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Headteachers' most important task: changing mental models of teachers for effective health promotion initiatives

Building and sustaining health promotion in schools has been viewed as a complicated process that involves continuous alterations and modifications in order for progress to be realised. School health promotion initiatives are not considered effective in developing countries like South Africa because the underlying behaviours, norms and beliefs of teachers are not affected (Friend & Caruthers, 2012). In addition, although teachers in a study conducted in Hong Kong perceived that there was a need to provide lifestyle modification education to students, they did not see themselves as influential person to promote healthy lifestyle (Cheng & Wong, 2015). In the same vein, research indicates that teacher commitment to, and identification with, health-promoting activities is essential for sustained teacher engagement with health promotion in schools (Jourdan, Simar, Deasy, Carvalho & McNamara, 2016). There is also a consensus that improper health attitudes would limit teachers' chances of being good health models for their students (Alnasir, 2004). The success of making a school a health-promoting one depends largely on commitment and a sense of ownership by the individual school. How people construct knowledge, attitudes and beliefs can affect their actions. In other words, attitudes, behaviours and commitment are linked to how people think and perceive situations. McNab (2013) notes that effective school health promotion depends more on a change in mindset rather than the provision of major new resources. This statement suggests that a change of a mental model can lead to a change of behaviour. New ways of thinking about implementation of health programmes are required to improve school health promotion (SHP).

Similarly, there have been suggestions in the literature on how schools can improve their health-promoting initiatives. For instance, empowerment of staff through “shared ownership” of change and innovation within the school is suggested by O'Hara & McNamara (2001). Such efforts to change teachers' attitudes towards SHP may be either unsuccessful or met with resistance if their mindset does not change. Based on these challenges, this study argues that without changed mental models, SHP cannot be effective.

No study could be found that examined mental models of teachers involved in SHP in order to explore how they can be altered. This study contributes to the debate about mechanisms that can be used to improve the implementation of SHP. For this reason, the aim of this investigation was to examine the mental models of teachers involved in SHP and explore how to ultimately modify mental models that resist change. As we believe that the task of modifying the mental models of teachers is the responsibility of the headteachers, the following section provides a rationale for such credence.

Changing mental models of teachers in school health promotion as the headteachers' task

School managers are regarded as having a great influence on priority areas performed at schools. They are important champions who provide leadership to school health promotion initiatives. As the wealth of educational research indicates that school leaders do make a difference in school effectiveness and school improvement (Huber 1999; Scheerens & Bosker 1997; Townsend, 2007), the same can be expected with regard to the success of SHP activities.

Headteachers have always been entrusted with certain tasks that can be linked to influencing the mind sets of the school community. For instance, in building and maintaining high motivation through vision building, successful school principals have the ability to emphasise the necessity, importance and benefits of change processes to all school members. With a shared vision, a school stands a better chance of having a sustainable health promotion as spaces for creation of new ideas could be created as the vision is communicated. Principals are regarded as change agents leading the school community to adapt and accept changes that may be initiated from outside the organization. The principal's openness to change is positively and significantly correlated with the school community's openness to change (Cagle, 2012). The implication is that their mindset is as important as that of teachers, since they are charged with a responsibility of encouraging the school staff to sustain new practices and activities.

Mental models as theoretical framework

One way of getting into the minds of individuals in organizations, and enhancing the link between individual and organisational learning, is through understanding the concept of a mental model (Rook, 2013). Mental models are important for the understanding of the construction of knowledge and the actions of an individual (Kim, 2004; Senge, 1990). Various researchers define mental models differently, but the description by Kim (2004), as implicit and explicit understandings, ideas, memories and experiences will suffice for this research. However, researchers are in agreement that a mental model exists only in the mind of the individual and thus internally held (Kim, 1993; Senge, 1990; Vazquez *et al.*, 1996; Doyle & Ford, 1998). A mental model is an internal representation of external environment, personally and internally created by the person himself or herself (Rook, 2013). It is developed through a subjective interpretation of an individual's experiences to make inferences based on the available information and predictions about future states (Held, Knaff & Vosgerau (2006). Mental models can be considered to have been constructed from an individual's own

experience and their own bases of knowledge and concepts. In turn, mental models affect individual actions. Rook (2013), and Jensen & Rasmussen (2004), maintain that a mental model has the capacity to influence, or affect, how an individual makes judgments and consequently affect how a person acts.

