

# Intuition in managers' decision-making: qualitative study\*

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The main aim of the study was to explore managers' decision-making process, focusing particularly on intuition in decision-making from a psychological perspective. A total of 20 managers (8 women) participated in individual in-depth interviews. Analysis of the interviews shows that managers a) did not have a clear preference for one decision-making style, b) defined intuition as knowledge based on feelings, judgement not based on facts, knowledge of unknown origin, and that they c) associate intuition with experience and practice. Decision-making was also influenced by contextual factors, such as the environment and its limits (management and information requirements, and financial limits), time, and type of task.

**Keywords:** decision-making, intuition, management, individual in-depth interview  
JEL codes: D81, D83

## Introduction

Imagine you have to decide whether to invest corporate capital. If the investment proves worthwhile, the company will prosper and will be able to employ 20 people. If the investment is not profitable, the company will have to lay off 10 people. You are faced with a serious decision; all the documents and information suggest that the investment will be profitable. Nevertheless, something is telling you not to make the investment. How will you proceed? Will you recommend the investment or do you listen to your inner voice and decide against it? Managers and business owners often face similar issues; their decisions have long-term consequences both economically and personally. Mistakes are made not by the companies themselves but by leaders who fail (Parikh/Lank/Neubauer 1994). The aim of this study was therefore to explore managers' decision-making processes managers (from a psychological perspective), concentrating on the use of intuition in decision-making.

In the laboratory decision problems are well-structured, and alternatives and detailed information are given. By contrast in real-life situations alternatives are generally not given but generated (Payne/Bettman/Johnson 1993). Outside the laboratory the decision-making process involves factors such as task effect and context effect (Payne et al. 1993), personality traits, type of problem, personal history, emotions, and above all a cognitive style preference for rational and/or

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intuitive decision-making styles. The focus of the present study is on intuitive decision-making styles and so the next section looks at intuition in more detail.

The psychology literature on management explains intuition in terms of heuristics (e.g. Denes-Raj/Epstein 1994), expertise (Klein 2003) and unconscious information processing (Epstein 2003; Kahneman 2003). Currently, intuition is commonly investigated from a dual process theory perspective as belonging to Type 1 processes: automatic, spontaneous, rapid, non-verbal processes based on a small amount of information that reflect implicit experiences; the reasons behind the thinking are not always clear but are strong enough to prompt action (Betsch/Kunz 2008; Gigerenzer 2008; Gladwell 2005; Sadler-Smith 2008; Stanovich/West 2000). To summarize, intuitive processes differ from rational processes in that they are unconscious, holistic, associative, and fast (Dane/Pratt 2007).

An important issue (and not only for managers) is when and under what conditions intuition is effective. Dane and Pratt (2007) report a model showing factors that influence the effectiveness of intuitive decision-making (Figure 1 in Dane/Pratt 2007). Dane and Pratt formulated several arguments and these were used in the present study as the basis for selecting the topics and developing the interview scenario. Dane and Pratt (2007) argue that people who apply complex domain relevant schemes to the problem make more effective intuitive decisions compared to those who use heuristics and simple domain independent schemes (see also Burke/Miller 1999). In other words, the domain specificity of a scheme (management schemes can be useful in professional decision-making but may be less so in personal life) is as important as its complexity.

All the authors mentioned above note that explicit learning may positively aid the formation of complex domain relevant schemes because through it individuals gain mastery and expertise in the domain. The formation of complex domain specific schemes via explicit learning can be enhanced through practice in the domain and environment that provides rapid and accurate feedback and clear consequences. Khatri and Ng (2000) state that years of experience of problem-solving in the domain are necessary for individuals to achieve effective management based on intuitive decision-making. Both implicit and explicit learning help individuals create a complex domain specific scheme, and this can be enhanced if attention is focused on stimuli from the environment.

