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Using intuition in social work decision making

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Abstract

Social workers must make 'justifiable' decisions, but 'intuition' is also important in assessment, decision making and working with risk. We discuss intuition within professional judgement as being part of our cognitive faculties; emotionally-informed reasoning processes connect workers with clients and families; and intuition making use of

internalised learning. Challenges discussed include intuition as a taboo topic; communicating intuition-based judgements within group decision processes; and lack of models for integrating intuition with explicit use of knowledge. To develop the professional knowledge base on professional judgement, the paper considers six theoretical frameworks which might be used to conceptualise intuition within social work decision making, including: (1) the 'tacit knowledge' of sociological discourse; (2) intuition as 'sense-making'; (3) internalisation of learning; (4) conceptual schemas from neuroscience; (5) Kahnemann's 'thinking fast and slow'; and (6) decision heuristics. Intuition is discussed in the context of supervision and organisational governance; use of assessment tools and processes; creation of mental models for practice; implications for education and training; and further research. Although the profession must continue to develop its ability to use the best knowledge to inform practice, a psycho-social rationality model may be required to conceptualise internalised 'intuitive' judgement processes in practice.

Keywords: Assessment, decision making, intuition, professional judgement, reasoning, risk, social work.

Introduction

Human beings, endowed with rationality, should put instinct and emotions aside to choose the most advantageous alternative from among those available. Thus, explicitly-reasoned risk assessment is essential to good social work decision making (Taylor et al., 2015). However there are limits to this model of rationality. Experience and intuition also play their part when humans make judgement calls. How are values, ideals, hopes and other less tangible aspects best taken into account as we seek more transparent decision processes? We explore here 'intuition' within social work judgement.

As an example, the first encounter of a social worker with a foreign person who has fled his country and about whom nothing is initially known, but with whom urgent decisions must be made, can be particularly difficult and challenging. This is the type of situation that we are attempting to conceptualise with this discussion of 'intuition'. Although the 'rational' side of social work decision making is being recognised (Bertotti, 2016), research has shown social workers admitting the importance of intuition (Whittaker, 2018) and qualitative schemas for organising their thinking (Stevenson & Taylor, 2017; Taylor, 2006), which is perhaps a counterbalance to the 'science of social work'. 'Skilled intuition', together with declared and objective knowledge, is crucial in rapid assessment of situation involving children suspected for maltreatment (Nouman & Alfandari, 2020). A study of social workers in criminal justice showed that they were confident of their professional judgement only when presented with concrete, objective evidence, although they utilised beliefs and intuition in forming judgements (Mullineux et al., 2019). Some social workers are ashamed to declare their intuitive internal cues because they consider these improper to evidence-based professional practice (Sicora, 2010). There is little research on intuition within social work (Cook, 2017; Hodgson, 2017); the purpose of this paper is to consolidate some theoretical understandings so as to provide a platform for further developments.

We explore the complex and seemingly contradictory picture of conceptualising intuition as a part of social work judgement, outlining the rationale and challenges, and linking understandings in social work to wider theoretical frameworks. The discussion considers both psychological and sociological dimensions of intuition within decision making, but excludes emotions and empathy, and will not consider perspectives such as imagination, creativity and embodied cognition. We highlight how intution complements rational decision making in contrast to the portrayal in some of the literature. The paper will

not dwell on benefits and limitations of statistical approaches to social work knowledge creation, or evidence-based practice more generally, which are considered in detail elsewhere (Schrödter et al., 2020; Søbjerg et al., 2020; Taylor et al., 2020).

Our focus is on intuition as an aspect of professional judgement and decision making. 'Intuition' might be thought of as an 'awareness' that is present before one thinks consciously about the presenting issue (Luoma, 1998). For the purposes of this paper, we define intuition as: "Intuitive thinking is a holistic perspective that takes into account all types of information that often cannot be easily articulated explicitly" (Pretz 2008: 555). For the same reason, decision making is defined as: "A conscious process (individually or as a corporate exercise with one or more others) leading to the selection of a course of action from among two or more alternatives." (Taylor, 2017a, Glossary). We distinguish this along the conventional lines from 'judgement', which is "the considered evaluation of evidence by an individual using their cognitive faculties so as to reach an opinion on a situation, event or proposed course of action based on values, knowledge and available information" (Taylor, 2017a, Glossary).

