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A Knowledge Perspective on Needs as a Foundation for Organisational Learning Processes

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Abstract: Needs are crucial in organisational learning processes, but yet not formally conceptualised as a distinct type of knowledge. In this conceptual paper, I establish a knowledge perspective on needs and the transformation process from needs towards need satisfaction.

Based on an ontology clarifying the concept of need and its means of satisfaction, I introduce *need-based solution knowledge* consisting of three distinct capacities to act. I argue why these capacities should be made explicit in group settings and point at possible leverage points for organisational practice.

Keywords: organisational learning, needs, equifinality, capacity to act, epistemology

1 Introduction

Organisational learning can be seen as an unifying umbrella term for organisational adaptation which occurs as a function of new experiences (Argote & Miron-Spektor, 2011). A relevant variable in these adaptation processes are needs which govern behaviour and cause us to act. As psychology suggests, needs are motivational forces that set us in motion. Furthermore, several authors argue that being aware of needs has a considerable impact on (organisational) innovation (Bayus, 2008; Brouwer & Dorst, 2014; Ericson & Stahlbrost, 2006; Holt, 1976; Patnaik & Becker, 1999; Von Hippel & Von Krogh, 2016) and supports decision making (Patnaik, 2004).

However, being aware of our needs does not prescribe how to meet them. Needs are not the means of their satisfaction (satisfiers). Consequently, several theorists and practitioners draw a clear distinction between needs and satisfiers which reflects the potentiality of alternative need satisfaction (Braybrooke, 1998; Brock, 1998, 2005; Doyal & Gough, 1991; Max-Neef, Elizalde, Hopenhayn, & Sears, 1989; Max-Neef, 1992; Patnaik & Becker, 1999). In short, a given need can be satisfied in different ways. This dichotomy implies a one-to-many relation, which potentially extends the range of possible solutions.

Developing knowledge about needs, i.e. awareness of needs, and capacities to address them and judge a satisfier's potentiality appears to be crucial for organisational learning processes, such as innovation, strategy or vision development.

Although the importance of needs has been acknowledged by different fields including organisational studies, e.g. recently in organisational politics (Rosen, Ferris, Brown, Chen, & Yan, 2014), they have not been particularly introduced to the field of

organisational learning and knowledge-based management. Except our previous work (Kaiser, Fordinal, & Kragulj, 2014; Kaiser & Kragulj, in press; Kragulj, 2014), there is no theoretical approach synthesising the concepts of knowledge and need in the respective literature.

To address this gap, this conceptual paper aims at establishing a knowledge perspective on the relation between needs and satisfiers and defines a type of knowledge crucial for the transition from needs to satisfiers. This specific type of knowledge should yield the potential to exploit the one-to-many relation between needs and satisfiers and could facilitate the development of (alternative) need satisfying strategies.

Consequently, the research question is: *Given a dichotomy of needs and means of their satisfaction (satisfiers), how can knowledge crucial for the transition from needs to satisfiers be conceptualised in order to drive organisational learning?*

The remainder of this paper is structured as follows: First, I will introduce my conceptualisation of needs for the purpose of organisational learning. Second, I will establish a knowledge perspective to illuminate the transition from needs to need satisfaction and reflect on what knowledge is crucial for this process. Third, based on a case example, I will reveal leverage points to support these processes and hint at directions for further research.

2 The concept of need

The concept of need is discussed in different fields. Consequently, the phenomenon lacks a common definition. However, there are several attempts to classify human needs on different levels and in various fields (for an overview see McGregor, Camfield, & Woodcock, 2009).