Dane and Pratt (2007) also state that type of task is an important factor: intuitive decision-making is more effective in reasoning tasks (moral, political, ethical, esthetical, behavioural etc.) or in tasks with no objective criterion for success or no solution (as opposed to intellectual tasks with a criterion for success). These types of task emerge in uncertain situations where there is a substantial amount of information, limited time, incomplete information etc. In addition, the type of

task may affect the relationship between the use of complex domain specific schemes and effective decision-making.

In the present study I have attempted to build on the descriptive research findings relating to the perception of intuition and its importance and use in managerial practice. The research was performed on a sample of middle and high management: people in these positions are more likely to make decisions on fundamental issues crucial to business, the company, personnel matters etc.

The aim of the study was to explore the decision-making process adopted by managers, concentrating on the use of intuition in decision-making. The main questions were how managers make their decisions, which factors enter into the decision-making process, and how these factors influence the effectiveness of decision-making, focusing on intuition, and the extent to which it is used in decision-making.

## Material and methods

### *Participants*

The participants were recruited by an external agency according to predefined criteria: (a) managers, executives, or owners of companies (there were no specific criteria on the companies) (b) who make decisions about company operations or about personnel and staff matters, and (c) who had more than 10 years' experience.

A total of 20 Slovak managers (8 women) from various domains (state administration and government, gastronomy, real estate, health care, business, marketing, service, IT, and PR) aged between 28 and 63 years ( $M = 43.3$ ,  $SD = 9.22$ ) participated in the study. On average the participants had 12.5 years' experience. The external agency ended the interviews after 20 had been carried and the topic was exhausted (the participants were giving similar or the same answers).

### *Design and materials*

The decision to use an external agency to interview participants was taken because external agencies have better access to specific participants like managers. The external agency was chosen from among a number of agencies with experience of qualitative research. The agency was a commercial entity, and there was no conflict of interest. The agency selected one member of staff to manage the project, take responsibility for the quality of the data collection, and to conduct the interviews. The interviewer had 17 years' experience of performing individual interviews and holding focus groups (over 1100 individual interviews and over 700 focus groups). To ensure the interviews were not compromised in any way, the author of the study co-moderated the first four interviews, then during

data collection the author and interviewer discussed the content and progression of the interviews, and finally all the interviews were transcribed by the author.

All the participants were contacted by the external agency which planned the one-to-one meetings with the participants (taking into account the participants time schedules). The meetings were held either at the participant's workplace or at the agency and included a semi-structured in-depth individual interview. The interviews ranged from 43 minutes to 63 minutes long and were recorded.

The initial questions were composed in such a way as to encourage an atmosphere of trust and openness and to allow the participants to talk about their experiences, opinions, and thoughts. All the questions were structured, and the interviewer had the opportunity to ask questions when the situation required. The interviews focused a) on intuition in decision-making (defining intuition, the role of intuition in professional decision-making, intuition as a "stop" and "go" signal) and b) on comparing professional decision-making in different contexts (decision-making in standard/non-standard situations, decisions with short-term/long-term consequences, routine/innovative decisions, decision-making under stress/stress free, individual/collective decision-making).

### *Analysis*

A modified qualitative phenomenology methodology (Jeffrey/Fish 2011) was used to analyse the interviews. While the aim of phenomenology methodology is to record direct experiences of the phenomenon and work inductively from the experiences of participants to provide a comprehensive description of the phenomenon, an additional aim of modified phenomenology methodology is to record opinions and thoughts concerning the observed phenomena (decision-making strategies, effective decision-making factors, intuition).

Phenomenological data reduction was used in the data analysis (Moustakas 1994), beginning from the individual statements through to the point where it became possible to identify a phenomenological description of the experience (representing the views of the group as a whole). In the present study experiences, opinions, and thoughts were included in the analysis. First, the author's experiences, opinions, and beliefs about professional decision-making and intuition were identified with the aim of separating these from the experiences, opinions, and thoughts of the participants. This clarification of the author's opinions and beliefs enabled her to focus on the stories of the participants.

