

The School Principal as a Systems Thinker: A Case of School Health Promotion in a Public School in South Africa

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ABSTRACT

Systems thinking is often recommended in educational institutions to improve quality and increase learning outcomes. However, a shared understanding of this concept in the promotion of school health and the role of school principals in its application is limited. The education system in general and schools in particular, have been described as complex, where often human adaptation to localised circumstances is necessary to achieve success. This research focused on two important factors: the role of a principal as systems thinker in school health promotion; and the importance of systems thinking in school health promotion. Qualitative research using a single case study of a high school in the Free State province was conducted with six school management team members including one principal, one deputy and four heads of department, and seven teachers, who were interviewed individually and in a group. The findings revealed that systems thinking has a potential for capacity building and strengthening of programmes through the accessing of systems knowledge, provision of systems leadership and the establishment of a collaborative culture.

KEYWORDS

System knowledge; system leadership; collaborative culture; school health promotion; school principals.

INTRODUCTION

This research draws on the theoretical underpinnings of what the World Health Organisation (WHO) has referred to as a 'settings' approach to health promotion. This involves combining traditional classroom education with actions to improve the physical and social environment, school policies and the relationship between school, home and the local community, in ways that promote health (WHO, 1996). School health promotion (SHP) should follow a systems approach because SHP is such an important issue, it cannot be solved using a linear approach. Therefore, the WHO endorses and advocates a comprehensive, holistic approach to SHP that has been widely adopted around the world. However, implementing such an approach and achieving successful and sustaining positive benefits have proven challenging in complex evolving school systems. Building on the understanding of a 'systems' approach to SHP, this paper reports on principals' systems thinking and its role in SHP.

Systems thinking is the examination of objects as wholes rather than as individual parts. It pertains to the superiority of the whole over the elements of an entity (Senge, 2006). Systems thinking enables people to deeply understand and interpret the characteristics and practices of a system (Sole et al., 2010). It derives from systems theory, and thus from the practical use of systems theory (Senge, 2006). It is concerned with connectivity, interrelationships and mutuality between various components of a whole. Practically, systems thinking does not try to break down systems into parts to understand them; instead, it concentrates on how the parts act together in network interactions (Gharajedaghi, 2011). One must see the whole system first, before thinking and working with each separate component as a part of that whole system, while simultaneously considering an array of influencing factors. This broad perspective helps to identify the causes of problems and understand how to address them (Senge et al., 2012).

Promoting healthy school environments can be considered a new terrain in schools in South Africa. International countries understood and embraced the concept of SHP as early as 1900, but it was only in 1997 that the Department of Education introduced it to schools in South Africa. This research appeals to organisational transformation because it is believed that organisational transformation is possible with systems thinking. Researchers agree that systems thinking by principals (PST) may produce several positive effects, including improved teaching and learning outcomes (Pang & Pisapia, 2012). However, research on systems thinking in education in general, and specifically in school leadership, is limited in scope in South Africa. In some studies, systems thinking has been used as a lens for analysing data (Brown, 2016; Omotayo et al., 2021; Paidea & Dhunpath, 2018), while other researchers have investigated how students experience systems thinking (Raath & Hay, 2019), how systems thinking is applied in universities of technology to respond to complex and unpredictable challenges (Mhlongo & Zondo, 2022) and how systems thinking can be used as a vehicle to develop a knowledge-sharing culture (Mhlongo & Zondo, 2023). Furthermore, Tlale and Romm (2017) used systems thinking to strengthen systemic thought and action to promote inclusive education among teachers, members of the school management team (SMT), members of the school governing body and a

district officer, in a rural school. Research on systems thinking has been conducted in institutions of higher learning to determine its suitability for collaborations on capacity building (Nyemba et al., 2019). One study by Bhengu et al. (2020) discusses the experiences of five principals using a systems-thinking approach to school development. As there was evidence in that study that the principals had an adequate understanding of systems thinking and were able to use it to the benefit of the development of their schools, this research builds on this understanding by examining their role in systems thinking.

As available knowledge on its application in educational leadership and policy is lacking in quantity and quality (Shaked & Schechter, 2020), the same can be said about systems thinking in the leadership of SHP. Therefore, the present study investigated the role of principals as systems thinkers in the effectiveness of SHP initiatives. Specifically, this study speculated that the principals' actions as systems thinkers would bring about sustainability in health promotion programmes and illuminate how to address challenges in school settings. It is vital to understand the relevance of systems thinking in the promotion of school health. Such an investigation is critical because an organisation's commitment to school health is related to its effectiveness as an educational institution and a healthy school-work environment.

