Facilitating Bottom-Up Knowledge to Support Decision-Making in Long-term Healthcare Providers

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Abstract

Service experiences in healthcare organisations and especially in long-term care are often intangible as they are the outcomes of interactions between organisations, employees and customers. They depend on soft factors like staff motivational levels, abilities and traits, role perceptions and management support. The clients and the frontline workers of service organisations have important roles to perform in the production of complex service output. It is not always possible to fully control the processes on the working floor. Hence, it is vital to acknowledge the fact that frontline workers and customers can help in understanding soft factors and complex relationships in the organisation if their collaborative participation is properly managed. Top-down style of management in traditional service organisations discourages participation of employees, customers and other stakeholders in decision making. Senior management of healthcare service organisations and policy makers need tools that will facilitate stakeholders' collaborative input and will help them produce long-term policies shaped by evidence in order to tackle the causes of the problems and not the symptoms. The case study, set in a healthcare service provider in the Netherlands, demonstrates that cognitive mapping and qualitative system dynamics techniques can be meaningfully combined to promote stakeholders representation in managerial decision making.

Introduction

Healthcare provider is any individual, institution, or agency that provides health services to health care consumers (Mosby's Medical Dictionary). Rapidly changing markets, planned governmental reforms, shortages in resources, changes in society and increasing customer expectations make long-term decision making a challenge for healthcare service organisations with traditional hierarchical structure. These organisations no longer provide a platform for effective and efficient management and operations.

Senior executives in hierarchical organisations usually rely on accountability, control of planning, and reinforcement of rules (Senge, 1990a; Hoff, 2003). However, it is not always possible to control the working floor from the top.

Performance in service organisations depends on staff motivational levels, abilities and traits, and role perceptions among other factors (Mills et al., 1983; Porter & Lawler, 1968). The frontline workers play an important role in the effectiveness of the delivery of services (Robertson et al., 2005; Sharrard, 1992; WHO, 2010). There is abundant evidence that service output depends on collaborative efforts of the service employees and the customers (Gwinner et al., 1998). Therefore, without considering the viewpoints of the frontline workers and the customers of a service organisation, any managerial decision is likely to bring short-term gains at the expense of longer-term results.

In order to get a better understanding of service performance it is necessary to analyze service delivery processes from the perspective of the transactions between the customer and the employee (Mills et al., 1983). The unpredictability and variability of customer demands and the intangibility of service delivery makes it difficult to monitor employee behaviour in service encounters. Competitive advantage can be achieved via transformation into a learning organisation by nurturing openness, creativity and commitment (Senge, 1990a). The environment of a "passion for service excellence" in service providers can be created only if there is a mutual trust and effective top-down and bottom-up communication.

Organisational values begin with its leadership (Senge, 1990b; Tsai, 2011). Usually managers of traditional organisations believe that employees do not need to see the big picture, knowing what is expected of them is enough. As a result, it is very difficult to inspire people and to get their full commitment to the organisational goals (Senge, 1990a).

In order to avoid short term symptomatic solutions, the managers need to know more about how soft factors (i.e. staff moral, motivation, stress and management support) affect organisational performance. They need tools that will allow them develop a "learning organisation", so that structured input from the frontline workers, the customers, and other stakeholders can be used for their decision making.

The central focus of this article is to understand whether the use of visual and structured representation of the key stakeholders' views can support the senior management of long-term healthcare service providers in decision making related to efficiency of resource allocation policies. For that, we explored practices around decision making processes in one healthcare provider in the Netherlands.

Cognitive Maps and System Dynamics (SD) Causal Loop Diagrams (CLD) were used to assist the managers in understanding their current reality. The methodologies were combined to promote stakeholders' representation in modelling process which in its turn assisted senior management in revising their decisions taking into account the

clients' and employees' concerns.   The model used for the case demonstrated the need for better resource allocation policies, especially considering increased consumer demand and diminishing resources in healthcare in the Netherlands and in other OECD (Organisation for Economic Co-operation and Development) countries.

Building a strong service culture

Planning, organizing, and carrying out change processes can be particularly challenging for traditional services organisations because they are mainly oriented toward controlling rather than learning. It is quite challenging for traditional hierarchical organisations to survive in a dynamic business environment because they are too slow in responding (Senge, 1990a).

The service profit chain is about "developing an environment in which highly capable, engaged employees, acting as owners, interact with customers to create customer value far superior to that offered by the competition" (Maglio et al., 2010, p. 23). The quality of service experience for the customers will be dependent on employees, because service performance is often intangible and the organisations do not own any of the factors of service. As expectations of each customer are different, the employees need to be motivated enough to ensure that those expectations are met.

The environment of openness and transparency is critical for building trust in the organisation, which is one of the very important factors in building a strong organisational culture that is based on the shared values, beliefs, or perceptions held by employees (Grimmelikhuijsen and Meijer, 2014; Robbins and Coulter, 2005).

The managers of traditional service organisations cannot control quality of services delivered to each customer on the working floor. Because of their distance from the frontline processes, they know less about how to implement strategies than those closer to the process (Hoff, 2003). The managers need to consider the views and perspectives of frontline workers in order to design more effective work processes.

The organisational culture has a big influence on employees' satisfaction and organisational performance (Bowen & Ford, 2002; Kane-Urrabazo, 2006; Lund, 2003). It fills the gaps between what the employees do and what the clients expect. Hence, it is crucial for the organisations to develop a strong service climate where the employees can develop a "passion for service" (Bowen and Ford, 2002; Ford & Heaton, 2000; Van Maanen, 1989; Ying et al, 2013).

Acceleration of organisational learning, which moves beyond a simple employee training into organisational problem solving and innovation, can significantly contribute to establishment of a strong service culture (Paton and McCalman, 2000). It may enable the employees to do more value-adding work.

