999). This method of measurement combining various measurement tools is similar to the methodology used later by Pachur and Spaar (2015) in their scale development activities.

Emotional Intuition :In this study, the intuition style by Scott and Bruce (1995), Pacini and Epstein (1999), Burns and D'Zurilla (1999), and Betsch (2004) was sub divided into different sub-types of emotional preferences. Four different intuition styles are described in more detail to better describe intuitive decision-making: Emotional, Heuristic, Body Sensation (stomach or gut, skin, or heart beat) and Anticipation (hunches). Therefore, the final emotional intuition style is more decently based on feelings and emotions. Pretz et al. (2014) and Pachur and Spaar (2015) somehow started to drift into this approasch before by describing emotional intuition in more detail as well. By reducing the intuitive decision-making style to its emotional aspect, its essential nature was brought into focus (Launer et al, 2022).

Anticipation and Pre-Cognition (Hunches) : Newly identified dimension of the Anticipative Decision-Making is based on the previous grounds of the Perceived Modes of Processing Inventory (PMPI) by Burns and D'Zurilla (1999) and the Rational Experiential Inventory (REI) by Pacini and Epstein (1999).

Although these frameworks initially focused on decision-making based on so-called hunches, the later studies have demonstrated that the decision-making processes are quite complex compared to what the early scales suggested (Launer et al., 2022). This has made it a complicated issue, which has prompted researchers to theorize about hunch-based decision-making in a variety of different ways. As an illustration, Honorton and Ferrari (1989) defined it as a type of unusual or otherworldly event, but Radin (2004) defined it in terms of presentiments, which are anticipatory emotions regarding future affective conditions. Bem et al. (2015) also made a distinction between precognition (cognitive awareness of upcoming events) and premonition (affective foreboding). Similar concepts are extrasensory perception (ESP) by Thalbourne and Haraldsson (1980), the influence of paranormal beliefs and experience by Lange and Thalbourne (2002), and the idea of automatic evaluation by Ferguson and Zayas (2009).

Following these interpretations, Sinclair (2020) proposed that this intuitive information can be as a result of external sources. In this work, we will categorize this kind of intuition in the larger group of Anticipation. In order to operationalize this construct, it was pre-tested by rigorously pre-testing a variety of potential items. The last group of items here is thoughtfully chosen to make the distinction between Anticipation and emotional intuition and provide a more detailed and accurate explanation of this specific type of intuitive decision-making.

Experience-based, fast Heuristic Intuition : The literature describes an experienced-based intuition style. In this the term "heuristics" was used to better describe the process of making judgments based on past experience and knowledge. The theoretical views of Gigerenzer and Todd (2012) and Todd and Gigerenzer (2012) informed the development of the new items, as it was possible to conceptualize the construct more nuanced. To choose the items, the already existing scales were used as a reference, including the General Decision-Making Style Inventory (GDMS; Scott and Bruce, 1995) and the Perceived Modes of Processing Inventory (PMPI; Burns and D) (1999). The discussion showed that findings were more consistent with the view of heuristics. In this connection, the newly developed heuristic items give a more comprehensive description of experiential knowledge (e.g., rules of thumb, accumulated life experience, and job-related training) and draw a clearer line between this construct and the spontaneous intuition style.

Slow Unconscious Thoughts : Not all unconscious or intuitive decisions are made quickly; some occur over extended periods, involving phases of reflection and unconscious activation. These decisions may occur in business

and in everyday life by the process of unconscious reflection and activation (Bowers et al., 1990; Waroquier et al., 2010), incubation (Wallas, 1920; Shirley and Langan-Fox, 1996), unconscious thinking (Dijksterhuis and Nordgren, 2006), distraction (Kohler, 1969), the removal of cognitive blockages (Duncker, 1945), or the leaps of intuition (Nicholson, 2000).

However, despite these well-documented phenomena, existing measurement instruments fail to provide a theoretical foundation for slow intuitive decision-making processes. Carlson (2008), drawing upon the Types of Intuition Scale (TIntS) by Pretz and Totz (2007), introduced the concept of incubation, grounded in the Unconscious Thought Theory (Dijksterhuis, 2004). Yet, no validated scales explicitly addressing the Unconscious Thought Theory have been identified in prior research.