Two or more people can be said to hold a shared mental model (SMM) if they utilize mechanisms that lead to similar descriptions, explanations, and predictions of the system (Avnet, 2015). Mental models in the context of teams have more to do with establishing and maintaining common ground (Clark, 1996), and building team mental model. According to Scheutz, DeLoach & Adamsteam (2017), mental models are critical for making sense of team activities, for understanding the dynamic changes of team goals and team needs. Lee, Johnson, Lee, O'Connor & Khalil (2004), proposed that a SMM has five components: team knowledge, team skills, team attitudes, team dynamics and team environment.

The idea behind understanding and investigating mental models of school leaders and teachers involved in SHP initiatives in this research is to use the knowledge learned from them to shape their actions. The mental model construct was used to explore the cognitive and social dimensions of human-task interactions. Thus, mental models have been elicited to understand the basis for people's actions (Baynes *et al.*, 2011); to integrate different perspectives to improve the overall understanding of a given system (Özesmi & Özesmi 2004); to explore similarities and differences in stakeholders' understanding to improve communication (Abel *et al.*, 1998); and to support decision-making and negotiation processes in contentious situations (Dray *et al.*, 2006).

Research method

In this section we explain the research design and participants, data collection and analysis.

Research design and participants

We conducted a qualitative study (Berg & Lune, 2012), focusing on the mental models of teachers involved in SHP. We thought that this design would provide us with a better understanding of the research problem. Participants in this research comprised of eight school leaders (4 principals, 2 deputy principals and 2 Heads of Departments) as well as eight teachers involved in SHP. Four

participants in each of the four schools that participated agreed to partake in the research, each school with two teachers and two managers. The participants were purposively selected as only teachers who had been involved in school health promotion for more than five years were selected and managers of health promoting schools.

Data collection and analysis

For data collection, we relied on two data gathering tools: a combination of open-ended and semi-structured interviews (direct elicitation) to elicit participants' understanding of SHP and their perceptions of its implementation in their schools; and indirect mental model elicitation in the form of unstructured observation. The idea for investigating their understanding was to determine their knowledge of the task in terms of the focus, detail and method of delivery. Their common understanding of the SHP concept is also imperative for shared mental models. The rationale behind the use of oral-based procedures is grounded on Carley & Palmquist' (1992), postulation that the symbolic or verbal structure extracted from a text, such as an interview transcript, can be considered a sample of the full symbolic representation of the individual's cognitive structure. To this end, Carley & Palmquist (1992), believe that language provides a "window through which to view the individuals mind". The observation technique was centred on theory in use, which is what people do, as opposed to what they say.

Accordingly, we identified concepts using open-ended interviews and by asking interviewees to list items relevant to our topic, for example, what SHP is about, effective way of implementing health programmes, how it is implemented in the schools. Thereafter, in a second phase a different set of interviews were conducted where participants were asked to sort, rank and determine the similarity of responses across interviewees or items. We conducted two individual interviews with each of the sixteen participants over a period of five months. In this period observations were done two times. The focus was on observations of programmes at the time when they were implemented.

As the data gathering involved "elicitation", what that means in this research is important. The term "elicitation" refers to the process of inquiry to encourage a person to externalize a mental

model (Jones, Ross, Lynam & Perez, 2014). We relied on a situated procedure involving eliciting participants' mental models in schools, locations corresponding to the phenomena to be elicited. Interviewing participants in schools was done with the understanding that the physical context has an effect on the mental representations participants formed and used in a given situation.

All interviews were audio-recorded and transcribed immediately after each interview was finalized. As alluded earlier, we relied on the unstructured observation to enrich the verbal contributions of the participants. Following data collection, we analysed the data using content analysis (Berg & Lune, 2012), which yielded three themes.

Research Results

The data analysis generated three themes regarding the mental models of teachers involved in SHP. The themes are discussed below.

How School Health Promotion should be conducted

It was indicated by participants that community involvement in the creation and maintenance of healthy school environments was very important. Participants were aware that schools would not be vandalized if there was a sense of community ownership as the community would jealously look after them. One participant concurred with this statement by saying: *"I think everybody in the school community must be involved. Thugs vandalize the school and steal the very things we as a school need to make the school environment better, they cut the fence, break the windows and steal electric plugs in the classes so it becomes hard to keep the school clean and safe for learners under such conditions. If they are involved they will curb vandalism"*. Furthermore, the school leaders are to educate the community about what they need to do in pursuit of creating healthy environments, both at school and at home. The emphasis of community involvement is also on social ills such as cyber-bullying. In this instance one participant elaborated as follows: *"after attending a workshop on bullying I invited parents and trained them on cyberbullying and the importance of checking what is happening on their children's cellphones, them knowing helps us as they will also be vigilant and be involved in school interventions"*.