The notion of needs arises in three importantly different modes (Gasper, 2005). Psychological theories discuss needs as powerful underlying motives or drives for action. Differently, needs as instrumental requisites for meeting a given goal (e.g. customer satisfaction; Goffin & Lemke, 2004) comprise customer-related and market-related fields, such as innovation and product design (Ericson, Bertoni, & Larsson, 2009; Ericson & Stahlbrost, 2006; Gkouskos, Normark, & Lundgren, 2014; Hyysalo, 2003), consumer research (Bayus, 2008; Kano, Seraku, Takahashi, & Tsuji, 1984; Pincus, 2004) and marketing (for summaries see Bayus, 2008; Hyysalo, 2003; Roberts, Dant, & Lim, 1990; Wagner & Hansen, 2004). Uncovering and addressing (often unexpressed) needs appears crucial when we want to create innovative and successful products (Bayus, 2008; Brouwer & Dorst, 2014; Faste, 1987; Goffin, Lemke, & Koners, 2010; Preece, Rogers, & Sharp, 2002; Von Hippel & Von Krogh, 2016; Von Hippel, 2001). And lastly, in normative theories proposed by philosophy or social politics and economics, needs are strong normative claims related to an objective of normative priority. Needs are justified and prioritised necessities. These fundamental human needs are finite, few and stable among different cultures and historical periods (Max-Neef et al., 1989; Max-Neef, 1992). Arguably, the third notion of needs is a subset of the second notion, which covers any objective (goal).

2.1 *The role of needs in organisational learning*

In organisational learning, adaptation happens as a function of new experiences. They get transformed into knowledge which subsequently informs organisational change (Argote, 2011). Although, it has been argued that addressing needs is an effective approach to guide organisational change (Watkins & Kavale, 2014), increase employees' well-being (Jost, 2014), support decision making (Patnaik, 2004) and foster innovation (Bayus, 2008; Brouwer & Dorst, 2014; Ericson & Stahlbrost, 2006; Holt, 1976; Patnaik & Becker, 1999; Ulwick, 2002), needs have not been considered explicitly in the context of organisational learning processes (except Kaiser, Feldhusen, & Fordinal, 2013; Kaiser, Fordinal, & Kragulj, 2014; Kaiser, Kragulj, Grisold, & Walser, 2016; Kaiser & Kragulj, in press).

It is reasonable to start such processes with a consideration of salient needs. Apart from revealing the motivation for our actions, a specific potentiality is inherent to the distinction between needs and the means of satisfaction (satisfiers). This dichotomy can be found throughout the literature (e.g. Braybrooke, 1998; Brock, 1998, 2005; Doyal & Gough, 1991; Max-Neef et al., 1989; Max-Neef, 1992; Patnaik & Becker, 1999). A need can be satisfied in different ways. This is reflected by the principle of equifinality which is derived from system theory (Von Bertalanffy, 1968) and holds that the same final state (satisfaction of needs) may be reached from different initial conditions and by different means (satisfiers). Different satisfiers can meet a given need (Kruglanski, Chernikova, Babush, Dugas, & Schumpe, 2015). An equifinality configuration enables us to substitute one satisfier by another. This allows for choosing among alternative satisfiers, if need satisfaction by a given means is not feasible (Kruglanski et al., 2002). This could enhance conventional decision making which starts and remains on the satisfier level only.

The principle of equifinality is the core of my argument why organisations should focus on needs first. Being aware of needs and exploiting this relation potentially reveals a way out of conflicting situations and serves as a starting point for collectively developing (alternative) solutions and strategies, i.e. satisfiers. Kruglanski, Pierro, & Sheveland (2011) argue that when the number of satisfiers available increases, one's dependence on a particular satisfier decreases, as there are appropriate alternatives to meet a given need at disposal. This can have a weakening effect on the commitment to a specific satisfier which implies that if a group of people is supplied with a set of alternative satisfiers (either developed jointly or brought in by others), the individual's commitment for a particular one may decrease.