To address this gap, we developed new scales informed by Dijksterhuis and Nordgren's (2006) theoretical framework. These scales underwent rigorous development and pre-testing to ensure reliability and validity. The resulting items successfully capture the nuanced processes of slow intuitive decision-making, providing a critical tool for further exploration in both academic and practical settings.

METHOD

Pilot study

Using the dual process approach PID as a foundation, the authors use all 19 items from the PID scale (including emotions), adapted six items for the Heuristics style, and develop six items for the Unconscious Thought style and six items for the Anticipation style. There are a total of 37 elements at the outset. The new measuring tool had 21 questions that assessed six different and distinct decision-making styles on a four-point Likert scale (1 strongly disagree to 4 strongly agree).

For measuring their first properties, the authors collected data from 50 employees working in different types of companies in Germany. The electronic questionnaire was based on the original measurement studies and theories described above. The new and adapted items of the questionnaire were evaluated by fife English teaching experts and native speakers (TESOL) as well as intuition experts. It was reworked based on the generally accepted TESOL standards. The German version of the questionnaire was assessed by a panel of five intuition experts from the fields of psychology and sociology for translation and cultural issues. For the selection of the items. The authors used Cronbach's Alpha coefficients with the criteria of above .70. Based on the results we have excluded 16 items which indicate inconsistency. The final version includes 21 items with 11 items for PID, 3 items for heuristics style, 3 items for Unconscious Thought style, 4 items for anticipations style. The new items were discussed with specialists (Launer, 2021).

Main Study

The methodology for this paper originates from two EU-funded research projects: *Marcial & Launer (2019)* and *Intuition* (Launer, Svenson, Ohler, Ferwagner & Meyer, 2020). While these EU projects were focused exclusively on the Uelzen region, an international follow-up study was conducted to broaden the scope and establish a new, robust dataset. To ensure linguistic accuracy and cultural relevance, the survey was translated into 15 different languages. This task was undertaken by qualified bilingual professionals, including psychology and business administration experts (professors and postdoctoral researchers) from the respective countries.

A rigorous double-checking process was implemented, where a second bilingual professional conducted a back-translation to verify the accuracy and consistency of the initial translation. The final product was an online questionnaire available in 15 languages: English, German, Spanish, Portuguese, French, Russian, Polish, Romanian, Slovak, Traditional Chinese, Simplified Chinese, Japanese, Korean, Vietnamese, and Thai (Launer, 2020). Such a multilingual method also made the study more inclusive and relevant in a variety of cultural and linguistic backgrounds.

The questionnaire was carried out through the internet and was administered by using a snowball sampling approach. The authors used their vast personal international networks to appoint representatives in 30 countries which made it possible to collect data in a multicultural environment. Special attention was given to the assurance of a diverse dataset to include participants with diverse professional backgrounds and not only student samples. In order to keep the study in line with the European and German data protection laws, the study ensured voluntary participation and ensured a high level of confidentiality of respondent data (Launer, 2020; Launer, Marcial &

Gaumann, 2020). This method guaranteed a sound and ethically virtuous data-gathering procedure in a vast circle of cultural and professional settings.

The participants of this research project were 5.574 company personnel and entrepreneurs active in 43 different job types from over 30 countries. Gender (sex) distribution was 41.2% female employees, 8.4% LGBT-Q employees, and 50.3% male employees. The respondents educational background indicated that a majority of them were bachelor degree holders (36.5%), then master degree holders (32) and 12.4% of the respondents were doctoral students and postdoctoral scholars. On the issue of professional experience, the lowest percentage involved less than one year of employment (9.3), 1-3 years (19.7), and the highest number (40.3) reported working experience of 4-10 years. Moreover, 18% had 11-20 years of work experience, 6.6% had 21-30 years, 1.3% had 31-40 years and 0.3% had above 40 years work experience. Concerning the employment status, the greatest proportion (85.8%) fell under permanent employment status.

To guarantee the trustworthiness of the information, the test-retest method, which is a well-known method, was used (Launer, Marcial, and Gaumann, 2020). Test-retest reliability was evaluated in Germany (n = 51) and the Philippines (n = 32). Also, the instrument was pre-tested to test test-retest reliability coefficients and internal consistency (Launer and Marcial, 2021). Internal consistency of the questionnaire was also tested with pre-test (n = 376) conducted in various countries, such as China, Japan, South Korea, Paraguay, Russia, Brazil, Thailand, the United States, and the United Kingdom.