The majority of the participants emphasized the importance of collaboration and stakeholder

involvement. For instance, participants expressed the following thought: *"The principal should make the school community aware of what a healthy school is and what needs to be done for it to be a healthy school; involve as many stakeholders including teachers and learners in all programmes pertaining to healthy school initiatives"; collaborations are crucial. We need everyone to support the idea and to work with us to ensure that whatever we plan is implemented. We need the learners to understand the importance of healthy habits so that the lessons learnt can be taken to communities etc."*. The participants mentioned valuable links that should be established with other government departments. One participant indicated that: *"the school has to collaborate with the social development, the police and the health departments. We have a nurse, a police officer and a social worker that are working with our school, so that in case we need advice or support they are there to assist. They also have their own programmes in which they sometimes request to present to learners, such collaborations need to be strengthened in order to be sustainable"*.

Concerning health programmes, participants took cognizance of the importance of safety of learners and its contribution to effective teaching and learning. One participant reported: *"...we have to make sure that there are no slippery surfaces or dangerous equipment lying around that can hurt learners when playing during breaks, school safety is the priority"*. Some teachers mentioned programmes pertaining to clean physical environment, a participant said: *"The Y-cap programme deals with recycling, cleaning, beautification and greening of the school environment"*. Participants emphasized the significance of maintenance of the school infrastructure. They elaborated as follows: *"School buildings have to be maintained, learners cannot learn in dilapidated, filthy buildings"; "schools have to be welcoming, classrooms well ventilated and clean, with running water, clean ablution facilities and electricity"*. Learners are to be encouraged to adhere to hygienic habits at all times and be fed in order to better their health and well-being. This was evidenced by the participants who spoke about such programmes. One participant reported that: *"in health education learners are to be taught about health issues and encouraged to focus on personal grooming, they have to be fed as they cannot focus when hungry"*.

In addition, establishment of effective health committees was indicated as imperative in SHP. To this effect, one participant reported: *"the*

principal has to make sure that the health committee is there and members should attend workshops to get information about school health promotion". Participants also acknowledged the importance of being familiar with the national school health policies and development of school-based policies. Two participants from different schools indicated: *"officials always encourage us to be familiar with the contents of health policies, health promotion depends on our understanding of these policies"; "policies have to be developed by all stakeholders in order to accommodate the context and the culture of the school and also to have a common understanding of the processes"*.

Attitudes, decisions, actions and mindset

Most principals understood and appreciated the efforts of the Department of Basic Education of encouraging schools to be health promoting. Many of them attested to the fact that all the workshops that they had attended had added value to their endeavours of making their own schools compliant with the notion and format of healthy schools. For instance, two participants reported: *"I have attended a number of workshops, many of them have assisted me to make the school a healthy place"; "... they have made me a better principal because I learn from them and as far as possible, implement whatever I learnt here at school"*. But teachers perceived the workshops as a waste of their valuable time as they said: *"I prefer attending workshops about the curriculum, workshops on health promotion are a waste of time"; I attend workshops about health promotion because I have to, not because I want to"*.

Another pertinent factor is the attitude of individuals within a school. Most teachers complained about their workloads. As such, they perceived the promotion of school health as an added burden to their already overloaded work. Linked to this was the issue of whose responsibility it is to ensure school health promotion. It was surprising that even the principals also indicated SHP as not their responsibility. This was articulated by almost all participants mentioning that: *"School health promotion should not be the responsibility of the teachers, except for health education, they are already overloaded"; "I do not understand why school health promotion is not the responsibility of the nurses and social workers they know better, they are trained, with relevant degrees"; "there is no time for anything else after teaching so many classes"; "what we are responsible for is to teach and learners must pass at the*

end of year”.