The paper considers reasons why intuition should be considered as part of decision making as it is part of our cognitive faculties and as intuition might be conceptualised as internalised learning. Key challenges explored include a sense that this is a taboo topic; difficulties in integrating intuition with explicit use of knowledge; and issues in communicating intuition-based judgements within group decision processes. We provide an overview of relevant theoretical frameworks including: the 'tacit knowledge' of sociological discourse; intuition as 'sense-making'; internalisation of learning as part of reflective practice and structured teaching; conceptual schemas from neuroscience; Kahnemann's 'thinking fast and slow'; and heuristic thought processes. We then discuss intuition in the context of supervision and organisational governance; in relation to assessment tools and processes; the creation of mental models for practice; the implications for education and training; and areas for further research.

Rationales for using intuition in decision making

Rationale (1): Emotionally-informed reasoning connects with clients'

There are several benefits for understanding and using intuition in social work decision making. When practitioners engage with clients, the repertoire of previous experience that they can draw upon helps them to understand the client's situation and the contexts in which they live. Intuition provides an opportunity to value practitioner expertise gained through experience, perhaps described as 'practice wisdom' which may be undervalued if it cannot be made explicit (Samson 2015; Chenug, 2017).

Rationale (2): Reflective practice is learning to act intuitively

Intuitive reasoning is strengthened by prior experience, and is more evident with greater experience (Nyathi, 2018). However, experience alone is insufficient for acquiring skilled intuitive reasoning; it requires also reliable and timely feedback (Kirkman & Melrose, 2014). Intuitive reasoning depends on a professional's ability to "enrich their experiences by reviewing prior experiences to derive new insights and lessons from mistakes" (Klein, 1999, 104). Reflecting on one's intuitive practice through supervision or in consultation with peers is key for enhancing professional judgment (Munro, 2011).

Reflective practice is particularly important at the early stage of an assessment when the likelihood of bias is greatest. These biases are a threat to effective decision making; reflective supervision, whereby practitioners' assumptions are respectfully challenged, can address this issue. Intuition in social work practice is conceptualised "as a kind of reflection from relevant previous experiences" (Sicora et al., 2020, p 13). Reflection

assists in developing intuition by deconstructing the decision process to make the intuitive process more explicit so as to acquire proficiency in judgment (Thiele, 2006). A reflective approach to practice may be viewed as merging intellectual understanding and learning from emotional awareness (Ruch, 2002). Due to the tacit nature of intuitive reasoning this deconstruction and subsequent development of intuitive skills requires cognitive effort and time. Hogarth (2010) argues that intuition can be taught, provided professionals "learn the right lessons" (eg. from decision outcomes) leading to judgments becoming "more accurate" (p.348).

Rationale (3): Intuition as part of human cognitive faculties

Intuition is involved in daily human decision-making, sometimes at a sub-conscious level of 'inner whispers' (Myers, 2010, 371). The capacity to make the right decision intuitively (ie without further deliberation) is linked to high cognitive ability (Raoelison *et al.*, 2020; Thompson & Johnson, 2014). Conversely, negative emotions, biases, and past experiences may limit good decision-making. Under time pressure, crisis and with limited knowledge, individuals may be more likely to reason intuitively (Suri & Monroe, 2003; Sweeny, 2008).

Best evidence must be incorporated into decisions, but also the role of human cognitive processes within decisions must be recognised even if not fully understood. Intuitive faculties help social workers to understand better the unarticulated decision-making of clients and other professionals (Przeperski & Taylor, 2020).

Challenges in using intuition in decision making

Challenge (1): Intuition as a taboo topic

Intuition is essentially an implicit activity, illustrated by social workers' vernacular such as 'something wasn't quite right' or 'I can't put my finger on it' or 'gut feeling' (Cook, 2017), with little official acknowledgement (Saltiel, 2016). The elusive nature of intuition makes this cognitive process easier to theorize than to quantify. It may be viewed as alchemy, lacking the rigour to make it a tangible part of social work assessment (Hollows, 2003), although recent studies demonstrate that social workers utilise intuition to inform their judgements, even if used as a base for the totality of decisions (Mullineux et al., 2020; Sicora et al., 2020).