2.2 *An ontology of needs and satisfiers*

For organisational learning, I propose an ontological framework and define a *need as an agent's conditional necessity depending on a purpose*. This purpose reflects an end, which may be inherent to the nature of the needful agent (e.g. existence, eudaimonia, wisdom, meaning, etc.; c.f. Kesebir, Graham, & Oishi, 2010) or result from a deliberate act (e.g. profit-oriented paradigm). Needs are not themselves the means of their satisfaction. These means, to which I refer to as satisfiers, are ontologically different and independent of the needful agent (however, they may themselves be needful agents) (Braybrooke, 1987; Brock, 1998; Doyal & Gough, 1991; Max-Neef et al., 1989; Max-Neef, 1992; Patnaik & Becker, 1999; Patnaik, 2004). Two ontological

spheres to which I refer as the object and agent sphere reflect this dichotomy. While satisfiers are rooted in the object sphere, needs originate from the agent sphere. In order to link these two spheres, a (conscious) process of transition is necessary, which is neither a satisfier nor a need. I refer to this process as reasoning. Through reasoning needs gain motivational power towards their satisfaction. Further, while reasoning we combine the two spheres by (conscious) judgement about the object's potentiality of need satisfaction. In fact, reasoning is the process through which a potential satisfier becomes an effective satisfier. In contrast to psychological theories, this definition of need does not exclude organisations or other entities from having needs (therefore, I am referring to the 'agent's need', highlighting a variety of needful entities; c.f. Taylor, 1959).

Formally defined, the ontology comprises eleven components, which are explained in more detail in Kragulj (2016). For the purpose of this paper, the ontology is simplified. Figure 1 depicts the three main elements on two spheres.

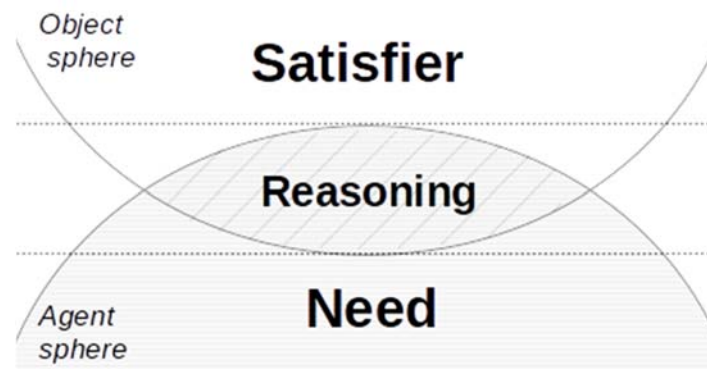


Figure 1 Ontology of needs and satisfiers

The three main elements are defined as follows:

- A *satisfier* refers to (a category of) means that are potentially able to satisfy a need. A satisfier may be (a description of) an artefact (e.g. product, service) or a behaviour (e.g. action, strategy). Since satisfiers are grounded in the object sphere, their description is limited to characteristics of this sphere without making direct reference to the agent sphere, i.e. needs. Objects in this sphere exist independently of the needful agent and its needs. For instance, product specifications are a description of a satisfier.
Example: Means of transportation (e.g. Nuclear submarine, TGV train, propeller aircraft, foiling keelboat, red mini van car offering space for eight passengers, black 500-hp sports car, unicycle)
- *Reasoning* refers to a (conscious) process that links the two spheres. In particular, it is the process of evaluating satisfiers in regard to the agent's needs, i.e. the transition from one sphere to another by consideration. This is similar to what Norman (2002, p. 219) describes as the phenomenological approach of affordances. He defines affordances as the "result from the mental interpretation of things, based on our past knowledge and experience applied to our perception of the things about us". He argues that affordances are not mere opportunities for action, but perceived possibilities in an object world,

which point at potentials for utilisation. Through reasoning a need gains causal power towards its satisfaction. Individuals assess their preferences and choose among potential satisfiers. Personal preferences as well as contextual circumstances control this interplay of object and agent sphere and manifest in the agent's rationale. Reasoning encompasses the evaluation whether a potential satisfier qualifies as an effective satisfier, i.e. matching of needs with the possibilities offered by artefacts of the object sphere (e.g. technology).

Example: Given that an agent has a need for mobility, it mainly depends on the current context and its preferences whether it chooses the mini van car over the nuclear submarine.

- A *need* refers to a conditional necessity depending on a purpose. Needs are either non-volitional and unavoidably or volitional and avoidably. While the first refer to course-of-life needs (i.e. existential needs), the latter refer to needs derived from a voluntary and alterable goal (purpose). Needs are grounded in the agent sphere, thus dependent on the needful agent. In order to take advantage of the potentiality of alternative need satisfaction, needs should not make any reference to their (possible) satisfiers; otherwise, the satisfaction is limited to the object in focus. By carefully formulating a need statement, i.e. using 'need' as a noun, we potentially allow for alternative need satisfaction.