The communication of SHP initiatives between schools and their communities was lacking, the collaborations were not effective. The lack of community engagement was highlighted by all participants who said: *“Communities are not fully involved in health programmes except when they volunteer as food handlers or assisting with garden projects”; “communication with the school community is lacking, we only report on what we do”; “schools in township struggle with gangsterism, as the community is not involved, winning this battle is a struggle for our schools”.*

Some decisions taken by the school leaders were indicated as bias. Such decisions led to conflicts within schools and intended programmes were stifled. Participants reported: *“...if it is a programme that the principal likes he will motivate us to support it and make sure that it happens, everyone would be involved”.* The ineffectiveness of the implementation of health programmes also seemed to be due to “selectiveness” in the teachers’ perception of what is important: *“I like helping out with the cleaning of the environments and feeding scheme, but nothing more than that”; “I do not mind teaching Life Orientation which includes health education in class, but other than that, it’s a big no”; “cleanliness and beautification of the surroundings make sense to me, it is also important for learners to be fed, most come from very poor families where there is scarcity of food, I can be involved with all that, everything else can be taken care by others”.* Participants highlighted lack of commitment and involvement of teachers which was aggravated by lack of processes to deal with such behaviours. They mentioned that, *“there is no commitment from everybody in the school community in order to be able to implement the programmes well, some teachers do not want to be involved and there is nothing done about this”; “same teachers would be compelled to lead health committees for ever as others do not want to take part”.*

Duration of the programmes and time of involvement of teachers

All participating schools had been involved in health promotion for years, as the schools are residing in poor communities. Seven participants had been involved in the programmes for more than five years while the rest mentioned more than 10 year involvement. Participants indicated different reasons for their involvement with SHP, which included the following: *“Ever since I started in this school in 2010, I have been involved, I was asked by the principal who indicated that after 2 years, others*

will take over, but that never happened”; “I have been a principal here for 15 years, the school had already been implementing health programmes years before I started here”; “my observation over the years I have been involved is that we are effective in others and not in others, we do not have strategies to improve maybe because of how we see health promotion”.

Discussion

The aim of this study was to examine the mental models of teachers involved in promoting healthy schools and how mental models that resist change can ultimately be modified. The focus of data collection was on the participants’ understanding of the concept of SHP and their perceptions of how it was implemented in their schools. The theory of Senge’s mental models was used as lens to understand how participants perceived SHP and the actions they took to implement programmes. The findings we report on in this article may make a valuable contribution to the existing body of knowledge by means of the unique approach taken in this study. Participating schools seemed to comprehend the concept of SHP. However, their decisions and actions were contrary to their understanding. Understanding their actions and decisions was important as literature indicates that actions make a mental model explicit. Moreover, although all the participating schools implemented health programmes consistently, on a systematic basis and over a sustained time period, their perception about them did not change.

The first finding pertained to how participants understood SHP, this is paramount as the knowledge becomes the driving force and a determinant of effectiveness of SHP initiatives. Participants seemed to be aware of what was expected of them and had all three forms of understanding: declarative, procedural and strategic. The understanding of the concept of SHP has to do with its aim which concerns the improvement of physical and social environments, teaching and learning and personal and social development. These results are corroborated by those of Jourdan, Simar, Deasy, Carvalho & McNamara (2015), in which teachers had a broad conceptualisation of their role in health promotion. Participants stated establishment of health committees, development of health policies and programmes which all pertain to setting up structures in place for effective implementation of health promotion initiatives. Community, teacher, learner

involvement and collaborations and partnerships were indicated as imperative not only for capacity building but also for the buy in of all stakeholders to strengthen and sustain the initiatives. Moreover, participants revealed multiple programmes that should be implemented in schools including those that address emotional and mental health, physical wellbeing and those that empower and equip learners with knowledge and skills to live healthy lives. The results also attest that participants had procedural understanding in that they were aware of all the processes and procedures for the implementation of programmes, for example: school nutrition programme; ensuring safety; keeping the environment clean and healthy; and taking care of the infrastructure. They also took cognizance of the fact that workshops were important in empowering them with skills and knowledge they needed to implement programmes. Participants indicated that support for the programmes was key and that there needs to be clear communication about processes so that everyone understands his/her role. Thus, it can be argued that health promotion in the participating schools was not effective because teachers did not have an understanding or comprehension of the scope, practices and determinants of the project.

This study also found a disconnect between the actions of the participants and their understanding of health promotion. It is believed that understanding affects decisions, actions and perceptions (Chermack, (2005). In contrast, in this research participants' actions were influenced by their mental models. Perhaps, based on this finding, it can be concluded that knowledge only does not guarantee effective implementation. Collaborations and community involvement were not effective as participants indicated not putting effort in building the partnerships. Communication with the stakeholders about health programmes was lacking. In this instance, members of the community are more likely to 'buy in' to the SHP project when it is firmly rooted in the communicated school vision and when they have control over its development and implementation. Some programmes were not implemented well because principals' own preferences, teachers' selectivity of certain programmes and lack of procedures to deal with lack of commitment and involvement.