RESULTS

The Validation of Construct for Rational and Intuition Decision-Making Styles based on the PID Scale

First, the authors analyzed the questions from the PID inventory developed by Betsch (2004). Exploratory Factor Analysis (EFA) was used to analyze its bi-dimensional constructs. The authors used the Principal Component Analysis (PCA) to examine the construct elements and used the criterion of eigenvalues larger than one to choose the most clarifiable factors. Optimization of the variance of squared loadings across factors was done by the "varimax rotation" method to guarantee that there is a clearer segregation and interpretation of the components.

The EFA outcomes indicated that 11 items were grouped into two factors, which in combination explained 66.2 percent of the construct variance. The intuitive decision-making and deliberation or rational decision-making dimension factor loadings were between .69 and .82 and between .80 to.85 respectively, which emphasizes the construct validity and clarity of the dimensions. Once the authors had verified the validity of the PID measurement instrument with the help of the exploratory analysis, they then conducted a further assessment with the help of Confirmatory Factor Analysis (CFA) of the measurement instrument. This examination was implemented to evaluate the two-factor model of structure of the PID approach in a multicultural sample. Table 1 summarized the CFA results, and it can be seen that the first two-factor model had poor fit indices. In particular, the Comparative Fit Index (CFI) was.83, TuckerLewis Index (TLI) was.79, Root Mean Square Error of Approximation (RMSEA) was.130, and the Root Mean Residual (RMR) was.144. These values showed that the measurement model was not well fitting to the used data.

Given these inadequate fit indices and the insights provided by the SPSS statistical software, the authors refined the two-factor PID structure. The necessity for adjustment was further supported by low item loadings on some factors, which weakened the model's descriptive capacity. Following an iterative process of model improvement, including testing various modification suggestions, the authors excluded two items from the original structure. These adjustments aimed to enhance the overall fit and ensure a robust measurement model. The modified two-factor Preference for Intuition and Deliberation measurement model demonstrated significantly improved fit indices. The revised model successfully validated the two distinct constructs: Rational (Deliberation) and Intuition Styles. The enhanced fit statistics were as follows: the chi-squared to degrees of freedom ratio was 10.6, the Tucker-Lewis Index achieved a value of 0.99, the Comparative Fit Index was also 0.99, the Root Mean Square Error of Approximation was 0.041, and the Root Mean Residual was 0.028. These findings indicate a robust and well-fitting measurement model. Despite the improvements, the calculated chi-square to degrees of freedom ratio (š/df) remained slightly above the threshold of 5, which is conventionally considered the upper limit for acceptable model fit. Nevertheless, the enhancements to the model provided strong evidence for the validity of the two-factor structure, aligning with theoretical expectations and offering a reliable basis for future research utilizing the PID framework.

Larger sample sizes were one of the factors that led to the improved results. To extend this observation, further analyses were done by random selection of samples by systematically reducing them. Because every member of the population was equally likely to be chosen, the authors tested the validated factorial organization using smaller random subsamples of the entire dataset. The aim of this strategy was to obtain a more satisfactory value of chi-square degrees of freedom ratio and increase the generalizability of the results. The authors utilized the case selection option of the SPSS statistical package to sample random subsamples, each of which approximated 33-percent of the entire research sample. This procedure led to the formation of three random subsets of the participants: 1862, 1825, and 1812 in the random samples number 1, 2, and 3, respectively.

The two-factor structure of the PID measurement model was refined and strictly tested on each of these subsamples. The fit indices across all three random subsamples showed acceptable and strong model performance with the 2/df ratio between 3.9 and 4.5, Comparative Fit Index (CFI) and Tucker-Lewis Index (TLI) both equal to.99, and Root Mean Square Error of Approximation (RMSEA) values of between.040 and.044. These findings confirmed the validity of the two-factorial PID method that has high convergent and discriminant validity. Notably, the similarity of these results with the three subsamples offered strong evidence of reliability and generalizability of the PID measurement instrument especially when using a diverse and multicultural sample. This piece of systematic analysis proved that the two-factor structure of Rational (Deliberation) and Intuition Styles has a refined form and is robust and flexible to different data subsets. The authors have confirmed the factorial structure of the model after which they have tested the internal consistency of the factors by computing Cronbach Alpha coefficients. The Cronbach Alpha of the modified two-factorial PID model was between .86 and .90 which showed high internal consistency in each factor.