Example: Need for mobility

Different to psychological theories, this conceptualisation of needs does not limit needful agents to humans. Other entities, such as organisations can have needs, but require representatives to take actions towards need satisfaction.

3 A knowledge perspective: need-based solution knowledge

The implication of this ontology is at least threefold. First, we have to be able to identify the needs to target at. Second, we have to know what means of need satisfaction exist and how they come about. Third, we have to be able to judge the specific potential of need satisfaction among the satisfier candidates.

In order to address these implications, I establish a knowledge perspective, which utilises two well-known approaches to the phenomenon of knowledge.

3.1 Theoretical foundation

I employ the notion of knowledge as a capacity to act (Nonaka & Von Krogh, 2009; Stehr & Grundmann, 2012; K. E. Sveiby, 1997; K. Sveiby, 2001). This has several consequences. First, due to its focus on potentiality to "set something in motion", knowledge is "a model *for* reality" (Stehr, 2012, p. 32, emphasis added). We shape reality by realising this potentiality. It is the result of action as well as the capability of (and prerequisite for) taking action, but not the action itself (Stehr, 2012). Newly created knowledge expands our opportunities as it raises our potentiality to act and change (organisational) reality. Usually, these capacities are unarticulated and only observable in the effects they cause.

The concept of tacit knowledge is a corner stone in Nonaka's theory of knowledge-based management (Nonaka, I., Toyama, R., Konno, 2000; Nonaka & Takeuchi, 1995;

Nonaka & Von Krogh, 2009). It is related to Polanyi's (1958) epistemological assumption that any instance of knowledge has a tacit dimension. Polanyi refers to two states of awareness: focal and subsidiary awareness. We can either process consciously (focal awareness) or unconsciously (subsidiary awareness). Grant (2007, p. 175) summarises Polanyi's position on the nexus between explicit and tacit knowledge: "To him [Polanyi, a/n], there is not an either/or between tacit and explicit knowledge. It is not something amenable to conversion. But it can be transferred and made more explicit in certain circumstances. Indeed, to him, ALL knowledge has a tacit component." Through shifting our focal awareness to an instance of knowledge, it gets transformed and becomes easily shareable (Polanyi, 1969; Virtanen, 2013).

In order to enhance organisational learning processes, we have to consciously access these capacities (knowledge) and transform them; they have to transcend the personal level and become effective on a group level, i.e. explicit knowledge.

Based on these considerations, I formally define *need-based solution knowledge* as crucial knowledge for the transition from needs to satisfiers, which yields the potential to make use of the principle of equifinality. Adopting Nonaka's usage of terminology (Nonaka & Takeuchi, 1995), I discuss the ontological as well as the epistemological dimension of this type of knowledge in the following subsections.

3.2 Ontological dimension

Need-based solution knowledge is formalised as a capacity to act consisting of three ontological components (see figure 2):

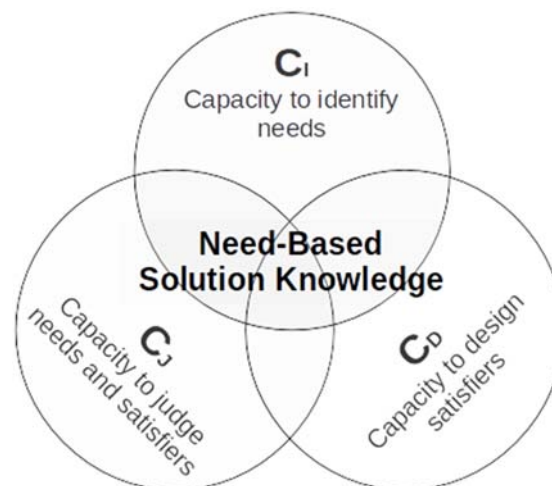


Figure 2 Need-based solution knowledge

- **Capacity to identify needs (C_1):**
The capacity to identify needs relates to knowledge about the agent's needs, which can be identified in organisational learning processes. Mostly people are hardly aware of their needs (Doyal & Gough, 1991; Goffin et al., 2010; Mele, 2009), "as a consequence, the satisfaction of needs might not be pursued due to lack of knowledge, not lack of urgency." (Korolev, 2015, p. 27)
By knowing their needs, agents meet a requirement to transform them into demands and need satisfying strategies. It involves knowledge about what is