In terms of negative perceptions, participants felt that health promotion is an add-on burden as

they complained about a heavy teaching workload. They felt that if they were to focus their energies on health promotion, it would take away time they would spend on preparation for classes. Another factor involved health promotion as not really the responsibility of the teachers but of nurses and social workers. Participants indicated that they were trained as teachers, they were comfortable teaching health education but not with involvement in other programmes of SHP. This kind of thinking is not unique to South African teachers, as these findings are corroborated by those of Hill, Draper, De Villiers, Fourie, Mohamed, Parker & Steyn (2015), Elgar *et al.* (2015) and Bonell *et al.* (2014), which also indicated an individual's strong sense of whose responsibility school health-promotion should be, the workload of teachers and role ambiguity. This school of thought appeared to have contributed to the ineffectiveness of the schools' initiatives, the impression is that their failure was premised on their negative way of thinking about their involvement and contribution to health promotion. Consequently, success or failure of school health initiatives is determined, in part, by such mental models or ways of viewing SHP. In this research we argue that unless there is a growth mindset that supports SHP, a mindset of care that puts learners first, effectiveness in programme implementation can never be attained.

The third finding pertains to the fact that the participating schools had been involved in SHP for more than ten years. Participants had been executing health programmes for years. They alluded to the fact that they had implemented the programmes the same way without any plans for change. They realized that there was a contrast between their understanding of health promotion and how they actually effected it. In all the years they had not devised means to change the situation. It seems that the schools developed a fixed mindset that deterred them from adapting and growing. The change would have allowed the schools to operate differently and innovate to maintain their position of health promoting. Perhaps the reason for doing the same things over and over even if they did not yield good results is because such behaviours and attitudes may be unconscious and implicit. Attitude and more importantly behaviour change of anyone who ought to be involved in SHP,

cannot be accomplished by educating knowledge only.

Conclusion

We conclude that in order to change practices and interventions, mindsets or mental models must inevitably be an important focus of attention. In addition, research indicates that mental models can change, and the creation of new mental models is possible if the teachers in a school are willing to modify their behaviours. We are aware that based on the challenges highlighted above, there could be two solutions: to change the actions of the teachers by means of training or for them to modify their mindset. This research advocates for the latter as although it is difficult to change people's mindset, it is however, the most powerful and useful way to ultimately change behaviour and thereby affect results. The authors concur with Darlington (2016), who propose that a context-specific thinking should be applied to the implementation process, and the types of achievements that might be expected from it, whilst the intervention programme and its content remain the same. Following are practical steps that can be taken by headteachers to modify the mental models of teachers.

First, South Africa is a country with strong cultural beliefs where the majority of the population is Black. In Black cultures people are used to "imbizo" (in isiZulu and IsiXhosa) and "lekgotla" (Southern and Northern Sotho) where they are called to deliberate on matters of importance to the community. In such gatherings teachers could have an opportunity to talk freely about their views on SHP, and discussions about implicit models of their behaviour, thereby, providing a platform for exchange of ideas with community members and health professionals. Community gatherings are relaxed and non-judgemental. Getting people talking about how health programmes are implemented is the first step for teachers to understand their own mental models. In addition, this can lead to moving towards sharing of adequate mental models that alter thinking and action-taking for laying a solid foundation for effective SHP.

The second mental model modification strategy would be to organize debate sessions within and between schools. Challenging of inadequate mental models can be done through dialogue. Research indicates that mental models can be

"extracted, examined and altered in a narrative format through a series of provocative questions about an organization's current and plausible future states (Georgantzias & Acar, 1995; van der Heijden, 1997). The debates about the important driving forces of SHP and extensive dialogue about how best to implement health programmes can be held with all stakeholders to facilitate team learning and a shared vision. Senge (1990), concurs with such a notion by proposing challenging of existing assumptions of organizational decision makers by questioning their mental models.

Additionally, Pfeiffer (2005), suggests building of a responsibility mindset. In the foregoing paragraphs, it was indicated that teachers felt that it was not their responsibility to promote health in schools. A responsibility mindset may be built by (1) getting people to acknowledge and accept that how they think about situations is under their volitional control-choice; and (2) allow them to emotionally experience and think about the pros and cons of alternative ways of thinking about situations (Pfeiffer, 2005). The suggestions for creating new mental models in this research indicate the pivotal role learning can play in such an endeavour as Johnson-Laird (1983), proposes. Because of this requirement for learning, changing mental models can be viewed as a developmental process that can be considered for teachers involved in SHP. This is based on the conviction that specific kinds of expertise require specific mental models that are assumed to develop over time and with experience.

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