Appropriate information for managerial decision making is interpreted according to the knowledge of people using it. So, the managers should deal with the dynamic processes using shared vision of their employees and customers to overcome bounded rationality (cognitive limitations of people's minds) and make appropriate decisions quickly and effectively. Service experiences are often intangible as they are the outcomes of interactions between organisations, the employees and the customers.

The power of intangible resources

According to Deming (1986), the one who runs the organisation on visible figures alone may eventually have neither the organisation nor figures. Not always the leaders of the organisations realize how soft factors affect tangible factors and eventually organisational performance (Gimenez-Espin et al., 2013; Warren, 2002). They mainly focus on tangible factors that account for revenues and costs, because they can easily be seen, counted, bought, and hired.

Producing intangible products can be challenging for the managers of the service organisations, especially because the services are not commodities that can be stocked and stored. Deming (1986) mentioned that the quality of products or services is seen through the eyes of the workers, the customers and the managers. The perceptions of the key stakeholders of a service organisation (the customers and the frontline workers) are the most common intangible resources. If employees are not motivated to produce better results, the organisation will have no gain in productivity (Jackson, 2003).

Frontline workers especially those who serve vulnerable population (i.e. elderly, physically and/or intellectually disabled) are expected to make and enforce the choices for those who are not able to choose for themselves. They share the responsibility with the management and their failures can cause burnout leading to staff turnover. Therefore, the leaders need to ensure that the employees are aware of their own values and that their input will be considered (Devine, 2010).

Service delivery process involves customers and that is why the effectiveness of services, especially those with high customer contact, can be increased by paying more attention to the customers' needs (Mills et al., 1983; Bowen and Ford, 2002). The customers' input in the process of service delivery is information that is transformed by the employee into service. They should be given the opportunity to participate at some level in creating the service and ensuring their own satisfaction. In order to involve the customers as temporary members, the boundaries of the service organisations have to be expanded (Mills and Morris, 1986).

The managers of the service organisations must develop communication strategies that enable their customers to take part in the co-production of the service. In order to empower and motivate employees, the managers should give them the opportunity to participate in decision making.

Providing clear direction should be accomplished through frequent and unambiguous top-down and bottom-up communication and development of a vision that allows employees to understand that change is necessary and realistic (Hoff, 2003). Senge contends that if any idea about leadership has inspired organisations for thousands of years, it's the leader's capacity to "hold a share picture of the future we seek to create" (Senge, 1990b, p. 9). To this end some of the concepts of systems thinking are useful.

Intervention tool

Overview of Systems Thinking

Systems Thinking is a theory addressing the interrelationships between parts and their connections to a whole system. Within the constructs of this theory, goals and resources are established with a view toward the whole system, rather than artificially allocating

them to parts of the system (Plsek & Wilson, 2001; Richmond, 1994; Senge, 1990a). The theory was developed as a discipline, in the 1940s and 1950s, mainly as reaction to the reductionism of the traditional scientific method of dealing with the complexity "inherent in the biological and social domains" (Jackson, 2003, p. 11).

Systems Thinking (or soft Operational Research (OR)) approach is a learning process that can help to identify what needs to be done in ill-defined problem situations (Checkland, 1981). The approach is important when we work with mental models.

When we collaborate with the stakeholders, we deal with multiple perspectives and bounded rationality, and that is why it is very important to have the tools that can help fully represent all the perspectives and views. People see things differently, based on all the experiences that have shaped their assumptions, responses and expectations (Hall and Keynes, 2010). In Systems Thinking we accept that we cannot know everything about problem situations which makes us value the different perspectives (Hall and Keynes, 2010).

One of the modern soft interpretive OR tools for studying the mental models is cognitive mapping, the technique suggested by strategic options development and analysis (SODA) developed by Colin Eden in the late 1980s (Eden and Ackermann, 2001). The underlying essence of SODA is that it is an approach that allows the analysis of problematic situations before making a decision. SODA recognizes the importance of human perceptions and interpretations while dealing with subjectivity and uncertainty (Rosenhead and Mingers, 2001).

The single core technique at the heart of the SODA approach is cognitive mapping. Cognitive maps are based on personal construct theory (Kelly, 1955) and represent an individual's perspective on any particular situation (Hall and Keynes, 2010).

Overview of cognitive mapping

Research on the psychology of individual choice emphasized cognitive bounds among other limitations on human rationality that often produce systematic biases (Sterman, 1989). A cognitive map is a two-dimensional directed graph that has been widely used to represent subjective knowledge about perceived causes and perceived links between them (Eden, 1992; Eden and Ackermann, 2001). There are rules described in cognitive mapping guidelines that restrict each concept to 8-10 words (Ackerman and Eden, 2010). The links between the nodes represent logical implications between the concepts that are structured into a hierarchy that demonstrates the cause and effect between them.

The individual cognitive maps can be merged into a bigger one which represents the richness of different perspectives of the problem and also secures agreement about its nature among the interviewees during a focus group. There are many definitions of a focus group in the literature. In this research we refer to "the group of individuals selected and assembled by researchers to discuss and comment on, from personal experience, the topic that is the subject of the research (Powell et al 1996).

The maps help capturing the rich complexity of the situation, and discover patterns in what is happening that others will find convincing (Hall and Keynes, 2010). The method allows multiple conflicting individual views to be revealed and reduces the level of conflict during subsequent discussions (Ackerman and Eden, 1994).

The technique can be used by the senior management of any service organisation as a tool to support strategic decision making. However, cognitive maps do not allow seeing dynamic behavior of the system. They do not demonstrate feedback processes

and time delays. That is why we need CLD. Cognitive mapping technique can promote better understanding of stakeholders' mental models and so they can support the development of CLD, which in turn can help studying complex interactions between the concepts.