needed (need) and, ultimately, about for what something is needed (purpose). Some methods (with different scopes) have been proposed (e.g. Bewextra method proposed by Kaiser et al. (2014), Kaiser & Kragulj (in press) and Kragulj (2014); Patnaik & Becker, 1999; Ulwick, 2002) to identify (hidden) needs. They foster the acquisition of C_I through a shift of awareness on needs.

- *Capacity to judge needs and satisfiers (C_J):*
The capacity to judge needs and satisfiers refers to the necessary knowledge to judge the potentiality of satisfiers being able to meet the agent's needs. This is based on subjective reasoning of the object sphere in respect to the agent sphere and influenced by personal preferences, which constitutively involves cognition, skills and mental capacities (Hamilton, 2009). It refers to the transition process from the agent sphere to the object sphere (and vice versa). Satisfiers are evaluated in terms of their corresponding needs and are finally accepted or rejected (non-satisfiers).
- *Capacity to design satisfiers (C_D):*
The capacity to design satisfiers refers to the necessary knowledge to develop satisfiers, which are basically able to satisfy needs (Verganti, 2008). This encompasses the necessary social skills and/or technological know-how. By using the term 'design', I highlight the process by which we devise "courses of action aimed at changing existing situations into preferred ones" (Simon, 1996, p. 130). This component is complementary to C_J , since it refers to the capacity to transform a need into a satisfier. This is usually attributed to designers and/or domain experts, who have expertise on the object sphere (e.g. technology, legal regulations).

In order to illustrate why all three components are essential for constituting need-based solution knowledge, I give three examples partly derived from our practical work with organisations describing situations in which at least one capacity was missing:

- *$C_I + C_J$; C_D missing:*
An agent is aware of its needs (C_I) and has the ability to judge 'good', i.e. need satisfying, solutions (C_J). However, the agent is not sufficiently informed about the object sphere (e.g. solutions offered, technological capabilities). Consequently, it has not enough expertise to find new, alternative ways to satisfy its needs. Only little or even no alteration will take place and the agent may run into the so-called "functional fixedness" behaviour, which describes the tendency to leave everything the same (Ulwick, 2002, p. 93). Thus, without integrating knowledge about the object sphere (C_D), adaptation is likely to fail. "People can't ask for what they don't know is technically possible." (Leonard & Rayport, 1997, p. 111) In such situations, external consultancy (e.g. expertise on technology) is necessary to meet the identified needs.
- *$C_I + C_D$; C_J missing:*
The agent is informed about its needs (or at least thinks so); additionally, it has the capabilities to design artefacts and solutions intended to satisfy needs. However, the agent has - for whatever reason - no capacity to make judgements about how well the artefacts meet the needs, such as in the following example: An union offered services to their members. The union had detailed information

about the industry and presumably knew what their homogeneous members needed (C_I). They were experienced in designing and offering diverse services to their members (C_D). Nevertheless, these services were rarely demanded by the members and it seemed that their offerings were off the mark. In an organisational learning process we facilitated (Kaiser & Kragulj, in press; Kragulj, 2014), it turned out that the union lacked the capacity to judge whether their services meet the needs of their members (as a result of a poor understanding of their members' needs). This might be due to the fact that they did no in-depth analysis of why their members decided to not demand the services (C_J) or that they had not checked whether the presumed needs were in line with their members' assessment.