Challenge (2): Issues in communicating intuition in group decision processes

Decision-making in social work requires accountability, bound to practitioners' legal and moral responsibilities. However, social work judgements are often embedded in collective decision processes of sense-making (Helm & Roesch-Marsh, 2017). Group decisions protect individuals from negative consequences, such as punishment, stress or regret (El Zein, Bahrami & Hertwig, 2019). The coordination of professional interventions requires recognition of weakly-articulated intuition to avoid misunderstanding.

Ethnographic studies have highlighted group decision-making as sense-making processes (Bastian, 2017; Helm, 2013). The attempt to understand the practical logic of decision-making and intuition allows for capturing pragmatic skills. Donald Schön (1983) developed the concept of reflective practitioners, with professional practice visible in interactions, rooted in theoretical expertise and implicit practical knowledge. Analysing intuition and decision making in groups provides an inductive perspective complementing cognitive approaches, contributing a reconceptualization of intuition as part of professional practice.

Challenge (3): Difficulties in integrating intuition with explicit use of knowledge

In the last 30 years social work has experienced a shift in principles and procedures. A fear of human error and a perception that logical decision making is more accurate has led to an emphasis on decision making frameworks and empirical findings. A medical definition of evidence-based practice has been adapted and applied to social work:

'Evidence-based professionals pose specific answerable questions regarding decisions in their practice, search electronically for the answer, critically appraise what they find, carefully consider whether findings apply to a particular client, and, together with the client, select an option to try and evaluate the results.' (Gibbs & Gambril, 2002, 453)

Critics of evidence-informed practice may see it as devaluing the tacit wisdom of practitioners resulting in practitioners having "their decision-making mechanized, their expertise fragmented and their artistry abolished" (Winter *et al.*, 1999, 193). This zero sum understanding, pitting objective evidence against subjective emotion (Greenhalgh, 2002), distorts the more nuanced reality of everyday practice. Good decision making can combine the strengths of a rational evidence based approach with intuitive thinking that enables us to make use of hard facts in complex and uncertain social situations. The challenge for the social work profession is to recognise both the value and the dangers of subjectivity and creativity. Intuition and unarticulated wisdom have their place in reasoned and reasonable decision making (Taylor, 2017a), that recognises uncertainty and takes steps to explicitly articulate the ways in which decisions are made.

Theoretical frameworks for use of intuition in decision making

Various theoretical frames of reference have potential to assist us in conceptualising, analysing and discussing these issues (Taylor, 2012; Thyer, 2001). Six are considered here: (1) the 'tacit knowledge' of sociological discourse; (2) intuition as 'sense-making'; (3) internalisation of learning as part of reflective practice; (4) conceptual schemas from neuroscience; (5) Kahnemann's 'thinking fast and slow'; and (6) heuristic models of human thinking. For some, intuition may be considered as seeking divine guidance, although discussion of the relationship between faith and reason is beyond the scope of this paper (Collins, 2006; John Paul II, 1998; Swinburne, 2005). These theoretical frameworks have been sequenced from understandings of 'what is' in terms of knowledge, through approaches to understanding this knowledge ('sense-making') to models that give indications of behavioural outcomes of the cognitive processes.

Theoretical framework (1): The 'tacit knowledge' of sociological discourse

To understand professional practice, sociology of knowledge suggests considering socially-generated practical knowledge alongside scientific expertise (Bohnsack, 2014). Practice theories conceptualize professional action in frames of complex social practices guided by implicitness (Schatzki, Knorr-Cetina & Savigny, 2005). Michael Polanyi (2010) indicates the importance of a tacit dimension of practical knowledge: professionals know more than they are aware of. Theoretical knowledge provides information to understand social problems and practical knowledge allows for skilful treatment; both facilitate professional performance.

Forkby and Höjer (2011) develop the concept of collective memory to enhance the understanding of decision-making. Practitioners must handle uncertainty and ensure cooperation with stakeholders, requiring understanding of the social dimension of experience and practical knowledge. Professional knowledge is rooted in expertise but also in shared understandings of specific situations and their social meanings. The attribution of meaning is a complex social process, emerging from interaction (Mead, 1934/1993, 115–122) and a sense of adequacy (Schütz, 1932/2016, 325-334). Following

this perspective, intuition in social work consists of an implicit compound of bodily rooted tacit knowledge and socially generated collective memories, documented in the performance professional practice.