Second, the interviews were performed, recorded, and transcribed by the author. The interviews were then repeatedly read and analysed by two coders (the author and her colleague, both of whom have experience of qualitative analysis and of using Atlas.ti 7 software). The coders first worked independently and then came together as a team. Individual experiences, opinions, and thoughts

were coded by the first coder (the author of the present study; she identified 43 themes), next the second coder read the interviews with the first coder's codes at her disposal; the second coder used all 43 codes and identified a further 10 new codes. After discussion the coders agreed to merge the 10 new codes with the first coder's codes, and after that they created 11 broader themes. Next the related themes were merged into six categories (preference, intuition, experience and practice, limits of environment, time, and type of task) within two broad domains: individual factors and contextual factors (for an overview see Table 1; the frequency of the themes is shown in Appendix A).

**Table 1 Overview of domains, themes, and categories**

domains	categories	themes
individual factors	preference	rational DM
		intuitive DM
	intuition	definition of intuition training intuition
contextual factors	experience, practice	experiences, practice schemes
	limits of environment	need for justification
		limits of information financial limits
	time	time
	type of task	type of task

DM – decision-making

## Results

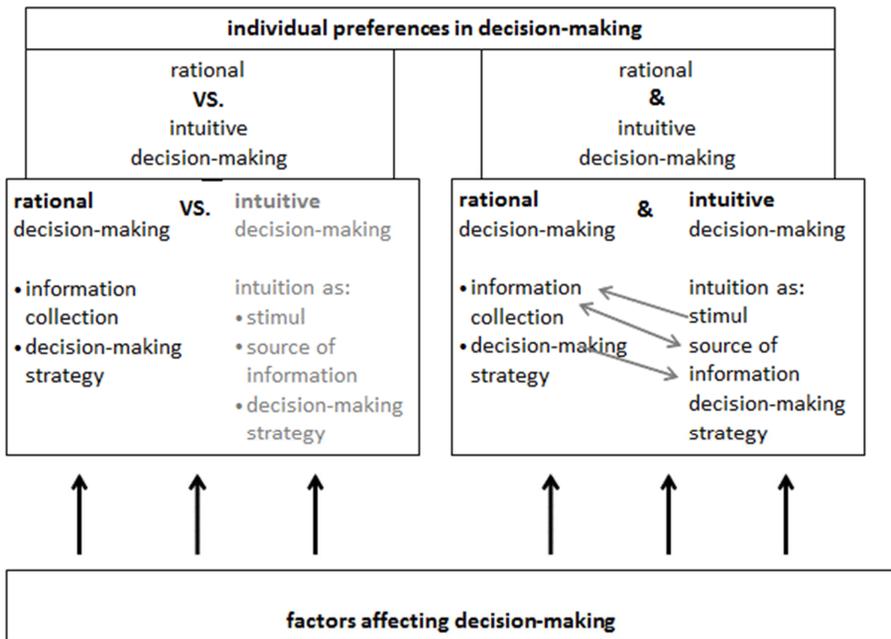
The analysis of the interviews reveals two main domains: individual factors and contextual factors, and the results are organized accordingly. Special attention was paid to the findings in relation to intuition and its role in decision-making by managers.

A small group of participants favoured rational decision-making over intuitive decision-making (left-hand side of Figure 1). In this case they reported how important information collection was, along with information processing and assessing. On the other hand, most of the participants used a combination of intuition and rationality in decision-making (right-hand side of Figure 1). This group used intuition at two stages: at the beginning of the decision-making process and intuition occurring during the decision-making process. At the beginning intuition serves to stimulate action or reasoning or serves as a source of information (for example as a feeling or an inner voice saying what should be done), and it is possible that this will be processed rationally. During the decision process itself,

when enough information is available and alternative decisions are formed, the intuition adds value to the information and/or helps the individual choose a winning alternative. To sum up, the participants reason intuitively during the various phases of the decision-making process.

Whatever the preferences, external factors such as type of task or environmental limits had a substantial effect on the decision-making. The results are organized as follows: first, the individual factors (preference, intuition, experience, and practice) are presented, and then the contextual factors (limits of environment, time, and type of task) are reported.

