JHEA/RESA Vol. 13, Nos 1&2, 2015, pp. 193-212

(ISSN 0851–7762)

Creating Sustainable Learning Environments for Professional Curriculum Leadership through Information and Communication Technologies

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Abstract

This paper documents the processes and procedures followed by a team of two researchers and five co-researchers in the creation of sustainable learning environments at a school in the Free State province of South Africa. For this purpose, we used one school to illustrate how diverse school community members deliberately constructed a framework for the integration of ICT in the development of its professional curriculum leadership practices. A conceptual framework driven through critical emancipatory theory is applied as the lens that propels us to create opportunities for self-empowerment. Grounded on this theoretical framing we then used a participatory action research to operationalize it. We generated relevant data through the establishment of a research team, which coalesced around a common vision collectively identified in pursuance of the aim of study. Data generated were analysed using Van Dijk's critical discourse analysis. The findings discussed are (i) performance through reflecting on professional curriculum practices, (ii) their actions, (iii) procedures involved therein, and (iv) strategies. The contribution we made was a tested framework for the integration of ICT in a professional curriculum context. This contribution has implications for the creation of a sustainable learning environment.

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Résumé

Cet article décrit les processus et les procédures suivis par une équipe de deux chercheurs et cinq co-chercheurs dans la création d'environnements d'apprentissage durables dans une école de la province de l'État-Libre d'Afrique du Sud. A cet effet, nous avons utilisé une école pour illustrer la façon dont divers membres de la communauté scolaire ont délibérément construit un cadre pour l'intégration des TIC dans l'élaboration de ses pratiques de leadership des programmes professionnels. Un cadre conceptuel conduit à travers la théorie critique émancipatrice est utilisé comme angle d'analyse qui nous pousse à créer des opportunités pour l'auto-émancipation. Sur la base de ce cadrage théorique, nous avons utilisé une recherche-action participative pour le rendre opérationnel. Nous avons généré des données pertinentes à travers la mise en place d'une équipe de recherche, unie autour d'une vision commune collectivement identifiée pour l'atteinte de l'objectif de l'étude. Les données générées ont été analysées à travers l'utilisation de la technique d'analyse critique du discours de Van Dijk. Les résultats présentés sont : (i) la performance à travers la réflexion sur les pratiques des programmes professionnelles, (ii) leurs actions, (iii) les procédures y afférentes, et (iv) les stratégies. La contribution que nous avons faite était un cadre testé pour l'intégration des TIC dans un contexte de programme professionnel. Elle a des implications sur la création d'un environnement d'apprentissage durable.

Introduction

The trajectory of this study was kindled by an invitation extended to us as members of the local community by the school leadership. We took advantage of our contractual obligation on community engagement and agreed on a common goal. We genuinely accepted the invitation due to our long-standing relationship with the school as scholars from a local higher education institution (HEI). The troubling feature in the school was declining and inconsistent leaner attainment, negotiated amongst a deputy principal and four heads of department as the school leadership responsible for academic performance. Our goal was to intervene through the integration of ICT in a professional curriculum leadership practice. The National Department of Communication acknowledges that technology is a critical element in the development of the economy and the department is thus driving a vision that will provide every South African with easy access to the internet through broadband and wireless network connections (Lesame 2013: 4). In this regard, the late Minister of Communication, Roy Padayachie, developed Vision 2020. He argued that the throughput of learners from primary and high schools to universities is a form of exclusion of the vast majority of people from access to ICT because not every learner has the privilege of entering the science and technology

stream. One of the eight Millennium Development Goals adopted by the South African government includes the use of technology as a priority. This goal has been mandated internationally and involves improving basic education in Africa as well as ensuring participation in the global world by all major stakeholders at various levels of society (Tsephe 2008: 257). All the initiatives listed above demonstrate the need to ask questions about how leadership in the use of ICT can be provided and about who will provide such leadership in schools. These questions propelled us to conduct the study, the background of which is outlined below.

Background

Since the 1950s and 1960s – the era of large mainframe computers – a great deal of research has been conducted on the effects of computers on learner achievement and how teaching and learning can be improved in this regard (Rebore 2011: 17). It is suggested that worldwide, school leaders, particularly principals, need to be equipped to integrate ICT into their administrative duties.