Overview of System Dynamics

SD is a method of studying complex systems (Sterman, 2000). SD approach involves simulation of situations by visualising how the elements fit together, interact, and change over time. SD modelling offers a unique opportunity for decision makers to understand the sources of low performance in the organisation with the help of both qualitative and quantitative analysis.

SD causal loop qualitative diagrams demonstrate circular causality and serve as a medium by which people can visualize and share mental models and assumptions (Wolstenholme, 1999). CLDs are visual tools for the feedback systems thinker and they are seen as being part of SD practice. The diagrams provide a language for articulating our understanding of the dynamic nature of the system studied. They are analytical tools that are widely used in SD modelling (Reynolds and Holwell, 2010).

Any organisation can be viewed as made up of reinforcing (positive) and balancing (negative) processes. CLDs can describe the organisation as a system via combination of reinforcing and balancing loops connected together with arrows. Particular combinations of reinforcing and balancing processes within the system can be the reason for system's complexity (Senge, 1990a). CLDs also give insight into the phenomena that certain patterns of systems' behaviour recur repeatedly (Senge, 1990a).

Faced with the complexity of problem situations, the managers can use CLDs to learn about the dynamic behaviour of the system. An understanding of how feedback loops interact to cause system behaviour can inform the managers about the consequences of decision made. The diagrams can help the management to see the side effects of their decisions and to better understand the interconnected nature of the problems.

The reasoning behind combination of two methodologies

Combination of SD with other systems approaches was seen as being very successful (Morecroft and Wolstenholme, 2007). The idea of using cognitive maps to help conceptualise SD models was first articulated by Colin Eden in 1988 (Eden, 1988). Cognitive mapping technique can support the development of CLD via providing better understanding of stakeholders' mental models. CLD in turn can help studying complex interactions between the concepts.

When combining CM and SD methodologies, it is fundamental to understand the distinction between convergent and divergent thinking in decision making (Montibeller et al., 2001). The goal of divergent thinking is to generate many different ideas and accept many possible solutions related to a topic. Convergent thinking helps to keep focus on the single, well-established answer to a problem (Cropley, 2006).

The identification of key concepts is fundamental to understanding the stakeholders' perceptions. CM can support divergent thinking by facilitating the debate among decision makers and stakeholders. A significant strength of CMs is that it supports elicitation of mental models and generation of creative ideas using the

language participants used to make their argumentation. However, cognitive maps do not allow seeing dynamic behavior of the system because they do not demonstrate feedback processes and time delays. Managerial decision making is a dynamic process and that is why CLD can be useful in demonstrating cause-effects links describing multiple feedback cycles (Mingers and Rosenhead, 2004).

The use of CM allows unravel complex ideas and obtain a richer understanding of people's mental models provided a level of specificity that can support the development of CLDs to see complex interactions between the ideas discussed. The capability of CLD to model the impacts of management actions, considering the complexity of the real world, may be used to move towards a single solution during the convergent phase.

There is no doubt that a dynamic simulation is preferable to a static cognitive map diagram, however there are some situations where simulation is not possible. It is not easy and in some cases not possible to quantify "soft" variables and their relationships.

The idea to produce a working model for simulation might not be justified by the quality of the results. There is no doubt that even without "soft" variables a mathematically consistent model can be used to run simulations. However, when the soft variables have a big impact on the system, as it is in the case study described in this article, the simulations would not reflect the reality. That was the reason for building SD causal loop diagrams without simulation. It has been argued that building the models can be beneficial as an enhancement to linear thinking even without simulation (Coyle, 2000; Wolstenholme, 1999; Wolstenholme and Coyle, 1983).

The demonstration of applied methodology via a case study

Background

Healthcare organisations are complex entities because of multiple stakeholders with often conflicting interests and goals (Drucker, 1993). Intellectual Disability (ID) care providers can serve as an example of complex health care service organisations. The specifics of ID care require deeper involvement of the caretakers in their relations with the patients' families and other parts of society, which adds to their complexity.

Healthcare industry in the Netherlands is effective but costly. According to OECD report (2013), in 2009, the Netherlands was the second largest health spender after the United States. The Netherlands, as other OECD countries, faces the challenge of providing high quality health and long-term care services to an ageing population in a cost-efficient manner (OECD, 2013). A large share of total healthcare costs is taken up by healthcare for people with ID. In 2010, public expenditure on long-term care in the country accounted for about 3.7% of GDP (OECD, 2013).

Funding for ID services in the Netherlands is mostly a central government responsibility. It is provided on the basis of the General Act on Exceptional Medical Expenses, AWBZ (Algemene Bijzondere Ziektekosten). More than 800,000 older people and people with physical, mental, sensory or mental limitation, currently make use of long-term care under AWBZ.

The Association for Care of the Disabled, VGN (Vereniging Gehandicaptenzorg Nederland), is the umbrella Dutch association representing individual provider organisations that provide professional care and support to persons with mental, physical, sensory, and/or communication disabilities. VGN encompasses 173 privately

run institutions providing care to about 110,000 clients and accounts for a budget of about €4.8 billion.

Service output in care provider organisations depends much on the collaborative efforts of frontline workers and the customers. Especially in ID care as many of ID patients are placed in the institutions for their entire life beginning in childhood. They are highly restricted in their social networks: limited to interactions with other patients, their family members and the care workers (Bigby and Fyffe, 2012). Hence, ID organisations are challenged, not only to give a prompt response to the patients' needs related to their physical health but also to enable them to experience a good quality of life. In order to increase efficiency of the ID care providers and improve long term decision making the managers should learn more about the interests of care receivers and frontline workers, the most important actors of a complex service provider system.

The case study in one of the biggest ID care providers in the Netherlands illustrates the possibilities of the combined methodology (an overview of the intervention model is presented in Figure 1) to assist the leaders of the service organisations in their decision making by presenting the structured key stakeholders perspectives.