**Figure 1** Scheme of the decision-making process in Slovak managers



*Individual factors*

The analysis of the interviews shows that the managers rarely had a clear preference for one decision-making style or another; the participants tended to use a combination of rational and intuitive judgement and decision-making<sup>1</sup> depending on the circumstances and factors entering into the decision-making (contextual factors in Figure 1).

1 Similar to our previous study (Čavojová/Ballová Mikušková/Hanák 2013).

Rational judgement and decision-making were particularly apparent during conscious information searches, verification and analysis of information, and in choosing from the alternatives and justification (“...anything I can check, I check.”; 32-year old marketer). The participants frequently used rational decision-making; this was prompted by contextual factors, in particular by the fact that in a managerial environment bosses or clients require the justification and reasoning behind decisions.

The participants defined intuition as a vague feeling that they know the solution or sense that the solution is the right one, but they were not able to explain its origin (“It is an inspiration or feeling that this is right, without me knowing why.”; 38-year old marketer). Intuition was also seen as an ability which can be improved by experience (in terms of increasing trust in one’s own intuition and frequency of use); experience and practice were indicated by participants as the source of intuition.

Participants attributed various functions to intuition depending on the decision-making phase in which the intuition occurred. When the intuition occurred at the beginning of the decision-making process or in critical decision-making phases, it prompted reasoning and/or provided information, and it was manifested in two forms: (a) as a stop-signal – a disquieting feeling (a bad feeling) that stops the action or involves rational thinking or (b) as a go-signal – a feeling that prompted action, reasoning, an information search etc. On the other hand, where participants had to choose between equally appealing alternatives (usually at the end of the decision-making process), the intuition acted as supplementary information that helped them choose the winning alternative (a 43-year old manager said in this context: “...you just have to decide and then it’s fifty/fifty, and you just decide on the basis of something else.”).

Intuition played a specific role in decision-making about human resources and interpersonal relationships – it formed the basis for creating opinions about clients, employees, or business partners (“I see it in the client. I can judge. So, intuition – I know whether this person likes to take a gamble or is a serious candidate.”; 52-year old estate agent). It is possible that it was not intuition but the “halo effect”. So further examination is needed to verify the effect of intuition on relations.

### *Emotions and intuition*

The participants often reported that emotions accompanied their decision-making. Some of them attributed an information value to emotions, while some conflated emotions with intuition (they used the term feeling in both contexts). A minority of participants thought emotions had a negative impact on decision-making – these participants made wrong decisions when influenced by emotions (for example they did not consider all the available information and subjectively

evaluated the information). The interviews did not focus on emotions in decision-making, so consequently there was not enough information to formulate a valid conclusion about the relationship between emotions and intuition, or about the effect emotion has on decision-making.

### *Experiences and practice*

Experience and practice, especially in the context of intuition, were often discussed in the interviews. Participants declared that as they gained more experience, they became more satisfied with the quality and promptness of their decisions, particularly in complex situations (“I can make a professional decision based on my experience, or you could call it expert judgement, or on a combination of both, I can decide very quickly.”; 40-year old manager of a start-up company). The present findings correspond to the findings of Dane and Pratt (2007) and Burke and Miller (1999): experts create domain specific schemes which they use for effective decision-making (“...some models that work are applied...”; 43-year old PR manager).

With increasing experience the number of decision schemes and models increase, as does the frequency and accuracy of use. In complex routine or familiar situations participants used these schemes very effectively: they quickly recognized the known key-factors and applied an adequate mental model to the decision-making; and this is what they referred to as intuition. In novel, uncommon situations they adjusted the schemes and models to the circumstances or created a new mental model, enhancing their expertise. Further research could investigate how intuition develops and what supportive factors there might be.

### *Contextual factors*

Individual factors are fundamental to the way managers make decisions, but they are affected by contextual factors. The contextual factors identified were the environment and its limits, time, and type of task.