LITERATURE REVIEW

Importance of systems thinking in school health promotion

Systems thinking has gradually been accepted as an important factor in SHP. Schools are connected to other systems that can positively or negatively affect their activities. This makes it difficult for them to solve their problems without engaging other systems. The outcomes of systems thinking in the promotion of school health include learning, capacity building and sustainability. These outcomes have the ability to effectively change the school system to cope with real situations in a broader context. Rosas (2017) indicates that health promotion initiatives, such as those operationalised under the whole-school approach, include several interconnected components coordinated to improve health outcomes in complex settings. This research will only focus on networks accessible to public schools in South Africa. These include those at the macro-level, micro-level and meso-level.

It is true that schools are becoming more open systems, exposed to external influences that interact with other external systems, through which they secure new properties and resources (Brezicha et al., 2015). The networks indicated above reflect a more systems-based approach to addressing multiple health issues of students. These are just some examples of how systems could come together to support success in a district. These systems combine many independent actors acting as a single unit. Networks also act as a single system made up of many interacting components. The systems are regarded as interrelated elements, meaning that each element directly or indirectly influences any other element within the system. Within school improvement, principal leadership activities aim to keep the school system steady through leadership activities within and between the school and its environment. Thus, principals using

systems thinking as a leadership strategy may be most appropriate in enhancing individual and school outcomes, because school functioning is highly dependent on the health of its community.

Systems thinking enables management over situations characterised by dynamic change, diversity and complexity – a beneficial management approach (Wilson & Van Haperen, 2015). School Health Promotion can be considered a complex intervention that is multicomponent, context sensitive and highly dependent on the behaviours of participants and providers within a complex system (Shinde et al., 2017). For health promotion to be effective, schools must work closely with other systems, thus taking cognisance of interconnectedness and interdependency between such systems. A school is made up of different systems including parents of learners, the school community and government departments at the local, provincial and national levels. System dynamics pertain to the attributes and patterns of behaviour that these systems share (Williams & Hummelbrunner, 2011). Systems that incorporate human interaction are regarded as complex and adaptive systems. Adaptive systems are suitable for schools to allow for the interaction of human beings within the organisation. The adaptation occurs naturally as members learn through interactions, enabling them to acclimatise to changing developments (Riley et al., 2021). Systems thinking relates to capacitation and modification. It is through systems thinking that one can structuralise the learning process and the learning organisation itself (Sidani & Rowe, 2018).

As the importance of systems thinking has been elaborated on above, the next section will be dedicated to the role of principals as systems thinkers in their schools, as this may add value to existing improvement efforts.

The Role of Principals as Systems Thinkers

Systems thinking in a school context is defined as a school leadership approach whereby principals lead schools through the systems-thinking concept and procedures, applying the systems view and performing at the systems level (Shaked & Schechter, 2014). From this definition, there are roles that emerge. The first pertains to expanding beyond the boundaries of the school. A collaborative approach is essential if school health is to progress. School Health Promotion indicates interdependencies between health, education, social and environmental factors (Sallis et al., 2008). This creates a complex dynamic for a school whose *modus operandi* focuses on teaching and learning and requires innovative leadership strategies to meet student needs. One promising strategy for effective health promotion in schools is collaborative leadership. A collaborative leadership strategy promotes effective partnerships between stakeholders. Research supports the understanding that establishing effective family/community/school partnerships is essential for SHP (Mclsaac et al., 2015). There is an acknowledgement of the need for “an outward facing” perspective among (educational) leaders and teaching staff to meet student needs in situations where staff feel “overburdened or confounded” (Blankstein & Noguera, 2015, p. 2). This becomes more important in SHP, where maximum participation in problem identification and decision making may enhance the concept

of ownership and responsibility in school health activities. In collaborations, partners incorporate their experience, skills and energies to solve the complexities they face (Brooks, 2018). In addition, networking opportunities can encourage the provision of resources to support the implementation of SHP. Therefore, the role of school leaders is to think beyond the boundaries of the school to generate partnerships between the public and private sectors through the formation of networks and strategic alliances, to strengthen SHP. This approach resonates with the definition of a health-promoting school as a school that 'constantly' strengthens its capacity as a healthy environment for living, learning and working.