To further evaluate the relationship between the two factors, the authors examined the inter-factor Cronbach's Alpha coefficients, which ranged from -.41 to -.43 ($p < .01$) across both the total sample and the random subsamples. Although the negative correlation between the factors suggests an inverse relationship, this aligns with theoretical expectations, as rational (deliberation) and intuitive decision-making processes are conceptually distinct and often operate in opposing manners.

These findings underscore the reliability of the PID measurement instrument in assessing rational and intuitive decision-making styles. The high internal consistency supports the robustness of the factors, while the negative inter-factor correlation affirms the discriminant validity of the model. Overall, these results validate the utility of the PID instrument for research and practical applications in diverse, multicultural contexts.

Table 4: . CFA Results of PID Measurement Instrument

	N	NOIs	FLs	X2	df	X2/df	TLI	CFI	RMSEA	RMR
Two-factorial PID-Model	5574	11	from .18 to .83	6096.16	64	95.2	0.79	0.83	0.13	0.144
Two-factorial PID Model modified	5574	9	from .74 to .83	275.35	26	10.6	0.99	0.99	0.041	0.028
Two-factorial PID Model modified	Random sample 1 (n=1862)	9	from .72 to .86	113.55	26	4.3	0.99	0.99	0.043	0.03
Two-factorial PID Model modified	Random sample 1 (n=1825)	9	from .74 to .84	101.67	26	3.9	0.99	0.99	0.04	0.031
Two-factorial PID Model modified	Random sample 3 (n=1812)	9	from .73 to .83	117.79	26	4.5	0.99	0.99	0.044	0.033

NOIs= Number of items, FLs= Factor loadings

The Validation of the Construct of the different Intuition Styles

Building on the confirmation of the two-factorial PID approach derived from Betsch's (2004) framework, the authors explored the structural interrelationships among the dimensions of unconscious thought, emotional affective intuition, experience-based heuristics, anticipative (hunches) decision-making, and the rational decision-making style (deliberation). To assess the validity and robustness of the proposed multifactorial structure, Confirmatory Factor Analysis (CFA) was utilized. This method enabled a methodical consideration of the ability of the measurement tool to measure the dissimilar but interconnected dimensions of decision-making styles in the sampled group. Application of CFA gave a strict statistical foundation of verifying the structural consistency and elucidatory strength of the instrument. During the first stage of CFA, the fit indices were satisfactory with a Comparative Fit Index (CFI) of .98, Tucker Lewis Index (TLI) of .98, Root Mean Square Error of Approximation (RMSEA) of .035, and Root Mean Residual (RMR) of .028. Although these are favorable results, the chi-square/df ratio (X2/df) was 5.10 that is higher than the acceptable limit of 5 and the more conservative limit of 3 as recommended by Hair et al. (2010).

In an attempt to overcome this problem, the authors incorporated change proposals offered by the SPSS statistical package. The model was reduced to five inconsistent items that had high cross-loadings and caused the inflated chi-square value. Following these revisions, the reconstructed construct had an excellent fit in all the indices. The chi-squared/degrees of freedom ratio was 2.5 which showed that the model was acceptable and well balanced. The Tucker-Lewis Index was 0.99, which indicates the close fit to the perfect model, with the Comparative Fit Index also being 0.99, which once again proves the strength of the construct. Root Mean Square Error of Approximation was estimated to be 0.029, which falls within the range of a good fit and the Root Mean Residual was obtained to be 0.021, which confirms that there are few discrepancies between observed and predicted values. These findings highlight the structural validity and reliability of the new measurement model.

The validity of the five constructs was proved by the refined model, which consists of four different dimensions of rational and intuitive decision-making, and it is a solid argument that the measurement instrument is structured and reliable in the extent of capturing complex processes of decision-making. In order to increase the generalizability of the findings, the authors tested the modified and validated factorial structure in three random subsamples of the entire dataset. The sub samples were analyzed separately with the size of the first random sample being, 1862, the second random sample having a size of 1825, and the third random sample having a size of 1812. The analysis resulted in generally satisfactory fit indices across the subsamples with a chi-square/ degrees of freedom ratio (X 2/df) between 3.9 and 4.5, a Comparative Fit Index (CFI) of .99, a Tucker Lewis Index (TLI) of .99, and a Root Mean Square Error of Approximation of.040 to.044.