The case study in an ID care provider

The ID organization provides AWBZ-funded care for about 1,640 clients in a number of discrete residential facilities and 753 clients in day care.

We started the study with the interviews with the top management of an ID care provider to learn about the main issues of their concern (Duryan et al., 2012). The interviews indicated that the budget gaps in the division due to the shortages of the patients in residential care are the biggest challenge from their perspectives. The easiest and fastest solution for the managers to fill the budget gaps was to cut costs via reduction of the workload of the frontline care workers ("group leaders" in ID care in the Netherlands) with flexible contracts. We studied the factors that were considered for decision making to that problem situation and the consequences of that decision for the frontline employees and the customers.

As interviews with frontline workers demonstrated, they were unhappy with the decision made. Cutting costs via reduction of working hours leads to shifts in their schedules which in its turn causes reduction in their income forcing them to search for additional work elsewhere. In the long run, shifts in the schedules and salary reduction create tension and can compromise the employees' loyalty, which eventually leads to an increase in employee turnover.

The families of ID patients were against that decision as well. The established relations between a care worker and the adult with ID are very important. This intangible resource that reflects the patients' feelings and expectations takes time to accumulate. Hence, relations of trust between the care workers and the patients become a valuable indirect resource which takes time to accumulate; however, it can be destroyed rapidly. Thus, shifts in employee schedules directly affect the patients. They get stressed because of discontinuity in relations with the care workers because they have to interact with more people they do not know well. Thus the negative impact of frequent shifts cannot be underestimated.

However, the delays in feedback of the system to managerial decisions do not allow them to see the immediate impact of their actions. The management of the organisation solves the problems from the perspectives of organisational financial well-being.

However, they do not perceive how their actions may affect service receivers and those who deliver the services on the working floor. In service industry, especially in a long-term care, the soft factors have a big impact on long-term performance of the organisation. In this case, decline in patient and employee satisfaction may lead to financial losses and also may affect the image of the organisation.

We used the ability of CLD to demonstrate the set of non-obvious interdependencies between the factors that can be affected because of that decision. Thus, with participation of the management the CLD was designed (CLD 1 diagram, Figure 1). It demonstrated possible side effects of the decision to reduce workload of the care workers with flexible contracts. That symptomatic decision leads to reduction of employee income and might cause stress to patients due to the discontinuity in relation with care workers and frequent changes of people with whom they interact.
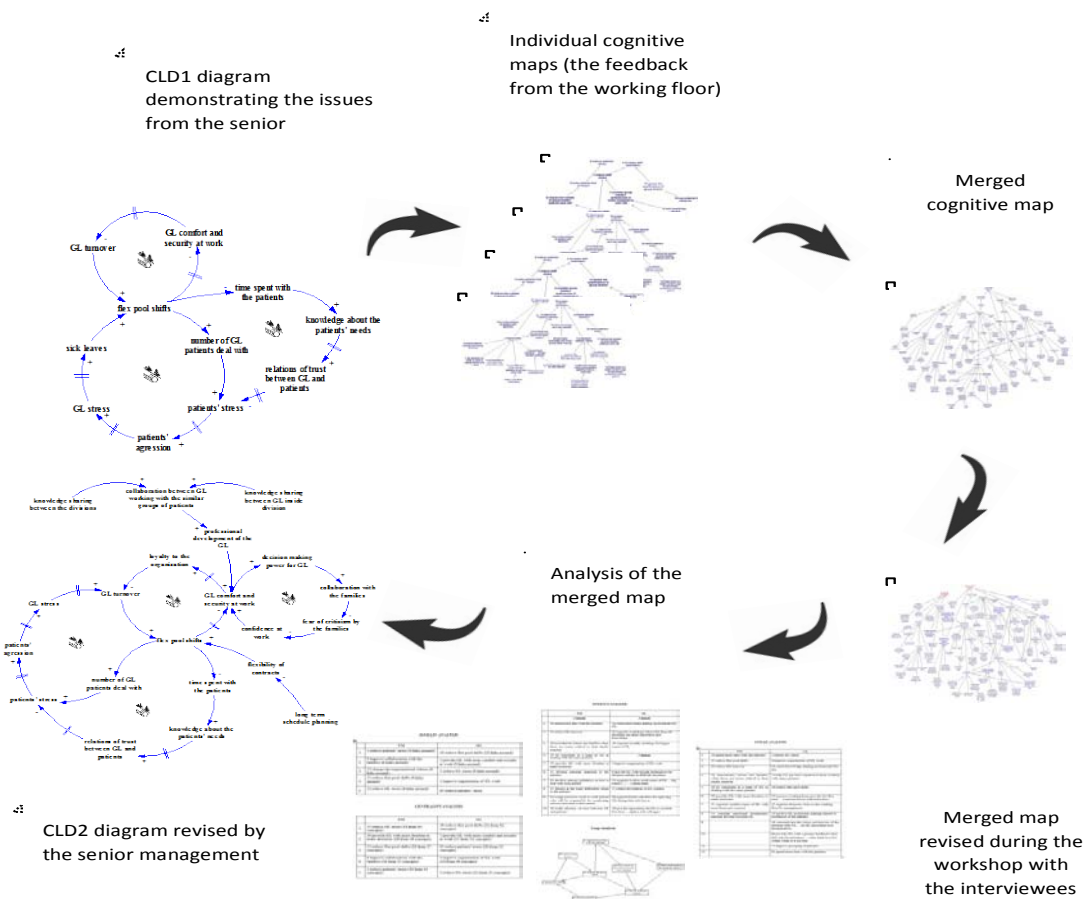

Figure 1. *The process model used for the case study[1]*

In order to learn about the perspectives of the care workers and family members of ID patients related to the challenges indicated by the senior management, the interviews

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[1] The SD diagrams are published in (Duryan` et al., 2013) and Cognitive Maps with the tables are published in (Duryan et al., 2013)

and focus groups were conducted. The care workers represent the first group of the stakeholders because they are at the "sharp end" of the system as they deal directly with the patients. The second group of the key stakeholders are the families of ID patients, the receivers of care.