Keshavarz et al. (2010) argue that sustainable and effective SHP depends on understanding the diversity and complexity found within and across contexts. By its nature, SHP is a collaborative and multi-component approach that engages partners in the community (mesosystem), such as public health, recreation, non-government organisations, local business and universities (Denis & Lehoux, 2013). Therefore, the provision of effective leadership becomes vital to develop a shared vision that is communicated to community members. This calls for collaborative strategic planning, which is a team-based approach to planning and problem-solving processes to address school-level issues related to SHP. Accomplishment of goals becomes a collaborative effort.

The interactions of different systems could lead to actions that focus on professional development and knowledge exchange (Mclsaac et al., 2016). There is an agreement among researchers that teachers must come to an intimate understanding of the process of change in order for implementation to be successful and for the promises of new practices to be realized.

METHODOLOGY

In the quest to understand the role of principals using systems-thinking in SHP, empirical research was conducted. The following primary research question was formulated: What is the role of a systems-thinking principal in SHP in public schools in South Africa? Secondary questions were as follows:

- What is the importance of systems thinking in SHP?
- What leadership roles do principals play as systems thinkers in the promotion of school health?

The sections below elaborate on the research method, the selection of research data collection methods, data analysis and ethical consideration.

Qualitative Research

A qualitative method, which followed a process of naturalistic enquiry, was used in this study. The aim was to gain a deeper understanding of systems thinking in school health promotion by conducting an enquiry in the participants' natural settings. The lived experiences and the meanings ascribed by the participants led to the understanding of the phenomenon. A single case study design was used. The advantages of using case study research are that it allows for thick descriptions, insight and an in-depth understanding of specific social phenomena, events

or people (Creswell et al., 2007). A single case study focuses on a single case which is studied comprehensively. In this study the focus was on a high school.

Selection of research site and participants

The site was selected purposefully. In purposeful sampling information-rich cases are selected in order to gather data from key informants. The information-rich cases in this research pertained to school management team (SMT) members who possessed information about the principal's systems thinking and the role it can play in SHP. Site selection was guided by the following criteria:

- high enrolment, exceeding one thousand learners, and
- an academic performance of over 85% ie the school has not been identified as dysfunctional in the past five years.

Table 1.

Demographic data of the participants

Participants	Gender	Roles Played by Participants	Work Experience (in years)	Age
SMT1	Male	Principal, ex-officio of Health, Environment, and School-Based Support Team committee	37	58
SMT2	Male	Deputy principal, Physical and Technical Science teacher	11	34
SMT3	Female	HOD for Mathematics, CAT Teacher; CPTD committee	46	23
SMT4	Female	HOD for Physical and Technical Science teacher; Cleaning and Environment Committee	30	52
SMT5	Female	HOD –Life Orientation, SBST Committee	31	53
SMT6	Female	HOD – English Teacher	27	49
T1	Female	Mathematics teacher, health committee member	10	32
T2	Female	Life Orientation teacher; SBST committee member	22	45
T3	Male	Accounting teacher, Assessment, and Health committee; Soccer	25	48
T4	Female	Life Science teacher; Assessment, and Cleaning and Environment Committees	14	37
T5	Female	English teacher, and Environment committee	5	29
T6	Male	English teacher, and Environment committee	9	35
T7	Female	English Teacher, Assessment, and health committee; staff meeting secretary	19	41

It was assumed that schools with a high number of learners in their enrolment would have more organisational challenges and would struggle to maintain a focus on SHP. Both the SMT and the teachers had to agree to participate in order for the school to be selected.

To recruit participants, we put advertisements in the school administration block. To avoid intimidation and coercion an advertisement was used to recruit participants. In the advert the requirements regarding the study were listed, and the names of SMT members and teachers that were interested in participating were submitted to the secretary. A meeting was scheduled with the SMT members and teachers by the first author. Only those who had indicated their

interest in participating were invited. This study reports on the data collected from six SMT members (one principal, one deputy and four heads of department) and seven teachers.

The sample was composed of male and female teachers. Schools in South Africa usually have fewer male than female teachers, perhaps due to the perception that teaching is a female profession. However, both the principal and deputy were males, which is common in many high schools.