These results reinforced the robustness and reliability of the factorial structure in diverse subsets of the population, confirming its applicability and generalizability across different random samples within the multicultural dataset. The latent factor correlations of the instrument was accordingly: between emotional affective and rational (deliberation) is -.40 (p<.01), between rational (deliberation) and the new dimension unconscious thoughts is .74 (p<.01), between rational and quick is -.05 (p>.05), between rational (deliberation) and anticipation (hunches) is -.04 (p>.05); between emotional-affective and unconscious thoughts is -.21 (p<.01), between emotional affective and experience-based heuristics is .23 (p<.01), between emotional affective and anticipation (hunches) is .57 (p<.01); between unconscious thoughts and experience-based heuristics is -.18 (p<.01), between unconscious thoughts and anticipation (hunches) is .01 (p>.05); between quick and anticipation is .10 (p<.01).

Table 5: . CFA results of five-factor Instrument

	n	NOI	FL	X2	df	X2/ df	TLI	CFI	RMSEA	RMR
Five factor structure Model	5574	19	from .71 to .83	1128.41	142	7.9	0.98	0.98	0.035	0.026
Five factor structure Model modified	5574	14	from .74 to .83	341.21	67	5	0.99	0.99	0.027	0.02
Five factor structure Model modified	Random sample 1 (n=1862)	14	from .73 to .84	172.13	67	2.5	0.99	0.99	0.029	0.021
Five factor structure Model modified	Random sample 1 (n=1825)	14	from .74 to .83	125.31	67	1.8	0.99	0.99	0.021	0.022
Five factor structure Model modified	Random sample 3 (n=1812)	14	from .73 to .83	127.03	67	1.9	0.99	0.99	0.021	0.022

NOI= Number of items, FL= Factor loadings

The authors proceeded to calculate the Cronbach's Alpha coefficients to evaluate the internal consistency of the confirmed and tested factors. The coefficients for the various sub-dimensions of rational and intuitive decision-making within the modified five-factor structure ranged between .76 and .85 across the total data sample and all three random sub-samples. In addition, the maximum reliability score, measured using Hancock's H based on standardized factor loadings from 14 items, was found to be .96 for the new measurement instrument. These findings demonstrate a high degree of reliability for the multi-factorial structure, confirming its robustness and consistency in assessing the dimensions of rational and intuitive decision-making processes.

Table 6: . The statistics of the confirmed construct

Factors	N	Min.	Max.	Mean Value	Standard Deviation	Skewness	Kurtosis
Rational (deliberation)	5579	1	4	2.8	0.95	-0.595	-0.682
Emotional-affective	5579	1	4	2.71	0.91	-0.319	-0.752
Slow Unconscious Thoughts	5579	1	4	2.68	0.88	-0.336	-0.66
Experienced-based Heuristics	5579	1	4	2.56	0.87	-0.054	-0.768
Anticipation (hunches)	5579	1	4	2.4	0.9	-0.043	-0.911

The factors included in the instrument, along with their descriptive and statistical properties, are summarized as follows. The mean scores for the factors ranged from 2.34 to 2.80, with standard deviations between .87 and .95. Skewness values were within the acceptable range, from -.595 to -.043, and kurtosis values ranged from -.911 to -.660, indicating compliance with the requirements for univariate normality.

Latent Pearson correlations indicated a number of significant relations between the factors. Rational thinking and unconscious thinking styles showed a positive correlation that was significant (r =.591, p =.01). On the other hand, rational thinking had negative correlations with emotional thinking (r = -.336, p <.01), experienced based heuristically thinking (r = -.039, p <.05) and anticipation thinking styles (r = -.030, p <.05). Emotional type of thinking had a positive relationship with quick experienced-based heuristic thinking (r =.190, p <.01) and anticipation thinking (r =.479, p <.01), and was negatively correlated with unconscious thinking (r =-0.171, p =.01). Moreover, the unconscious thinking style showed a negative correlation with quick thinking (r = -.134, p <.01), whereas quick thinking style showed positive correlation with anticipation thinking (r =.077, p <.05).

Interestingly, no significant correlation was found between quick and anticipation thinking styles. These findings provide detailed insights into the interrelations between various dimensions of decision-making and further validate the complexity and robustness of the instrument.