Theoretical framework (2): Intuition as 'sense-making'

Intuition contributes to effective problem solving and decision making through our capacity to recognise 'cues' in the environment and rapidly match them to experience and existing 'patterns'. Piaget (1964) suggested that children are born with basic mental structures ('schemas') on which all subsequent knowledge and learning is built and which develop with experience. These provide connected mental representations of the world. Schemata provide 'mental maps' which act as a subconscious 'template' allowing individuals to understand their environment and respond appropriately. An intuitive response would be schemata dependent, and functions as a protective strategy.

Similarly, Kelly (1963, 9) suggested that 'man [sic] looks at his world through transparent patterns or templates which he creates and then attempts to fit over the realities of which the world is composed'. Personal construct theory describes how each of us constructs and interprets the world through our own unique 'lens' of experience. Kelly (1955) defined a *construct* as the way that individuals view and give meaning to people and events in their life and the world around them (Gaines-Hardison & Neimeyer, 2012). He proposed that much of human construing takes place outside of consciousness, suggesting there are levels of awareness with 'conscious construing' being at the highest level. 'Preverbal' construing, created by a young child before the ability to attach verbal labels, is the lowest level (Fransella & Bannister, 1989; Fransella & Neimeyer, 2005). This may make some contribution to understanding intuitive responses generally but also in terms of judgements made by social work practitioners. Such ideas of 'sense making' are beginning to be explored in social work (Helm, 2017).

Theoretical framework (3): Intuition as internalisation of learning

Sensemaking has been described as "...the ongoing retrospective development of plausible images that rationalize what people are doing." (Weick 2001, 460). Although there are many different definitions of 'sensemaking', most agree that it is an ongoing process of trying to understand events and phenomena which are confusing and ambiguous. This *sensemaking* lens (Weick 1969) has been highly influential in organisational studies (Brown *et al.*, 2015; Hernes and Maitlis, 2010; Maitlis and Christianson, 2014) and is beginning to inform social work research, education and practice.

Sensemaking both precedes and follows decision making, as a process of creating meaning through action in conditions of uncertainty and when explaining or justifying actions taken. 'How can I know what I think until I see what I say?' (Weick, 1993, 18). Through talk, meanings are consensually constructed, leading to justifiable action (Weick, 2009). Sensemaking in social work involves movement between deliberate (analytical) and non-deliberate (intuitive) rationality (Avby, 2015); is shaped in the social and organisational context of the profession (Helm, 2017); and is enacted through discourse or "social storytelling" (Cook & Gregory, 2020, p187). Studies to date have been mainly small-scale and ethnographic and have successfully shed light on the individualised processes that underpin the macro-level process of the profession. There is some exploration of internalisation of learning in relation to social work decision making (Taylor, 2020b).

Theoretical framework (4): Conceptual schemas from neuro-science

Simon (1992, 155) defined expert intuition as: "the situation has provided a cue. This cue has given the expert access to information stored in memory, and the information provides

the answer. Intuition is nothing more and nothing less than recognition." However, this definition raises two questions that need to be addressed: how is information stored in memory and how does recognition operate?

The answers to both those questions may be found in *Schema Theory* (Schank & Abelson, 1995). 'Schemas' are mental models or representations that are constructed through experience, about people, objects, situations, or events. They are "superordinate knowledge structures that reflect abstracted commonalities across multiple experiences, exerting powerful influences over how events are perceived, interpreted, and remembered" (Gilboa & Marlatte, 2017, 618). Schemas are related to cognitive structures such as narratives, concepts and categories, and event gists (Ghosh & Gilboa, 2014).

Applying similar ideas to professional intuition, inexperienced practitioners may be overloaded by irrelevant cues for which they lacked schemas or organizing patterns (Sutcliffe & Weick, 2008). By contrast, experienced practitioners are able to see patterns (schemas), where they see cues that link together and lead them to look for further cues (Klein, 2009). Practitioners accumulate experiences, and build up repertoires of recognized patterns (Klein, 2004). There is some beginning research into recognising patterns and schemas in the process of social workers forming judgements (Cook, 2017).

Theoretical framework (5): Kahnemann's 'thinking fast and slow'

One of the more influential models for understanding the difference between intuition and more formal, analytic reasoning processes is the dual-process model (Stanovich and West, 2000; Kahnemann and Frederick, 2002) popularised by the Nobel-winning psychologist Daniel Kahnemann (2011). Intuitive thinking (System 1) operates rapidly and automatically, and with little sense of voluntary choice or effort. For example, during a telephone conversation with someone that we know well, we are often quickly aware of their mood. By contrast, analytic thinking (System 2) is controlled, effortful and able to undertake complex and laborious mental operations requiring considerable effort, such as mathematical calculations.