Data Generation

In this study, data were generated by means of semi-structured individual interviews and focus group discussions. The semi-structured individual interviews were conducted to answer the following research questions: *What is the importance of systems thinking in school health promotion? What leadership roles do principals play as systems thinkers in the promotion of school health?* The face-to-face interviews were conducted with six SMT members. The individual interview questions were open-ended. The interviews lasted 45 minutes to one hour, to minimise fatigue. Each participant was interviewed once but informed that they might be asked to answer additional questions as needed. A recording device was used to record all the interviews. The open-ended questions enabled the participants to provide comprehensive information. The participants were given the interview questions before the interview date so that they were familiar with them.

Two focus group discussions (FGD) were conducted to collect data from the participating SMT members and teachers. An audio recorder was used to record the conversations in the discussions. The participants gave consent to the recordings, and verbal quotes were used in the report. The case consisted of thirteen participants, which is large enough number to gain a variety of perspectives and small enough not to become disorderly or fragmented. The group's composition and the discussion were carefully planned to create a non-intimidating environment so that the participants felt free to talk openly and give their honest opinions. Two group discussion sessions were held with all thirteen participants. The FGDs were conducted to collect data on the same questions as the individual interviews. In these sessions, we agreed to discuss each question separately. We chose one person who wrote and listed all the agreed-upon points on the board first before transcribing them onto paper. In the first FGD we focused on the question: *What is the importance of systems thinking in school health promotion?* The second FGD dealt with the question: *What leadership roles do principals play as systems thinkers in the promotion of school health?* Each FGD was scheduled for two hours, and both finished within the expected time. All seven participants managed to attend both FGDs.

Data Analysis and Data Triangulation

We employed thematic analysis to analyse the data. The data were first transcribed verbatim. Data were analysed in six phases:

1. Reading the transcripts several times
2. Labelling the data through coding.
3. Condensing the extended meaning units.

4. Dividing the data into domains.
5. Naming the themes.
6. Weaving together the analytic narrative about the data and finally, contextualising the data in relation to existing literature.

The preliminary data analysis was performed by all the participants in the discussion sessions allocated for that purpose and was later finalised. The data that emerged from individual interviews and the FGDs were triangulated. The aim was to cross-check evidence because when one uses data from only one source, it may be difficult to see whether the data are trustworthy.

Ethical Considerations

Throughout this investigation, we were guided by ethical awareness, protection of human rights and social justice. We had ethics clearance for this investigation. All participants were called to a meeting where they were given information about what the study was about, how it was going to be conducted, what the data would be used for and what their role was going to be. After the meeting they were given consent forms to submit to an independent recruiter if they wanted to be part of the study. All thirteen participants signed the consent forms. The participants checked and confirmed the results.

RESEARCH RESULTS

The results are presented based on the role of a principal as a systems thinker and the importance of systems thinking in SHP. The role of a principal is associated with expanding beyond the boundaries of the school to access resources that will improve processes and procedures within the school. It is also linked to influencing indirectly to motivate and guide teachers towards the achievement of goals.

The research revealed two initiatives showing how the principal of the studied school uses systems thinking – firstly, through bringing other expertise into health programmes at the school; and secondly by visiting other schools.

Theme 1: Expanding beyond boundaries

Most of the participants believed that a principal who is a systems thinker should be able to identify issues that are beyond the ability of the school. In SHP, these were regarded as providing resources and skills. The following paragraph paraphrases some of the comments made by SMT members:

We need the experience of non-governmental organisations (NGOs) who have been providing support to the vulnerable in our community. These people have skills we need, such as providing counselling to vulnerable learners in our school (SMT 5); without mobilisation for the involvement of parents, teachers and the community members in SHP, programmes such as the feeding scheme would not be effective (SMT 1); we need to work closely with the nearby clinic for support and information (T6).

In the opinions of the participants, the school lacks the skills, knowledge and understanding required to support vulnerable learners and promote health, in areas other than their own speciality. The only option at their disposal would be to look for assistance outside the school to maintain and improve health-promoting activities within the school. Mobilisation of the whole school community would provide an opportunity for the school to strengthen and sustain health promotion initiatives. For example, working together with the local clinic would ensure prompt treatment of ailments for learners, which would keep them healthy and provide a source of health information when needed.

Systems thinking is vital when accessing knowledge and information from other networks in the system. Knowledge and information are accessed through exchanges and interactions among the system members. Acquiring knowledge and information is vital when considering the complex nature of health promotion in schools. A study by Preiser et al. (2014) confirms the complexities of planning and implementing health promoting programmes in South African schools. Networking to acquire skills and information can also be regarded as a form of professional development. The network then provides the means for learning to be generated and shared.