Table 7: . Relations among decision styles

	-1	-2	-3	-4
1.Rational (deliberation)	1			
2.Emotional-affective	-.336**	1		
3.Slow Unconscious Thoughts	.591**	-.171**	1	
4.Experienced-based Heuristics	-.039**	.190**	-.134**	1
5.Anticipation (hunches)	-.030*	.479**	0.006	.077**

The authors conducted an ANOVA to investigate potential gender differences in decision-making styles. The analysis included male participants (n = 2807) and female participants (n = 2300), ensuring comparable group sizes for the comparison. Homogeneity of variances was confirmed through Levene's test, with statistics ranging from 49.12 to 114.23 ($p < .01$) across all factors, indicating that the variances were homogeneous and suitable for ANOVA analysis. This methodological step ensured the reliability of the subsequent comparisons between male and female decision-making styles.

The findings revealed notable gender differences in certain decision-making styles. Specifically, significant variations were observed in the emotional-affective style (F = 86.22, $p < .01$, Partial Eta Square = .017), experience-based heuristics (F = 20.18, $p < .01$, the Partial Eta Square = .004), and anticipative or hunch-based intuition (F = 113.20, $p < .01$, the Partial Eta Square = .022). Women scored higher in emotional-affective decision-making (female Mean Value = 2.84, Standard Deviation = .81; male Mean Value = 2.60, Standard Deviation = .79) and anticipative decision-making based on hunches (women Mean Value = 2.52, Standard Deviation = .84; men Mean Value = 2.25, Standard Deviation = .92). Conversely, men showed higher reliance on experience-based heuristics (women Mean Value = 2.48, Standard Deviation = .79; men Mean Value = 2.59, Standard Deviation = .94). No significant gender differences were found in the rational and unconscious decision-making styles. These results highlight the nuanced ways gender may influence certain intuitive decision-making processes.

The analysis using classical test theory further provided detailed item statistics, as outlined in Table 5. Specifically, the corrected item-total correlations were calculated to assess how well each item contributed to the overall consistency of its respective construct. Additionally, Cronbach's alpha values were computed for each item, indicating the reliability of the scale if that particular item were removed. These measures helped evaluate the individual contribution of each item to the reliability and cohesion of the measurement instrument, ensuring a robust assessment of its validity.

Table 8: . Classical test theory results

	Mean Value	Standrad Deviation	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
EF01_02	2.883	1.1007	0.233	0.669
EF01_03	2.736	1.0791	0.224	0.67
EF01_06	2.784	1.0802	0.216	0.671
EF01_09	2.67	1.0543	0.299	0.659
EF01_10	2.692	1.0459	0.292	0.66
EF01_11	2.788	1.0508	0.315	0.657
EF01_13	2.672	0.9927	0.229	0.669
EF01_14	2.697	0.9686	0.228	0.669
EF01_16	2.573	1.0106	0.275	0.663
EF01_17	2.636	0.9911	0.269	0.663
EF01_18	2.477	1.0304	0.251	0.666
EF01_19	2.449	1.0606	0.425	0.641
EF01_20	2.337	1.0487	0.423	0.641
EF01_22	2.414	1.039	0.436	0.64

DISCUSSION

Implications

The authors assessed Preference for Intuition and Deliberation (PID) Scale developed by Betsch (2004) in a multicultural sample which included 30 countries and more than 35 industries. Among the 19 items that were initially created to assess the intuition and the deliberation, 9 items were put down to the revised instrument with a lot of care. Among them, 6 remained in the same wording, and 3 were minimally tweaked to increase intercultural applicability. This polished collection of results is now streamlined to work in multicultural research, providing a sound instrument to examine the decision-making preferences in diverse cultural and professional situations. The authors argued that intuition is not a unitary entity and it is important to take a more refined approach. To overcome this complexity, they added three other dimensions to the PID measurement tool, which are Experience-Based Heuristics, Unconscious Thoughts, and Anticipation (hunches).

The initial intuition-based components were re-formulated and classified as Emotional Intuition, which offered a more inclusive set of the characteristics of the multifacetedness of intuitive decision-making. Similar to the methods employed in other studies like the REI, GDMS, PMPI and USID, the Emotional Intuition Style in the new measurement tool describes the tendency to decide based on the gut feeling, taking only three brief items. This new dimension of Emotional Intuition Style proved to be highly applicable and useful in 30 countries and in 35 different industry sectors, confirming its applicability and its application in a large variety of cultural and professional settings. One of the items in the emotional inventory (only one question) that were classified as hunch in the decision-making was refined and elaborated into a new decision-making style: Anticipation. The new style emerged in order to be more clear and precise in the description of this dimension. The Anticipation intuition style was based on the hunch item that was employed in previous studies frameworks, including GDMS, REI, PMPI, TIntS and USID. Three more items were developed because of the necessity to improve its descriptive power providing a more detailed picture of this style.