The individual semi-structured interviews were conducted with the eight care workers followed by the focus groups organized with them. Two focus groups were conducted with the families of young and old ID patients (seven families) considering the fact that patients of different age have different needs for treatment and leisure.

The issues perceived by the senior management of the division were communicated to the care workers and the families of ID clients (Duryan et al., 2013a). Upon giving the feedback, the interviewees were asked to share their ideas on how services can be improved. The interviews with the key stakeholders were translated into the language of cognitive maps (Figure 1).

The maps were reviewed by the interviewees and were merged into a single map per each group of the stakeholders. After that they were refined and elaborated with the group leaders and family members during group discussions conducted in small teams.

They were analyzed using qualitative indicators provided by Decision Explorer software (Brightman, 2002). Of the various analytic tools we used the most valuable, which are Head, Centrality, Domain, Hierarchical cluster, and Potency analyses (Ackermann and Eden, 2010). Head analysis helps to identify goals and their interaction. Domain and centrality analyses were used to identify the key issues in the merged maps. Hierarchical cluster analysis involves identification of all the concepts in a map that contribute to achievement of a goal. Finally, Potency analysis allowed prioritising options that have consequences for the bigger number of key issues (Ackermann and Eden, 2010).

Cognitive mapping technique was quite helpful in facilitating shared understanding of the ideas expressed by the interviewees. It allowed participants to critically reflect upon the dynamics of the process. They mentioned the main areas of their concern and also seeing structured representation of their ideas and thoughts on the map, they came up with some recommendations for changes.

Based on the merged cognitive maps with their analysis, the new CLD diagram was designed (CLD 2 diagram, Figure 1). The diagram was explored with the senior management during a workshop (Duryan et al., 2013b). It helped them see the sight effects of their decision to reduce working hours of employees with the flexible contracts from perspectives of the care workers and the families of the patients. In order to demonstrate the process of gaining the structured feedback from the frontline to share it with the management we bring the part of the map analysis as an example.

The most crucial side effects, as perceived by the key stakeholders, were the decline in workers' loyalty to the organisation, leading to their turnover and the patients' stress. That is why the main factors influencing the concepts "care workers' turnover" and "the patients' stress" on the merged maps for the care workers and the family members were given particular attention.

The care workers' cognitive map

Based on the care workers' merged map, the main reasons for their turnover (how they perceive it) are stress and lack of comfort and security at work. Following the map, the most influential factors leading to the care workers' stress are: 1) the shifts in the

schedules of the care workers with flexible contracts, 2) the patients' aggressive behaviour escalated by their stress, 3) insufficient training on dealing with the patients with complex behavioural issues, 4) working with patients the care workers do not know well and 5) time and efforts to teach the newly hired staff to deal with the patients (Figure 2).

Based on the analysis of the care workers' map, the concept "reduce the flex pool shifts" has the highest domain and centrality scores (Duryan et al., 2013a). That means the decision to cover the budget gaps via reduction of the workload of the care workers with flexible contracts is the biggest cause of stress for them. As one of the care workers mentioned: "I would suggest to the management to give us more job security by reducing the flexibility of our contracts".

The flexibility of contracts allows management sending the care workers to different residential care units in spite of their preference to work with the patients they know well (node 12 on Figure 2).

One of the interviewees mentioned that she would prefer to work with the patients in one unit as she knows them well. She even asked the management about it, however she was told that it is impossible: "…they explain why but I do not think that their arguments are valid".

As Figure 2 demonstrates, the shifts among other factors cause stress to the patients as well. As the care workers mentioned, it takes time for them to develop relations of trust with the patients with ID. "There are the patients with heavy disabilities who have combination of autism with other complex issues and it requires 4-7 years to develop relations with them".

Another care worker said: "I think that the patients need a feeling of a "home", which is not possible when you have too many people to deal with and when the ones you know leave you". One of the care workers mentioned "the patients get stressed when they have to work with someone who does not know them well". They try hard to explain themselves which makes them upset and some of them become even aggressive. Another interviewee said: "some of the patients with aggressive behaviour can get calm when they are with someone who understands them well".
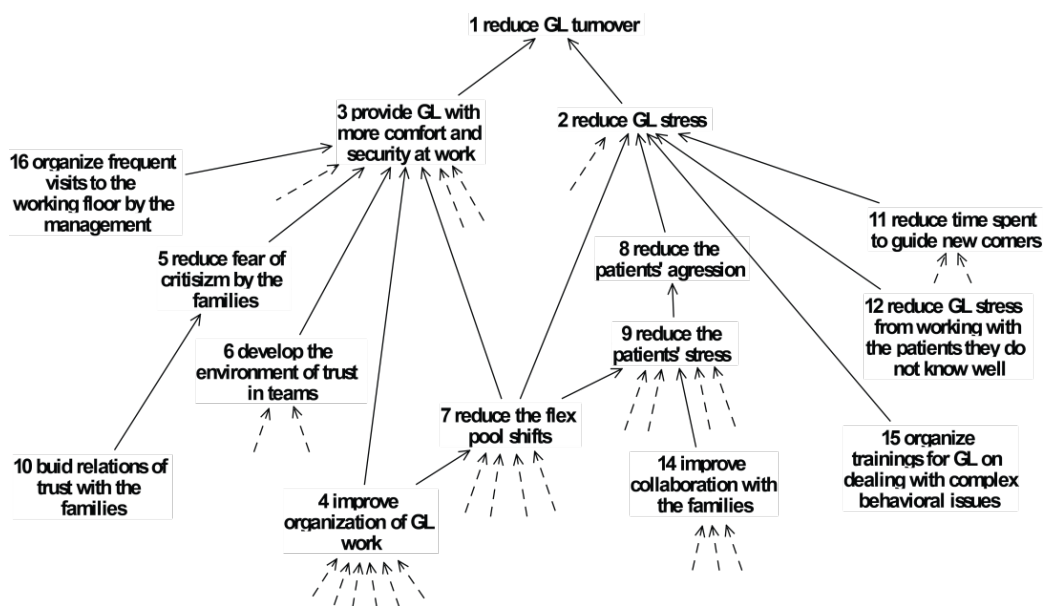
Since not all the care workers are trained in dealing with patients with aggressive behaviour, they cannot handle situations with escalated aggression, which causes their stress. That is why the care workers emphasized the importance of getting appropriate training (node 15 on the map): "there is a need for special education as I do not know how to work with aggressive patients. It stresses me". The other interviewee mentioned: "for many years we didn't have any training in dealing with aggression".