### *Environment and its limits*

Three fundamental environmental limits were identified: requirements of bosses or clients, information limits, and financial limits.

The participants worked in environments in which decisions are subordinated to the requirements of bosses or clients, and these required rational justification. They therefore had to reason rationally, gather arguments, and search for information, even if they favoured intuitive reasoning and decision-making. In the managerial environment intuition cannot be used as justification (“...I have to be able to justify my decisions (...) but justifying on the basis of intuition is difficult.”; 38-year old marketing communication manager). Participants were ac-

customed to using both intuition and rationality, and consequently none of them mentioned an exclusive preference for intuitive reasoning and decision-making in his/her domain. Intuition was often used by the participants but only as auxiliary information, for example to provide guidance on the kind of information search to select, how to reason about the problem, or what option to choose.

A manager's decision-making was affected by the amount of information that was available. Although some authors (e.g. Gigerenzer 2008) argue that intuitive decision-making is more effective in uncertain environments, the participants made an effort to transform uncertainty into certainty, searching for information when necessary (for justification) and where possible of course. The main sources of information were their experience (implicit as well as explicit), discussions with colleagues, the internet, specialist literature, other professionals, and surveys. By combining such sources the participants were able to create a database of information and experience, enhancing their expertise.

A crucial limit to the participants' decision-making capabilities was found in the limited financial resources available to them to realize their ideas and decisions. The participants stated that their limited finances meant they had to ignore their intuitive decisions and replace them with rational decisions ("It is often the case that I have to decide on the basis of economic indicators. (...) Although I intuitively know that my solution is a good solution, but they won't let you – these objective reasons."; 41-year old director of a health centre). In such situations participants applied a combined strategy: first, they used an elimination-by-aspect heuristic (Payne et al. 1993) – participants chose the most important factor (finance) and its limits (amount of funds) and chose alternatives that met this criterion. Next they proceeded according to their preference for reasoning and decision-making. Thus, financial limits are a prime example of how contextual factors affect decision-making.

### *Time*

Time was a special aspect of managerial decision-making: managers often made decisions under the pressures of time, causing them stress. Participants confirmed that there was a lack of time in decision-making: in such situations they were less satisfied with their decisions, and they considered the decisions to be of poorer quality ("...when you are stressed, decisions are not well thought out, which means you made mistakes."; 57-year old sales manager). On the one hand decisions made against the pressures of time were reached more quickly but on the other hand they were less innovative – the participants used various heuristics and established schemes.<sup>2</sup>

<sup>2</sup> Various experiences of intuition were observed among manager, ranging from spiritual experiences, to intuition as a gut feeling and a special type of intuition based on experience and inspiration – insight. The relationship between intuition and creativity is discussed by

Subjective satisfaction with decisions increased when the participants had enough time for decision-making. Many of them searched for information and analysed it, consciously delaying the decision and incubating it (“...when you let it [the decision] sit for two/three days, then you look at it, get used it, and somehow learn to live with it. (...) Analogy: Suddenly you find some inspiration, and it guides you to a solution.”; 43-year old PR manager).

### *Type of task*

Participants were asked how they made decisions in contrasting situations: standard/ non-standard situations, decisions with short-term/ long-term consequences, routine/ innovative tasks, in stressful/ stress free situations, and in individual/group decisions. Intuition was generally linked to standard, routine tasks and to those with short-term consequences. For example in most cases where there were routine operative tasks – that had to be completed and decided within the limits of the law and the regulations – good practices and schemes were applied; when participants had to solve tasks with short-term consequences (reversible consequences) they made quick decisions and used good practices and schemes (as in the routine operative tasks).

In the case of non-standard, unusual problems, and problems involving long-term consequences, the participants favoured rational reasoning, for example decisions made in relation to problems involving long-term consequences (irreversible consequences) took longer (days or weeks) as participants had to search for information, repeatedly return to the problem, and consult colleagues and other professionals. Here an exclusive preference for rationality or intuition was the exception rather than the rule; where possible, participants combined both in various phases of the decision-making.