Although this is a rather familiar distinction, what is innovative is that these are seen not as competing modes of reasoning but as halves of a whole interactive system that constantly moves from one to the other. In our everyday lives, this most commonly takes the form of our 'System 1' effortlessly providing us with a constant stream of intuitive judgements which are evaluated by our analytic 'System 2'. The same mechanism has been recognised also in social work (Sicora, 2010).

Theoretical framework (6): Heuristic approaches in human thinking

The fast and frugal heuristics school of thought led by Gerd Gigerenzer and colleagues (Gigerenzer & Gaissmaier, 2011; Gigerenzer & Selten, 2002) might be viewed as a broad range of psycho-social or ecological approaches to understanding human cognition in relation to decision making. People have at their disposal a toolbox of specialized strategies, heuristics, rules, and core mental capacities to make decisions. This toolbox is adaptive, and thus adjusts to physical and social environments and past experiences. Novel to this approach is the idea that on some occasions having less information may lead to better decisions, not least by avoiding an overload of irrelevant or insignificant information. We do so by using heuristics, which are strategies that ignore part of the information or limit the search for information and can be relied on consciously or unconsciously. If used unconsciously, it is called an intuitive judgement. Such studies demonstrate how judgments may be made more quickly or accurately using heuristics (such as recognition-based, one-reason, or trade-off heuristics) than by using complex algorithmic or statistical methods which are beyond the capacity of the human brain. Such

heuristic models have begun to be explored for their application in social work (Taylor, 2017b; Taylor, 2020a).

Discussion

We have presented a number of theories of intuition relevant to social work practice, ranging from broad sociological conceptualisations to more specific psychological aspects. The 'tacit knowledge' of sociological theory (Theory 1) provides a broad context for more specific social work research on 'sense making' (Theory 2) as a social work activity in assessment. The learning processes for social workers (both novices and throughout a career) involve internalisation of knowledge (Theory 3) and the as-yet less developed understandings through neuro-science (Theory 4). The internalisation involves creating mental schemas, as considered in 'thinking fast and slow' (Theory 5) and heuristic (Theory 6) models. Rather than viewing these (and other) theoretical understandings as competing, the challenge now is to explore the interface between them and the ways in which they complement each other to create a richer understanding. The identification of 'tacit knowledge' leads readily to approaches to making sense of such less-tangible knowing. Neurological understandings can complement our efforts to conceptualise cognitive processes, and to measure the effect of different decision strategies. Consideration of the intuitive aspect of decision making may provide a language for aspects of professional judgement in social work, such as 'forming a hypothesis', 'giving insight into a client situation' or 'providing an imaginative leap for creative problem solving'.

Intuition in relation to organisational accountability and governance

The development of intuitive approaches to decision making presents challenges for team working amongst professionals and between organisations (Harris *et al.*, 2020). How will intuitive judgements be communicated, discussed and justified? In particular, how would contentious decisions (such as in child protection court proceedings) be justified using an intuitive model (Duffy et al., 2006)? Social welfare organisations have to allocate services (whether public services funded through taxation or voluntary sector services funded through charitable giving) to those meeting eligibility criteria (Taylor, 2017a, ch 6) or to those in greatest need (Taylor & Donnelly, 2006). Similarly, where organisations have statutory duties to seek to protect the vulnerable, the organisation must have robust systems so that decisions can be justified (Carson, 2012).

It is regarded as proper in a democracy that there are mechanisms to hold individuals (particularly professionals) and organisations that serve the public to account for their decisions (Kline & Preston-Shoot, 2012; Reamer, 2015; Taylor & Campbell, 2011). How will such accountability take place if decisions are based on 'intuition', hindering comparison with practice in other organisations (Bäck *et al.*, 2020) or against standards agreed by society? A key issue is the manner in which organisations engage in risk management, which might be conceptualised along a continuum from more controlling to more enabling approaches. Perhaps an aspect of the 'intuitive judgement' debate is to reconsider what is regarded as 'logical thinking' in the context of human factors and relationship-based interventions in people's lives, and the way that this is managed in organisations.