Turnover causes stress to the remaining employees also because they have to teach the newly hired care workers. "It always takes time to train a new recruit, once they learn to work another person arrives, it is really stressful for us".

As Figure 2 demonstrates, frequent shifts in the schedules not only increase the care workers' and the patients' stress, but also affect their comfort and security at work. Based on the interviews with the care workers, the main steps needed to be taken in order to provide the care workers with more comfort and security at work are: 1) more visits to the working floor by the management, 2) improvement in organisation of care workers' work, 3) reduction of fear of criticism by the families via building the relations of trust with them, 4) development of environment of trust in the teams and 5) reduction of the shifts in the schedules (Figure 2).

The care workers emphasized the importance of improved communication with the senior management. In their opinion, the managers do not really see how the work is organized as they are too far from the working floor. One of the care workers mentioned: "the biggest stress for me is the lack of communication among the managers and the care workers… I am tired of not getting a feedback from the senior management who can really influence how things work here". Another opinion about communication with the management is: "because of bad communication with the management we do not understand the reasons for some changes and when we complain by not having necessary information to see the big picture, nobody listens to us". The care workers also expressed desire to participate in decision making related to possible changes in the patient's life in the institution: "they (the managers) need to talk to us before making the big changes; they should know what we think about the patients' needs".

The care workers emphasized the importance of the relations of trust not only among the team members (node 6) and with the families of the patients (node 10). Healthy environment in the team is very important, especially when the receivers of services are vulnerable. One of the family members mentioned: "the people who work together should trust each other. I do not see that among the care workers". Having good relations with the families is important too. Sometimes care workers do not feel comfortable sharing information about the patients with the families because of fear of being criticized. One of them mentioned: "we need care workers who can understand the parents and be open enough to handle what they tell them… some of my colleagues are not comfortable with that".

As some of the care workers mentioned, they are better informed about the patients' needs but they are not given enough freedom to do what they think is right. So they do what they are told to, and sometimes they are criticized by the families for that.

In opinion of one of the care workers: "it is important for us to build relations of trust with the families because they are important for the patient". Both the care workers and the families agreed changes are needed on how work is organized.

The family members' cognitive map

Following the family members' map the main sources of stress for the patients are: 1) the care workers' turnover, 2) the big number of the care workers the patients deal with, 3) insufficient time the care workers spend with the patients, and 4) insufficient knowledge about the patients' needs.
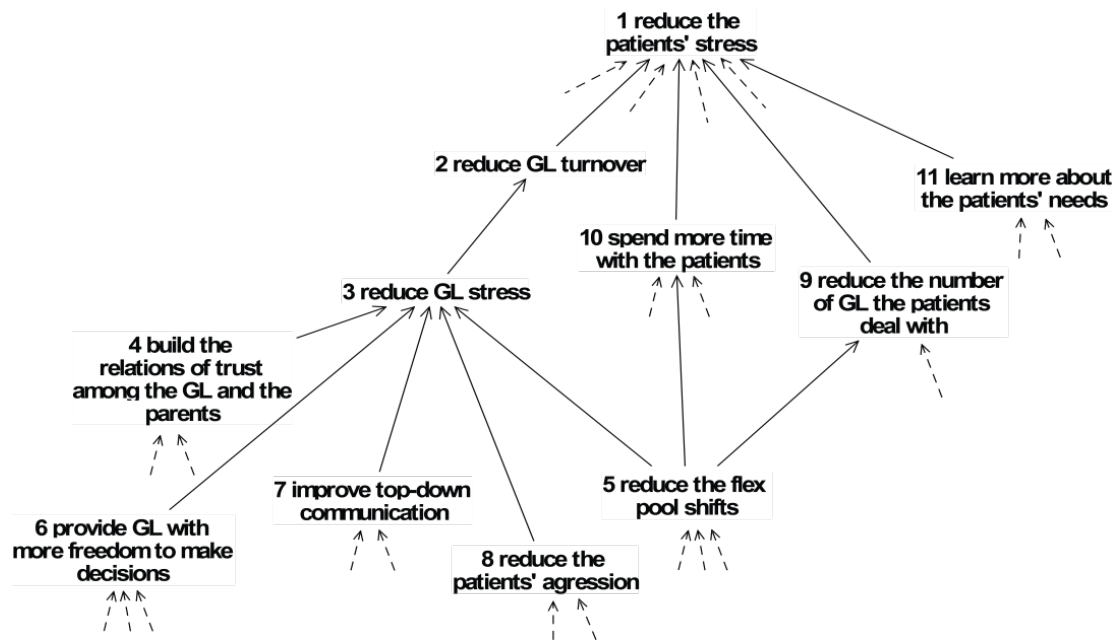

Figure 3. *Segment of the family members´ cognitive map related to the patients´ stress and the care workers turnover*

One of the factors causing care workers' turnover from the perspective of the families was the care workers' stress caused by the frequent shifts in their schedules, non efficient top-down communication, not enough freedom to make decisions and aggressive behaviour of the patients (Figure 3).