- $C_D + C_J$; C_I missing:

In principle, the agent could judge 'good', i.e. need satisfying, solutions from a set of given alternatives. In fact, it cannot because it does not know the salient needs. This was true for a vision development process we conducted with a community: Citizens were encouraged to contribute their concrete realisation ideas for a city worth living in (C_D). Mutually exclusive ideas were presented and citizens (by the help of political parties) argued and fought for their respective idea (C_J).

The people involved had no knowledge (awareness) about the citizens' needs (C_I). Consequently, an agreement on their common needs and the drive this would imply were missing. There was no way out of this stand-off, since the potentiality of equifinality could not emerge. It remained a binary (yes or no) decision whether an idea was realised or not.

3.3 Epistemological dimension

We may reach need satisfaction without reflecting on its emergence. We decide intuitively on need satisfying strategies, i.e. knowledge is tacit, but effective. This "intuitive approach" might reach its limitations in group environments which are characterised by conflicting interests, bounded rationality or even stand-offs. In these situations, organisational learning processes should reinforce and take advantage of the three capacities mentioned by explicitly addressing them. Therefore, need-based solution knowledge has to be articulated, i.e. made explicit, in order to be shareable among a group of people.

However, explicit and tacit knowledge should not be seen as mutually exclusive, but rather as a continuum. Organisational learning processes fostering and exploiting need-based solution knowledge can be seen as a continuous knowledge conversion of tacit and explicit knowledge (Nonaka & Takeuchi, 1995). Consequently, this conversion could serve mutual understanding and inform collective action towards need satisfaction. In order to take advantage of the motivational power of explicit needs (Stampe, 1988) and the principle of equifinality, organisations should first identify (common) needs (C_I) and subsequently develop satisfiers capable of consensus ($C_D + C_J$).

In figure 3, I illustrate the ontological and epistemological dimension of need-based solution knowledge.

		<i>Epistemological dimension</i>	
<i>Ontological dimension</i>	tacit	Capacity to design satisfiers	explicit
	tacit	Capacity to judge needs and satisfiers	explicit
	tacit	Capacity to identify needs	explicit

Figure 3 The ontological and epistemological dimension of need-based solution knowledge

4 Discussion and implications for practice – an example

Developing and exploiting these three capacities yields at least two advantages for organisational learning processes. First, although concrete proposals and ideas brought in may differ significantly, the underlying needs might be the same. Supposedly, identifying these needs fosters a consensual morale within an organisation. Second, by developing alternative solutions strategies (satisfiers), organisation members may perceive alternative means to fulfil their needs and open up for innovative possibilities and different satisfiers.

The principle of equifinality serves as a model for how the relation between needs and satisfiers can be understood. Organisational learning and change processes which preliminarily focus on common needs prepare the ground for alternative need satisfying strategies. In order to inform need-based decision processes, appropriate group methods should be developed to strengthen these three capacities involved. From figure 3 we can see potential leverage points for further research as well as practical work in organisations. Organisational practice demands approaches capable of shifting the capacities along the continuum towards the explicit extreme. This ensure that the knowledge becomes most effective on a group level.

So far, we have been developing the so-called Bewextra method (Kaiser et al., 2014; Kaiser & Kragulj, in press; Kragulj, 2014) which enables organisations to get acquainted with their needs. It reinforces the capacity to identify needs and its results constitute a potential point of departure for change processes.

However, we are progressing. I want to give an example on how these capacities could be addressed, made explicit and exploited for organisational change. Therefore, I briefly report from a pilot study we conducted with 12 pupils and 2 teachers from an Austrian high school. This preceding study was part of a large-scale research project we carried out with this school (> 170 participants). The research question of the pilot study was “What are existential needs of pupils, teachers and parents in this school?”. Further details on the procedure and the results can be found in Kaiser, Kragulj, Grisold, & Walser (2015) and Kaiser, Kragulj, & Grisold (in press). Based on the results, i.e. 11 validated needs, we conducted an implementation workshop, in which we invited pupils to discuss the results and collectively develop concrete and feasible ideas for meeting these needs (satisfiers).