In addition, the word Anticipation was also more universally understandable compared to hunches, which is why it could be used more successfully in the case of international research. The descriptions of the experience-based intuitive style of Heuristics as described by the PMPI, TIntS and USID frameworks have three further elements added to them. This expansion increases the variety and generalizability of the concept of experience-based Heuristics initially introduced by Gigerenzer and Todd (2012) and allows it to be more clearly comprehended and applied internationally. Moreover, this sophisticated knowledge can now play a bigger role in the behavioral business and economic theories, increasing its applicability in different fields. The authors added a new dimension to the international measurement tool to improve the measurement of the intuition styles: Unconscious Thoughts. The dimension is unprecedented as compared to the existing instruments of measuring intuition. It is especially

beneficial to assess the intuition of managers in corporate environments where they do not necessarily make decisions within a short time span but usually within days or weeks.

The Unconscious Thought intuition style has now three new items that describe a time-delayed intuition process. This contribution has a great potential in developing business theory especially in the decision-making processes that involve long reflections and long-term planning. In addition, the researches brought a refined and summarized version of the inventory to evaluate the rational decision-making style, or deliberation, which is now reduced to three items. Such a simplified method makes the measurement tool more practical and usable in future empirical studies. Nevertheless, the authors also state that the deliberation as a rational style of decision-making could be further developed by future research to organized into such dimensions as planning and knowing (as in USID and CoSI) and analytical processing (as identified in GDMS, REI, and PMPI), as Launer et al. (2022) describe it. Such a subtle method can serve to give more insights into the intricacies of rational decision-making.

There is little intercorrelation between the four newly constructed types of intuition, as well as between the streamlined rational type of decision making, which gives a strong evidence of the concurrent validity of the scales. The authors have shown that, the new RHIA Measurement Instrument is a more multidimensional and holistic measure of intuition than those that are currently in use, including the dual process PID and multidimensional models, including GDMS and USID. This tool has a lot of potential in the other research settings as a complement tool. Moreover, the results can add value to the research on the complex problem-solving, as proposed by Schoppek et al. (2019).

LIMITATIONS AND FUTURE RESEARCH

The authors emphasize the need for a more holistic and multi-dimensional exploration of intuition in future research. The newly developed RHIA Scale integrates multiple independent facets of intuitive decision-making into a concise and unified framework. The proposed model encompasses dimensions such as rational decision-making (deliberation), unconscious intuition, emotional-affective intuition, experience-based heuristics, unconscious thoughts, and anticipation (pre-cognition). However, the authors clarify that these results do not constitute a stand-alone measurement instrument. Instead, the newly refined items should be integrated with existing dimensions to create a more comprehensive assessment tool (Launer, 2023).

The authors recommend subdividing rational decision-making into three distinct dimensions: analytical, planning, and knowing. Intuition could also be further enriched by incorporating dimensions such as creative styles and the influence of collaboration or support from colleagues. Moreover, the new items are additive to the existing intuitive styles, such as Spontaneous (in GDMS, PMPI, TIntS and USID), and Holistic Abstract and Holistic Big picture (in TIntS) described by Pretz et al. (2014). This combined method will serve to develop the research in the area of intuitive decision-making and provide a solid framework to be used in future studies (Launer and Cetin, 2023). The use of emotional intuition style should be investigated further in the future since it is not sufficiently outlined despite its frequent reference in the context of decision-making. Popular terms like gut feeling and affective intuition are not usually described in a definite way.

Emotional intuition should be examined with consideration of the latest findings in neurology, focusing on internal bodily impulses such as gut, heart, and skin sensations. Furthermore, mood as a potential state influencing intuitive decision-making has not yet been adequately researched and should be incorporated into future studies (Launer et al., 2020).

Additionally, prior research, such as Scott and Bruce's study on dependent intuition style (GDMS, 1995), showed limited success due to low factor loadings for dependent intuition items. Future studies should revisit this concept with improved and better-validated items, as a revised dependent intuition style—described as "support by colleagues"—may yield more robust results and expand the understanding of collaborative and socially influenced intuitive decision-making (Launer, 2023). However, the GDMS approach does not state, that employee‘s decision style belongs to one or another dimension. They have a mix of different decision-styles.