The families of the patients emphasized the importance of improvement of communication among the care workers and the management. They mentioned that the care workers are "trapped between what they know is right in their hearts and what they are told to do". The families suggested that the care workers need more freedom for decision making related to the patients' livelihood in the institution as they know better than the management what the patients need. They said that "the managers ought to trust the care workers more".

During the focus groups, the care workers' freedom to make decisions was mentioned as one of the crucial factors influencing their working environment. The families emphasized that "there are no rules in the organisation that clearly state when the care workers can involve the families, and when they fail to do so, it is their responsibility". In opinion of the families, the care workers try to avoid closer

collaboration with them because they do not want to be criticized by the management and the families. However the families are not happy with the situation as they "need more transparency in the organisation".

Another factor that causes stress to the care workers as perceived by the families is the patients' aggressive behaviour. They voiced the opinion that some patients become aggressive because they do not trust their care workers. The families think that the management of the organisation "should be very careful in choosing the right people to work with the patients". They also mentioned that placing the patients with complex behavioural issues in one group does not do any good to them. The father of a young patient said: "staying in that group is kind of a vicious circle for my son". He tried to discuss that issue with the management; however they could not come to agreement. So the parents are upset seeing that their son becomes more aggressive and not being able to help him.

Another parent said that things can get better in the division if the management asks the question "what is in it for the patient?" every time when decision related to patients' livelihood in the institution is made.

All the families agreed that the frequent shifts in the care workers' schedules are not beneficial to the patients. According to the segment of the cognitive map (Figure 3), flex pool shifts affect a few concepts (nodes 3,9 and 10). They cause stress also to the care workers eventually increasing their turnover. The families see that it is difficult for the care workers to work with the patients they do not know well. The frequent changes in schedules do not allow the care workers to spend more time with the patients. Also as the families mentioned "it is very important for the patient to see the same people every day. The patients with autism are not flexible, they cannot make quick switches. They need familiar environment including the people and the tasks". The mother of one patient mentioned: "because of frequent shifts, about 50-60 care workers worked with our son during the year. It was too much!" It is difficult to learn about the patients with severe disabilities having frequent shifts. The parents said: "it is impossible to know the patients well and to build good relations with them if you do not spend enough time with them".

Discussion

As the analysis of the cognitive maps demonstrated, the quick fixes the management of the division applies in order to deal with the budget gaps creates unnecessary stress and tensions in the frontline and contributes to the care workers' turnover. It is a matter of fact that frontline jobs are consistently found to promote high turnover (Singh, 2000). It is widely acknowledged that stress, burnout and high turnover rates (about 44%) among the frontline care workers are the problems for many residential care institutions for the patients with ID (Buntinx, 2008; Dunn et al., 2010; Robertson et al., 2005; Sharrard, 1992).

The indirect costs of workforce turnover in long-term care may be substantial and tend to be overlooked because they are less visible and harder to measure (Seavey, 2004). However it may also deteriorate the provider's community image. Employee turnover has an impact on quality of care for long-term care residents (Clement and Bigby, 2008). It produces staff shortages which result in "rushed, de-personalized, or unsafe care" (Seavey, 2004, p. 16). Mainly, because understanding the needs and wants

of individuals with profound ID is often time and effort consuming (Zijlstra et al., 2001; Clement and Bigby, 2008). For instance a minimum of six months is required to understand and respond adequately to the signals of an individual with profound intellectual disability (Zijlstra et al., 2001).

Staff shortages not only affect continuity of care and relationships with the customer, but they also require the remaining staff to do additional work. That in turn affects organisational culture and employee morale and fosters further turnover because the remaining workers feel stressed, overworked and undervalued (Seavey, 2004). Throughout the study, many care workers expressed dissatisfaction with the way changes are implemented in their organisation. They think that their opinion about many important aspect of their daily work was not considered. It made them feel alienated from the organisation.

Relations of trust between the frontline worker (a care worker in ID care provider) and the client become very important. People with ID are less adept in dealing with stressful situations on their own and so they are personally attached to the care worker whom they see every day (De Schipper & Schuengel, 2010). Furthermore, frontline workers play a very important role in delivery of individualized and efficient care to the patients on daily basis. High turnover causes the loss of this important source of information about the patients and may develop emotional insecurity leading to stress.

In order to apply a fundamental solution instead of symptomatic (e.g. frequent shifts), the top management must develop a vision of a learning organisation they want to build up. For instance, instead of increasing frequency of shifts, they need to put efforts in learning how to plan and coordinate the employee schedules (Clement and Bigby, 2008). The managers cannot do that without employees, whose collaborative efforts determine service output. They need to learn how to listen to the workers because the person doing a job is typically the one who knows the best way to do it.

The managers of the ID care provider should consider soft variables otherwise problem-solving attitude will always push them to apply quick fixes. Deming (1986) suggests that 85% of the problems in an organisation can be controlled by the management via creating necessary environment for the workers to participate in solving the problems.

The frontline workers should be involved in important decisions related to their schedules, training, and collaboration with the customers. They need more freedom to make decisions, because not everything can be planned or anticipated at the strategic or management level with respect to services to particular customers. They must be given the opportunity and tools to do a good job and take pride in their work.

Better coordination between the frontline workers, the customers and the management of service provider organisations can significantly improve the quality of services. Team work between the customers and the frontline workers may reduce the stress for both, the customers and the employees. It may also help to drive out fear and encourage the workers to point out problems and recommend improvements.