## **Discussion**

The main aim of the present study was to explore managers' decision-making processes, focusing on the use of intuition in decision-making. The results reflect some aspects of intuitive decision-making in particular (how managers define intuition, how they use it, and with what effect).

The managers did not have a clear preference for one thinking style: in most cases they used rational as well as intuitive judgment and decision-making, which is consistent with our previous findings (Čavoјová/Ballová Mikušková/Hanák 2013) or the older findings of Simon (1987) that effective managers cannot afford to choose between rational and intuitive decision-making and that real experts use both types of judgement and decision-making. Hodgkinson and Sadler-

Čavoјová (2013), and this issue seems to be a challenge for researchers: Is intuition really a tool of invention as Poincaré (1905) states? And does creativity increase with intuitive experience as Langer (in Dane/Pratt 2007) anticipated?

Smith (2003) found that the ability to switch between habits of mind and active thinking is an essential skill for people working in organizations today.

The managers defined intuition as knowledge based on feelings, on thinking not based on facts, as knowledge of unknown origins, and they considered intuition to be built on a lack of information. These definitions are similar to definitions reported in the literature (e.g. Gigerenzer 2008 a; Gladwell 2005; Sadler-Smith 2008; Stanovich/West 2000). The present results are consistent with the findings of Jeffrey and Fish (2011) that intuition can serve as a) one of more sources, b) as a decision-making strategy, or c) as a guide to establishing relationships. Another view of intuition was that it is a body sensation: some managers experienced intuition as a bodily feeling and considered it to be a signal (of varying strength and power), as found in the research by Hensman and Sadler-Smith (2011).

One group of managers perceived intuition to be a skill, while another smaller group of managers considered it a trait, an innate feature. In both groups, the managers took the view that intuition can be trained and developed. The connection between intuition and experience, and practice in the domain was apparent: with increasing competence the managers increasingly trusted their own intuitions and made greater use of them. Further research should be conducted into the development of intuition in experts. Baylor (2001) proposed a U-shape model for the development of intuition by expertise. She suggests that there are two types of intuition that are differentiated by level of expertise. First, novices in a domain will experience immature intuition; second, mature intuition becomes available as we become experts in the domain and acquire a well-developed database of knowledge and experience. Not all of us will become experts in our domain, so mature intuition is less common than immature intuition. While intuition seems to be very important in managerial decision-making, for intuition to be used effectively it is important that managers reflect on the level of their intuition.

In addition to individual factors, knowing the environment in which managers make decisions (and the conditions of that environment) is crucial because the environment and its conditions significantly affect the relevance of intuition to the decision-making process (Kahneman/Klein 2009). The corporate context and its limits appear to be particularly strong factors in determining the degree of use, expression of, and reliance on intuition. The findings from the present study are consistent with those of Leonard and Sensiper (1998): companies favour analysis over intuition, and this impedes the expression and sharing of intuition. In the present study managers worked in situations where they had a high level of accountability<sup>3</sup> and had to explain and justify their decisions, presenting solu-

3 Accountability has been examined in more detail by Kostovičová and colleagues (e.g. Kostovičová/Dudeková/Sirota/Bačová 2013; Kostovičová 2013, 2014).

tions and decisions backed up by strong arguments and source materials. Corporate culture and hierarchy encouraged rationalization of intuitive decisions, and managers retrospectively supported intuitive decision using facts to demonstrate their competence in the domain.

### *Limits and implications*

The principal limitation of the study is that both the number of experiences and opinions that were retrospectively reported was limited, as was the number of managers. Despite having attempted to combine the themes of diversity of opinion and experience, it is possible that a larger sample or different selection of managers could have improved the findings. On the other hand, it is possible that in a larger sample diversity of opinion and experience might produce inconsistent findings. It may therefore be better to use more specific (homogenous) samples and a narrower topic focus (in intuitive decision-making).