Developing intuition in social work practice through supervision and team learning If the value of intuition for social work practice is accepted, then strategies to develop skilled intuition should consider two principal aspects. First, intuition may not be a conscious form of decision making and thus is difficult to express or explain (Gigerenzer, 2015). Second, intuition is based on prior experience, which may affect the quality of

inexperienced novices' decision making (Whittaker, 2018). Key to the development of intuitive expertise, therefore, is the provision of opportunities for feedback and reflection by supervisors and colleagues (Sicora, 2017). Structed supervision models, such as the cognitive and affective supervisory approach developed by Turney and Ruch (2016), are designed to help workers trace back their reasoning, including cues in the situation and the meaning given to them. Discussions of case studies in team meetings or learning sets can be beneficial in gaining feedback, encouraging reflection, and allowing novices to draw lessons from experienced team members. Supported reflection within supervision or with colleagues can help the practitioner to appraise available information in the context of services and their own attitudes and feelings, thereby facilitating the integration of theory, research, practice wisdom and intuition. This is an area for further research.

Intuition in relation to assessment tools and processes

Intuition plays an important role in information processing, but the processes need to be understood better (O'Connor, 2020). Social workers can learn analytic aspects of decision making through training, whereas intuition tends to be learned through experience (Trevithick 2014). Inexperienced practitioners may be overwhelmed by evidence, with newly-qualified practitioners experiencing a 'beginner's dip' as they struggle to make sense of complex and uncertain situations (Devaney *at al.*, 2017). Expert practitioners are more able incorporate contextual information and link new knowledge to previous experience (Fook *et al.*, 1997). Practitioners can be supported to incorporate both objective and subjective factors in their decision making through well-designed assessment frameworks incorporating both practitioner wisdom and research evidence, encouraging methodical and transparent analysis (Fengler & Taylor, 2019; Killick & Taylor, 2020).

Implications for education and training and the creation of mental models

A better understanding of the role of intuition in judgement and decision making needs to be embedded within social work educational curricula, organisational training and professional supervision. If standardised and equitable practice is to be assured for service users we need to think about a level of personal exploration for all social workers, both during initial training and throughout their career. The issue is whether we can capture the implicit mental models and schema underlying this intuitive expertise and help novice practitioners to acquire this. As an example, this is the challenge addressed by a digital educational intervention called *Seeing through the Eyes of Experienced Practitioners* (STEEP) based on the ShadoxBoxTM model (Klein, *et al.*, 2013). Participants are faced with realistic child protection scenarios, and must make decisions at multiple stages. After each decision, participants receive pre-recorded video feedback from a panel of highly experienced practitioners, who explain the mental models and schemas that they use. A randomised controlled trial of this educational intervention showed promising results (Whittaker & Harvey, 2019).

Further research

These theories pave the way for empirical research that could use a selected theory as a framework so as to strengthen research on decision making in social work practice. The justifiable societal demands for accountability and clarity in decision making need to be considered in the context of cognitive processes often described as 'intuitive'. Further study could usefully explore the integration of 'intuitive judgements' and 'rational thinking', particularly where decisions must be made in limited time and with limited information. A key issue to study is how human beings make sense of complex information in a demanding environment so as to inform justifiable decisions. Another area to explore is the

impact of intuition on moral decision-making. Reflection seems to enable gaining more awareness in governing and integrated the impact of intuition on a moral decision-making process (Schmidt, 2014) but more specific studies in social work could be useful.

Conclusions

A clearer understanding of intuition may prove useful in understanding social work decision making, despite the justifiable claims of society and service users for accountability of professionals. However the subtleties of intuition may be lost in the quest for a 'detached and rational attitude' which is demanded of accountable professionals. The conceptualisation of internalised 'intuitive' judgement processes in a more inclusive psycho-social rationality mode may benefit social workers enhancing their ability to use the best knowledge to inform practice. Empathy and other "non-rational" components, are important ingredients of successful interventions and may be the best 'assistants' to the logic thinking. Despite the various challenges, it is time for the profession to embrace a less dichotomous approach toward the processed guiding them to the best decisions with and for their service users. The art as well as the science of social work are important, or in the words of a novelist: 'It is important to use discipline with intuition, and to use intuition with objectivity.' (Coelho, 2006, p 117)

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