The authors emphasize the importance of distinguishing between the styles of intuition. To do this they used a wide and cross-cultural sample across various industries. They had this as their main achievement, and that was to justify both rational and intuitive decision making styles, and scrutinize the structural configurations of these styles. To be more specific, the paper examined rational (analytical), emotional, experiential heuristics, unconscious cognition, and anticipatory (including hunches or precognitive insights) decision-making styles by

using a newly developed measurement instrument (Launer and Svenson, 2022a). In the existing literature, the distinction between rational and intuitive decision making has been extensively explored; however, the roots and manifestations of intuitive decision making remain underexplored. This research aims to provide empirical evidence on the different dimensions of intuition. Initial findings suggest that rational and intuitive decision-making styles are structurally distinct, yet inversely related constructs. Further analysis confirmed that the five dimensions of intuitive decision-making—rational (deliberation), emotional, experience-based heuristics, unconscious thoughts, and anticipation (hunches or pre-cognition)—are structurally distinct but interrelated (Launer & Svenson, 2022b).

The results demonstrated positive correlations between rational decision-making and unconscious intuition, while negative correlations emerged between rationality and emotional, experienced-based heuristics, and anticipative intuition styles. Additionally, significant gender differences were observed, with notable variances in emotional, quick heuristic, and anticipative decision-making styles. These findings highlight the complexity of decision-making processes and underscore the importance of distinguishing between the diverse manifestations of intuition. The results should be interpreted cautiously, considering the limitations inherent in the survey methodology, the cross-sectional design, and reliance on a single data source. Only preferences were measured by participants. To enhance validity, future research should aim to establish criterion-related validity by correlating the instrument with external benchmarks. Additionally, expanding the construct to encompass additional dimensions could improve the instrument's robustness and versatility, thereby offering a more comprehensive framework for understanding decision-making styles. In the future, different cultural influences should be researched from different countries and cultures.

CONCLUSION

This study developed and validated new dimensions of intuitive decision-making through an international, multi-cultural analysis encompassing 30 countries and 35 industries. Initially, the dual-process Preference for Intuition and Deliberation (PID) scale by Betsch (2004) was confirmed, leading to the refinement of nine items that are now better understood globally. The deliberation dimension was streamlined to three items for improved precision. In a subsequent phase, intuition was examined more comprehensively. The previously conflated "hunches" within the emotional decision-making style were isolated and measured as a distinct dimension, termed "anticipation." Recognizing that intuitive decision-making can encompass both fast and slow processes, the Unconscious Thought Theory was integrated, making the instrument more complete. Intuitive decision-making styles were thus categorized into four dimensions: fast experience-based heuristics, slow unconscious thoughts, emotional intuition, and anticipation (hunches). Each dimension demonstrated reliability and validity. These findings underscore that intuition is not a singular, homogeneous decision-making style but rather a multi-dimensional construct, requiring diverse approaches across research fields.Human body can be the source of intuitive decisions and this presents a basis on which future research can be made on intuition. Further study may build on these dimensions by using wider samples and combining the current intuitive models of decision making, and give a better insight into this multifaceted phenomenon.

DISCLOSURE STATEMENT

The authors have no conflict of interest.

QUESTIONS

R = Rational, E = Emotional, U = Unconscious Thoughts, H = Heuristics, A = Anticipation

01 Before I make a decision, I usually think about it for quite some time. (R)
02 I think more about my plans and goals than other people. (R)
03 I prefer to make elaborate plans rather than leave anything to chance. (R)
04 Emotions play a significant role in my decision-making patterns. (E)
05 For most decisions, it makes sense to feel. (E)
06 I carefully watch my innermost feelings. (E)
07 If I have to make a decision, I always sleep on it. (U)
08 I never make decisions right away, and I always wait for a while. (U)

09 I frequently make quick and spontaneous decisions based on my insights into humanity (H)
10 I frequently make quick and spontaneous decisions based on my life experience (H)
11 I make quick decisions by rules of thumb (H)
12 I frequently have a premonition as to what will happen. (A)
13 I can often predict emotional events. (A)
14 I can frequently predict the outcome of a transaction. (A)

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