We did extensive reading regarding this topic, which serves as the foundation of the research process. On our reflections, we identified a large number of research studies on ICT and on the general role of the school principal. Examples of the implementation of programmes to initiate ICT in secondary schools reported in the literature include that of the Centre of Informatics at the University of Eduardo Mondlane in Mozambique, the Russian Ministry of Education, and the Embassy of the Netherlands' World Links for Development Programme and the Acacia Program of the Canada-funded International Development Resource Centre. However, these initiatives were threatened by a lack of leadership for ICT implementation (Mbangwana 2008: 2). The World Bank urged African countries to seize the opportunities offered by the information revolution, or be crushed by it (Zoho 2004: 1).

Hayes (2007: 392) argues, in *Lessons from Australian classrooms*, that strong, coherent leadership is of the utmost importance for ICT implementation. Interviews conducted with teachers by Mentz and Mentz (2002: 3) identified a high level of awareness among teachers of the way ICT can enhance the quality of teaching and learning, although the implementation of ICT is hampered by a lack of policy and action plans on the use of ICT, both at school and national levels.

The research plan for the current study draws on numerous research reports on the way schools can go about implementing the use of ICT. The literature clearly points to a need to focus on leadership training and ICT programmes, so that teachers can use ICT daily; however, the government has not yet been able to implement ICT in South Africa successfully (Franssila and Pehkonen 2005: 9).

Mentz and Mentz (2002: 1) created a sound foundation for research on managing challenges facing the integration of technology in schools in developing countries, especially in the South African context. They suggest that school principals play the primary role of shaping the communication-related vision of teaching and learning within their schools.

According to Mulford (2003: 3), recent research indicates that:

- position-based leadership, meaning the leadership role as an input factor, will always have an impact on learner output;
- leadership contributes and influences how learners perceive teachers' contributions to their studies; and
- collective teacher efficacy is a direct variable in the relationship between leadership and teachers.

Furthermore, one of the contextual roles of school principals is that of being scholars, researchers and lifelong learners (Brunton and Associates 2003: A-51).

Most of the research on the implementation of ICT has been done in developed countries and may not be wholly applicable to the South African context. We believe that ICT can be a valuable resource in South African schools, the Department of Basic Education (DBE) and the broader educational field. The rapid expansion of ICT in the world, and its use in all circles of work and daily life, have dramatically changed the way we live, the way we conduct business, the way knowledge is constructed, and the way we socialize and share information (Lim, Chai and Churchill 2011: 69). The question thus arises: if ICT has such a serious impact in the world, what is the situation in the twenty-first century school? It is in response to such questions that this study aims to design a framework that could be used to enhance the curriculum leadership role of principals in the usage of ICT in teaching and learning. Meeting this challenge, especially in township schools, requires an understanding of the curriculum role of the principal.

Professional Curriculum Leadership Role

The Personnel Administrative Measure (PAM) explains the role of the principal as being responsible for providing professional management and leadership in the school as well as guiding, supervising and offering professional advice on the work of all staff members. The principal is also responsible for confirming reports on teaching, assisting teachers (particularly novices) to develop and achieve educational goals, appraising and regularly reviewing professional work with the aim of improving teaching and learning and personally engaging in teaching (Brunton and Associates, 2003: C-2; Hindle 2007: 4).

In some schools in South Africa, particularly in the Free State and also in Mangaung Township where the study was conducted, the curriculum role of the principal in the use of ICT is neglected by some curriculum leaders. Their daily focus is more on administration and management of general matters, such as leave administration and problems such as drug abuse and absenteeism. In the case of some principals, their knowledge of teaching has become outdated because they are not actively involved in teaching every day and some avoid ICT completely (Lunenburg 2010: 1). Lai and Pratt (2004: 470) argue that some principals seem to have inadequate knowledge of the use of ICT in school due to a lack of interest in ICT. In some schools, there are no plans for using ICT. For instance, principals focus the attention on grade 12 pass orientation practices, devoting little time to quality teaching and learning, particularly using ICT (Fink and Resnick 2010: 2).

Although private institutions have given some support to curriculum leaders by providing resources such as learning channels, free licences for Microsoft products, and SchoolNet support programmes, some school timetables are not linked to the programmes on the learning channel and the SchoolNet programme, because some principals do not see the relevance of padding the school timetable with these televised programmes. Many principals lack the necessary support from district officials or are not sure about the type of support they need to be successful in this regard (Bialobrzeska and Cohen 2003: 7).