In elaborating on the importance of systems thinking, the participants shared information (elaborated on below) on a new project they started at the school, which they feel cannot be effective without collaboration with community members and organisations:

We have a 'girls' talk programme' that we started at the school. We involve female teachers that are younger than 25 years to drive the project, and they have sessions at least once per term (SMT 3). But although they can reach out to the girls and share own experiences of being teenagers, we also need the expertise of health professionals. This project is [only] for Grade 10 learners due to lack of capacity, but it could also involve other grades if we can get youth from established organisations [to join] (T5).

It apparent that the school was able to initiate intervention programmes to deal with issues of health. This school is also quite capable of identifying the needs of its learners, determine the appropriate intervention for the situation at hand and decide how the intervention should be implemented. However, the issue of lack of expertise seems to be the stumbling block to the growth and development of the programme. This is a complex system intervention that requires a network of stakeholders from other sectors to strengthen and sustain the programme. For this type of networking, an important step to be taken includes identifying relevant collaborators for the system. Rosas (2017) maintains that networks allow for highly differentiated but easily accessible pockets of specialized knowledge that enhance the speed and quality of learning across the system.

Furthermore, a needs assessment should be conducted first, to establish what the school requires to strengthen its initiatives. The needs assessment determines what skills, knowledge and resources are needed. Human and material resources have implications for sustaining SHP activities and programmes and the school has already identified peer education on reproductive

health and sex education as high priorities. Participants had this to say with regards to the spike in teenage pregnancies from 2020 to 2022 in their school.

The number of learners who were pregnant in 2020 and 2021 was very high; these learners had to continue with school and be accommodated by teachers (SMT1); in just Grade 11 we had eight pregnant girls in 2021; we had to come up with an intervention strategy that does not discriminate against girl learners. The girls' talk programme is open to any girl in the grade (T6).

Learners get such information from Life Orientation, which is a compulsory subject from Grade 1 to 12, but due to high pregnancy rates at school, there is a need for additional interventions. Peer education is used as one of the main strategies to promote the health of learners and families as part of the 'health promoting schools' concept (South Africa, Department of Health, 2003). Although peer education has been widely used in South African schools as an HIV preventative strategy, the participating school is using the same concept to curb teenage pregnancy. The needs assessment could be conducted during the inception or development phases of the project's life cycle. For instance, as the young teachers interact with girls, they might have an interest in involving a younger nurse and social worker in their circle so that the girls can get perspectives on the same issue from professionals from different fields and backgrounds. Moreover, the young nurses and social workers could act as peer mentors for the teachers as suggested by Visser (2011). The idea of engaging girl learners in activities that promote their health is vital. Such engagements in school or after school could prevent lifestyles that compromise their health (McIsaac et al., 2015). Although clear national objectives regarding schoolgirls' health needs have been described, both objective and perceived needs can vary by locale or by the individuals targeted in the programme. The needs assessment would then be three-fold and be about the needs of the project, the needs of the teachers in the programme and the girls' needs, for the programme to be effective and sustainable.

Theme 2: Traditions that reflect systems thinking.

The school has a tradition of visiting a different high school each year, to learn about its successes and how it manages to provide effective education that produces good results. This tradition started in 2017 and the teachers have visited four schools in four different provinces since then. School management team members spoke about their experiences:

I choose one top school, then we observe their surroundings, how they do things to keep the school surroundings clean, and their strategies for academic performance. We take notes on their best practices. I choose the school based on their performance in the previous year and approach the principal to finalise the arrangements for visit (SMT1); we visit a school every year during the holidays, the principal provides transport (T2).

The participating school makes a concerted effort to reach beyond its own environment to visit other schools, to gain information and observe good practices. In these gatherings, teachers engage in interpretation and evaluation of practice. Their intention goes beyond improving health promotion itself and targets all factors that can bring about change and

improvement to the school. Katz and Earl (2010) argue that once teachers are involved in a “dynamic process of interpretation and evaluation of practice” they promote their own practice and that of the profession. The lessons learnt from these excursions are put into practice in their own school, thereby enriching and strengthening their initiatives and practices. This is an example of how systems thinking facilitates group learning and team empowerment.