The differences between the CLD designed with participation of the senior management and the CLD designed with them with consideration of the results of cognitive maps' analysis demonstrated that the perspectives of the key stakeholders can support in strategic decision making.

Conclusion

This article demonstrates that without considering the viewpoints of the key stakeholders who are the ID clients, their families and the front-line workers (group leaders/personal coaches, personnel who work with the clients every day), any managerial decision can escalate tension at the front line and can bring short-term remediation at the expense of longer-term systemic improvements. However, there are no well-established mechanisms to guide the institutions in strengthening collaboration with the clients and the frontline workers (Bigby and Fyffe, 2012). The management needs better tools that can help them to involve the key stakeholders in decision making. The solution to this situation can be application of principles of Systems Thinking, System Dynamics and Cognitive Mapping to formulate, model, and analyse these systems.

Service experience involves a strong human element and the managers cannot fully control the process on the working floor. Hence, it is crucial to consider soft variables like staff motivation, productivity, burnout, trust, patient stress and anxiety. These variables complicate problem analysis as they are not easily quantifiable and their effects are not subject to rapid consensus.

Initially, the most difficult challenge for our study was how to deal with soft variables. There is no objective methodology for the measurement of the variables that can describe terms such as "personal attachment", "commitment" and so on. However, a Systems Thinking approach to the problem situation provided additional insights onto the feedback processes.

This article suggests that the application of combined problem structuring techniques with consideration of system boundaries can be a powerful first step in interpreting situations and improving systemic decision outcomes. Combined SD modelling and CM techniques help not only to overcome the problems caused by bounded rationality, but they also allow considering soft variables.

CM techniques enhanced stakeholders' ownership feeling towards the planning process. They allowed participants to critically reflect upon the dynamics of the process and helped them see their own thoughts strategically organized, which made their input more constructive.

The case study clearly demonstrated that cognitive maps combined with SD CLDs can provide senior management with detailed feedback about how the results of strategic decisions are perceived at the frontline. CLD designed in collaboration with the senior management after the analysis of merged cognitive maps helped them see the best leverage points for intervention in order to balance the system. This approach requires senior managers to take feedback seriously and to recognize the causal complexity that creates problems at the front line.

Senior management of long-term care service organisations need tools that can help them produce long-term policies shaped by evidence in order to tackle the causes of the problems and not the symptoms. Decisions makers on the strategic and tactic level of the organisation will be able to use the model suggested in this article as a tool to support decisions on strategy related to process and work organisations.

Limitations, recommendations and suggestions for future research

Systems Thinking assists the managers in identifying where some serious challenges lie in the organisation. However, it is crucial to acknowledge that application of Systems Thinking does not mean that the challenges an organisation is facing will be easily solved without considerable changes (Paton and McCalman, 2000; De Savigny and Adam, 2009).

It is vital also to acknowledge that in Systems Thinking there is never one correct verdict on a situation or issue. The best one can do is to try to capture the rich complexity of the situation and discover patterns in what is happening that others find convincing.

Soft OR methods are intended to support senior management in dealing with messy, complex, wicked problems by adding structure (Ackoff, 1974). They extend the use of OR but, at the same time, they do not meet all the needs of managers struggling with problems that contain also hard elements. The methodology cannot be used to derive numerical assessments of the impact of strategic decision making but it can be a necessary precursor to quantitative modeling.

One of the further steps of this research project can be identification of feedback loops in order to highlight powerful dynamics in the organisation with the goal to design more effective intervention strategies using quantitative modelling as well. For instance, stocks and flows of a computer simulated SD model, along with feedback, can give us quantitative perspective of a system. A SD quantitative diagram can become a laboratory in which to experiment and learn. And still, it is important to recognize that models are not reality.

In order to realize potential of SD modelling we need CM for understanding mental models and building shared vision. CM technique helps the organisational leaders to manage complexity inherent in complex problems, however, there are some peculiarities related to application of methodology that should be considered.

First of all, the process of designing cognitive maps is important because it influences the outcome and requires certain skills from the facilitator. The facilitator is taken to have a central role in designing and managing negotiation among the stakeholders in the group. S\he should help the group of stakeholders to work efficiently and effectively in order to come up with workable agreements (Reynolds and Holwell, 2010). In order to be a catalyst for the interaction of expertise and conceptualization and to construct visually interactive models, a facilitator needs knowledge and skills in cognitive mapping, system dynamics modelling and creative thinking methods.

Mapping demands active listening as it is important to not only capture the points but also to understand what interviewees mean; otherwise it will not be possible to show the relationships between the statements. The importance of surfacing unrealised or unspoken perceptions is a key part of CM methodology.

The statements in cognitive maps represent the perception of an objective world (Reynolds and Holwell, 2010). Hence, in order to ensure that CM technique is well suited for a problem situation a facilitator needs to spend some time exploring the aim and objective of the intervention (Reynolds and Holwell, 2010).

A facilitator also needs to map the interviews, for which knowledge of a mapping software is necessary. Situations that are worth modelling are always complex and it is crucial to make a right choice about what to model (Eden, 1994). For that, it might be useful to conduct preliminary interviews with frontline workers, customers and the back office employees. It might also be useful to meet policy makers in the field in order to define the boundaries of the system under scrutiny.

Overall, the process of combined CM and SD modelling is time consuming and usually the managers of the organisations are under time pressure which may discourage their active participation in model building. One of the solutions can be defining short-term and long-term deliverables and discussing them with the leadership of the organisation.

It will be reasonable to conduct a research testing whether the implementation of decisions based on the structured input from the key stakeholders with the help of combined CM and SD tools facilitated better outcomes. Testing the methodology with a bigger sample size may allow drawing more accurate conclusions about the effectiveness of the tool in a larger scale. It is also recommended to use the model in several organisations operating in the same field to test its effectiveness for studying inter-organisational collaboration.

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