The workshop lasted for 1.5 hours and ran as follows: After a short introduction, we presented the results, which were previously validated by the participants (online survey). In order to get the participants acquainted with the validated needs, we introduced them in detail and facilitated a discussion. Subsequently, in a marketplace-like setting (charts presenting the 11 needs were located in the room), participants were encouraged to discuss the needs at the respective charts and, finally, to indicate the relative importance by awarding coloured labels (up to three) to the needs they favoured most. The resulting rating was presented to the audience and informed the subsequent work in groups. Participants formed three groups working on the following three questions using the world café (knowledge café) method (Holman, Devane, & Cady, 2007) for around 20 minutes: (I) What can I contribute (concrete actions) to meet the three most important needs? (II) How do I usually become aware of my needs? (III) What insights did I personally gain from this project?

From the resulting presentation it became clear that participants were able to propose viable need satisfying strategies which are potentially able to not only meet their own needs but also the needs of other stakeholder groups. All proposals were feasible and concretely enough formulated to consider further elaboration. After discussing the proposals and receiving feedback, some were rejected, while others were emphasised. The results of (I) are shown in figure 4.

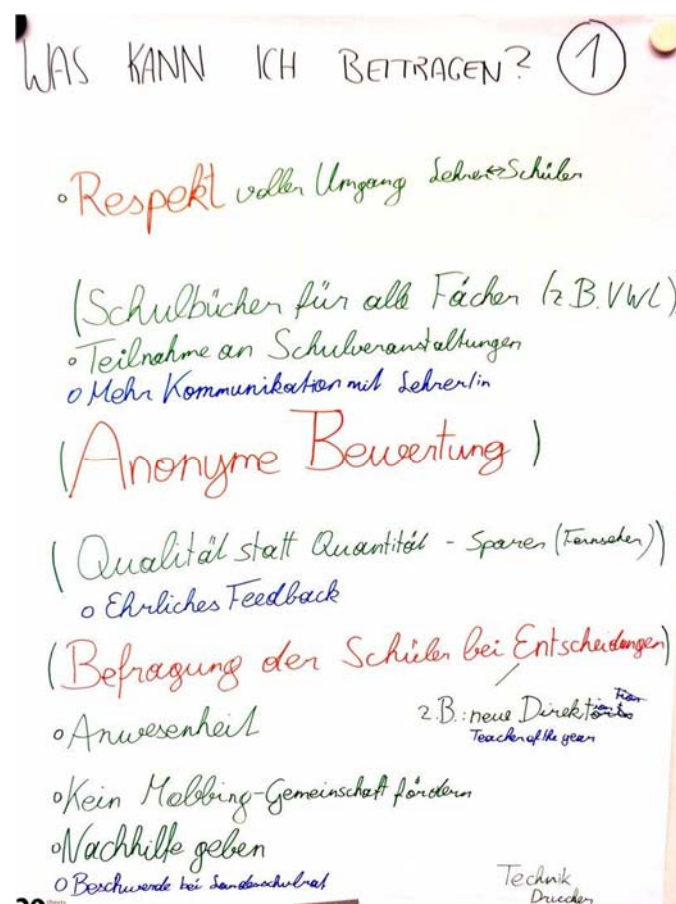


Figure 4 Example from pilot study: "What can I contribute (concrete actions) to meet the three most important needs?"

Although, this is only anecdotal evidence from one case example, we assume that such workshops are able to foster the discussion among stakeholders and, most importantly, we could observe that the participants were able to find inclusive, probably consensual, proposals for need-based solutions.

5 Conclusion

The aim of this paper was to establish a knowledge perspective on needs and on the transition from needs to satisfiers. These considerations yield an understanding of why we should focus on needs and what knowledge is crucial for linking needs and their respective satisfiers enabling organisations to develop need-based solutions.

Therefore, I introduced *need-based solution knowledge*. I clarified the nature of this type of knowledge and discussed its ontological and epistemological dimension. The conceptualisation of need-based solution knowledge as three specific capacities to act allows for identifying leverage points for organisational learning processes.

Further research should empirically evaluate the conceptual framework. If confirmed, it could be used as a guiding framework for diverse organisational learning processes. Furthermore, methods to foster these three crucial capacities should be developed.

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