In this school a collaborative culture exists. Abrahams (1997) indicates that teacher collaborations in South Africa manifest within school cultures. The culture that is referred to here, is defined by Hinde (2004) as norms, beliefs, traditions and customs that develop in a school over time. It is such cultures and traditions that bring about improvement in a school. This kind of cultural practice can have a positive influence on the functioning of the whole school, including SHP. If the collaborative culture can be managed effectively it can yield two results: their ability to work with other schools, collaborating and developing relationships of interdependence and trust; and a promotion of innovation capabilities and knowledge sharing. The participants emphasised the important role of the principal in ensuring that the culture of collaboration is established. To that end, there are clear outcomes for these collaborations and teachers are aware of them. Moreover, there is also another school that receives mentorship from the participating school. The participants indicated the following:

The principal organises these trips for planning for our school’s projects and for teachers to reflect and focus (SM3); another school approached the principal and requested to be mentored. As we gain more knowledge and understanding from the other school, we are able to share best practices with the school we are mentoring (SMT1); he takes the lead in making sure that collaborations materialise (T4).

It is the principal who takes the lead in organising the trips and encouraging teachers to collaborate with other schools. Thus, the collaborations are successful due to provision of leadership and support. Bantwini (2019) attests that strong leadership is crucial in building cultures which benefit schools. The first initiative is to lead the group to access resources beyond the school. The second initiative is a deliberate effort to reciprocate by sharing with the school being mentored by them, thereby leading beyond own organisation. The principal works directly for the success and well-being of students in other schools as well as his own. Higham et al. (2009) argue that for principals to engage in systems leadership requires them to have a moral concern that extends beyond their own school.

In both activities the leadership practice has a systemic orientation as the focus is on connectivity and interrelationships with other schools. This kind of leadership is referred to as systems leadership. Two forms of systematic leadership that are visible in this research are: interschool leadership and systemically orientated leadership practice. Interschool leadership is about leadership in the system beyond the leader’s own organizational home, while systemically orientated leadership practice is a form of leadership practice or orientation that is informed by systems thinking (Boylan, 2013; Fullan, 2006).

DISCUSSION

The findings of this research revealed that systems thinking is vital for the sustainability and effectiveness of health promotion in schools. Understanding the importance and applying systems thinking in schools has implications for school effectiveness and improvement. A school has to constantly strengthen its capacity as a healthy setting for living, learning and working. Systems thinking seems to be a viable option for capacity building and strengthening programmes. Furthermore, principals play a major role in the promotion of school health when they become systems thinkers. The findings indicate that the participants were aware of the roles of their principal which were embedded in the activities and initiatives of the school to reach out to other systems. Role awareness is important, as it is difficult for principals to implement responsibilities and tasks if they are not aware of their functions. The roles of a systems-thinking school principal are regarded as including systems leadership and establishing a collaborative culture.

The first finding pertains to the fact that SHP can benefit from systems thinking. The data revealed how the school can benefit from systems knowledge. Participants were aware of the networks that would enable them to acquire the skills and information they needed. These networks facilitate their access to information which enables them to deal with the complexities in SHP, as collaboration facilitates group learning. As in a study by Bhengu et al. (2020), the strategic partnerships and networks were seen as tools of information and resources sharing. Furthermore, other systems were perceived as instrumental in building capacity, strengthening and sustaining health programmes within the school. Although this school was able to initiate an intervention to deal with teenage pregnancy within the school, there was acknowledgement that sustaining and expanding it was going to be impossible without capacity. External collaborations have long been acknowledged as one of the strategies of enhancing schools' capacities to implement health promotion. In addition, there is an acceptance that the capacity that exists is not sufficient to make a positive impact, and that new capacity needs to be developed.

The capacity referred to in this research relates to knowledge, skills and resources in the form of personnel. This study highlights the importance of systems knowledge in the case of the school which was studied. Acquiring knowledge was important for the implementation and sustainability of the health programmes, including the girls talk programme. The acquired systems knowledge was a mix of experiences, practice routines, information and insight, providing a mental framework for incorporating information-rich experiences (Rosas, 2017). This study revealed that having policies and guidelines for the promotion of health in schools and being familiar with them is not enough. Tacit knowledge also important. Tacit knowledge may be internalized know-how (Rosas, 2017) of an experienced school health professional, NGO, community member or colleague in another school. Both formal and informal means of acquiring information are vital in SHP. School health promotion depends on knowledge and information to be effective. It can be argued that when schools do not interact with other

systems, access to knowledge will be limited. Rosas (2017) argues that the absence of efficient knowledge exchange, including good communication, clear messaging, and availability of innovative practices, limits systems functioning.