Another limitation is found in the coding and analysis of the interviews. Although the coders clarified their opinions and beliefs before the data analysis, some interpretations could still have been compromised. The interviews were coded by two coders to ensure the reliability of the data analysis but the fact that the second coder used the first coder's codes could be a limitation. Greater credibility could have been achieved if the participants had checked the results and corrected any inaccuracies.

### *Future research*

The present findings provide a conceptual basis for understanding managerial decision-making from a psychological perspective. In the next phase of my managerial decision-making research I focus on the quantitative analysis of (a) individual factors determining managers' decision-making and the possible moderators of intuition development, for example a preference for a thinking style (measured by The Rational and Experiential Inventory, Pacini/Epstein 1999), the level of cognitive reflection (Cognitive Reflection Test, Frederick 2005), a preference for various types of intuition (Type of Intuition Scale, Pretz et al. 2014), and (b) contextual factors determining the decision-making process, for example managers' practices, the work environment and its limitations, and the effect of time and type of task on decision-making.

Studying intuition development (as proposed in Baylor's U-shape model; Baylor 2001) could help improve training for future managers. If novices have immature intuition, we could teach future managers how to discuss their intuitive feelings and verify the accuracy and efficiency of their intuition-based decisions. In other words we could help them build up an experience database – expertise.

## Conclusion

Many factors enter into the decision-making process and if companies (and other bodies) want to avoid the mistakes and failures caused by managers making the wrong decision, they need to know what these factors are. Several crucial individual and contextual factors were identified from the interviews, such as individual preferences for a decision-making style, years of practice, work environment, type of task and problem, and amount of time required. Effective decision-making is key to the effective functioning of companies. The present study has indicated how managers make decisions, focusing on intuition, but further examination is needed to formulate more specific and detailed recommendations for managerial practice. It would appear that a general recommendation can be made in relation to managers' use of intuition (novices as well as experts): managers should adapt their use of intuition to take account of their skills, preferences and the situation.

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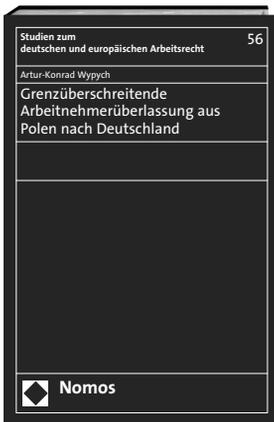
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## Temporary Work from Poland to Germany



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APPENDIX A

Summary of content analysis

domains	categories	themes	participants																										total
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T							
preference	rational DM		1	8	0	2	0	3	9	1	3	3	0	3	3	4	5	5	1	7	9	4	71						
	intuitive DM		0	1	0	4	2	5	4	2	6	4	7	2	3	2	8	6	8	3	4	5	76						
individual factors	definition of intuition		1	1	3	2	1	2	1	0	2	3	1	3	0	0	4	1	1	1	1	0	28						
	training intuition		0	0	0	1	2	0	0	0	0	3	0	0	2	0	1	1	1	0	3	0	14						
experience, practice	experience, practice		0	2	2	4	0	4	0	1	2	5	2	4	3	2	4	2	3	6	4	2	52						
	schemes		0	1	1	4	2	0	2	0	1	2	0	0	1	3	2	6	2	6	1	3	37						
contextual factors	need for justification		0	5	0	2	0	1	0	1	1	1	0	0	0	0	4	3	0	3	4	1	26						
	limits of environment		1	2	0	3	2	1	5	2	2	4	2	2	4	4	0	3	0	2	3	1	43						
	financial limits		3	0	0	0	0	1	0	1	3	0	2	2	0	0	4	0	4	0	2	0	22						
type of task	time		0	2	0	6	3	3	0	2	2	6	2	1	2	1	2	2	6	5	4	8	57						
	type of task		7	5	0	2	2	8	2	4	4	10	0	1	4	2	12	6	4	2	2	2	79						
Total			13	27	6	30	14	28	23	14	26	41	16	18	22	18	46	35	30	35	37	26	505						

DM – decision-making