It is believed that systems thinking can create platforms for the professional development of teachers. In this study the participants seemed to be positive about the availability of information in other systems that they could combine and incorporate into their practice to make their own programmes more effective. There seemed to be an open-mindedness regarding other systems and their potential to benefit the school. For teachers to learn with others there must be an attitude of openness of mind to new learning experiences (Dewey, 1916). The school took responsibility for its own learning and identified alternate spaces for their self-directed learning. Literature attests to teachers seeking alternative spaces to improve their professionalism construct themselves. A study by Govender (2015) found that when teachers learn for change through self-directed learning practices, they develop their agency as transformative intellectuals and engage in developing their professionalism and/or professionalism to enrich their work as teachers. In this case, professional development took place occurred at specific places outside the school and at specific times (during holidays), separate from the usual rhythms of school life. Perhaps this is important in making sure that there are no disturbances and conflicting activities that would render learning ineffective. In this study the principal initiated and provided leadership in the collaborations. Kennedy (2014) indicates that the leader is the initiator and organiser of professional development activities.

The second finding indicates the specific role that principals play in SHP when applying systems thinking. Although there are studies that provide evidence that systems thinking is important in educational leadership to sustain school improvement, no studies in South Africa focus on the roles of a principal in systems thinking. This study emphasises the role of a principal in being a systems leader. Systems leadership, in this case, was two-fold as it related to the principal as initiator of collaborations and also in providing leadership in system reform. Without principal leadership, the implementation of external reforms, especially those that challenge traditional school norms and practices, is unlikely to be successful or sustained (Fullan, 2001). The principal identifies the school, plans for the visits on behalf of the school and motivates and supports the staff members. Principals can only do this if they are open to other people's opinions and are willing to learn from them. According to Shaked et al. (2018), openness to a variety of opinions refers to the principal's willingness to listen to diverse people and ideas, which derives from the principal's self-awareness of their own limitations and readiness to learn from others. The provision of leadership in this school resulted in a significantly more substantive engagement with other schools, intended to bring about improvement that ushered in a system transformation. It becomes easier for teachers in the same school to embrace the project as they see the passion and the determination of the principal. There is a deliberate effort to ensure that the collaboration materialises. The school is contacted, a meeting scheduled and a time and date set aside to visit the school. Bantwini (2019) argues that

collaboration cannot be left to chance; it has to be formalised, scheduled and become part of the school's daily activities.

This finding indicates the ability of principals to lead system reform. This kind of leadership was externally prompted by one school that requested to be mentored by the participating school and was also promoted through the activities of a school that endeavoured to collaborate with best schools in order to learn from them. Such leaders widen their sphere of engagement by interacting with other schools in a process called lateral capacity building (Fullan, 2006). Schools benefit from being incubators of other schools that are not as successful. They have an opportunity share the knowledge and expertise that they have gained from the schools they have been visiting. As these schools look up to them, they have to show best practices so that the incubated school can learn and emulate their activities and behaviours. Systems leadership is principally used to describe the practices of extending leadership from within a school to interschool or wider networks (Boylan, 2013). Whether the principal provides systems leadership by reaching out to other systems or incubating other schools as a form of development, the focus of learning is not only on health promotion. As teachers engage on a certain aspect, they can talk about other challenges that their schools are faced with. This is in line with Shaked and Schechter (2019) who argue that from the systems-thinking perspective, improving each component separately will not result in improvement of the whole, because the whole goes beyond the mere sum of its parts.

This study emphasised the importance of establishing a collaborative culture in a school. In this study it was the principal who was responsible for laying the foundations of a collaborative culture, as a culture is based on continuous engagements with other schools. These interactions were planned and thus, deliberate. A study by Mclsaac et al. (2015) revealed that maintaining the positive effects of a health-promoting school would require continuous engagement and collaboration with multiple stakeholders to embed health promotion into the norms of the school community. No study has been found in South Africa regarding the establishment of a collaborative culture that focuses on a systems approach.

CONCLUSION

This study showed that systems thinking benefits SHP. It also revealed that principals as systems thinkers have a role to play in providing systems leadership and establishing collaborative leadership. In this research I argue that one of the strategies that a school can use to constantly strengthen its capacity as a healthy setting for living, learning and working, is through a systems-thinking principal.

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