Increasingly, principals are required to assume leadership responsibilities regarding ICT usage in schools as an area with which they are unfamiliar. Many principals face challenges such as lack of access to ICTs, lack of electricity, lack of pedagogical knowledge on ICTs, inadequate technical skills, lack of software, inadequate knowledge of learning management systems, unfavourable geographical locations and unavailability of broadband as well as low levels of ICT training in their schools. They also face social problems (e.g. theft), poor economic conditions, little support from the school community, poor infrastructure, and low commitment and willpower on behalf of the principal (Korpelainen 2011: 1). These challenges pose threats for the design of the envisaged framework that was the core of the investigation in this study.

The rapid introduction of numerous policies in South African schools post-1994 has resulted in a great number of educational changes taking place in schools (Yee 2006: 288). It is essential for school leaders, as the drivers of change, providers of vision and developers of initiative in the use of ICT, to cope with these changes.

Although Russia and countries such as Nigeria and Botswana have embarked on ICT leadership research, they are also still experiencing challenges. In Russia, for example, the implementation of ICT began in the early 1980s,

but Kiryukhin and Tsvetkova (2010: 31) report the following challenges: a lack of ICT resources especially for classroom use and a lack of specific training for teachers who are expected to teach computer classes. Furthermore, learners do not have strong motivation to choose a career in technology.

The same situation has been observed in Nigeria. Olawale et al. (2013: 74) report fifteen problems militating against the use of ICT in that country. The major problem (among others) is that computer usage, internet access and other ICT tools are limited to urban areas as well as the fact that the people in rural areas are yet to learn how to use computers.

Similarly, in Botswana Totolo (2007: 34) suggests that school principals need to change their leadership styles to be transformational in the information era. Many principals have not been prepared for their new role as technology leaders and therefore struggle to develop both the technical and human resources necessary to achieve ICT outcomes in schools.

The World Summit on the Information Society (WSIS), held in Geneva in 2003, identified the need to capacitate half the people in the world (with the exception of babies and the elderly) to have access to ICT by 2015. However, today few people in the world have access to ICT, leaving the majority, who do not have access to ICT, marginalized. In Canada, the mandate of principals is to prepare all learners, from kindergarten to grade 12, to understand, use and apply technology effectively and in an ethical way – a mandate that has not yet been realized (Flanagan and Jacobsen 2003: 124; Yuen, Law and Wong 2003: 161; Hayes 2007: 392).

A few African countries, such as Botswana, Ghana, Kenya, Namibia, Zambia and South Africa, are forging ahead with trial projects supported by pan-African programmes of the New Partnership for Africa's Development (NEPAD) for ICT initiatives. NEPAD schools, however, are still battling to implement ICTs (Farrell, Isaacs and Trucano 2007: 26; Ryan 2006: 142). In South Africa, for instance, the White Paper on e-Education (RSA 2004: 17) states that

> <ext> every South African learner in General Education and Training (GET) and in Further Education and Training (FET) bands will be Information and Communication Technology (ICT) capable by 2013 (Bialobrzeska and Cohen 2003: 7; Fink and Resnick 2010: 2; Lunenburg 2010: 1). <ends>

Schools have been provided with computers, principals and teachers received ICT training, and the Laptop Initiative was undertaken. The White Paper set the goal that teachers would be ICT compliant by 2010. However, this had not been achieved by 2015.

A model that is widely used by researchers (Van Wyk 2009: 32; Mentz and Mentz 2002: 1) and the South African Institute for Distance Education (SAIDE) is the Technology Acceptance Model (TAM), which suggests that for technology to be used it must first be accepted by users. However, the model does not take into account conditions experienced in the majority of countries, since it is based on affluent countries (Flanagan and Jacobsen 2003: 123). This constraint on the model is also articulated by Harris, Kumar and Balaji (2003: 14) and Donnelley and O'Rourke (2007: 33).

The SAIDE project produced a guide for principals in 2003, *Managing ICTs in South Africa*, in collaboration with representatives from SAIDE, the DBE in the Western Cape, Multichoice, SchoolNet SA and two principals. Guidelines for the training of educators were also published in 2007 (Hindle 2007: 1). The training of principals has been rolled out since 2008 through the Advanced Certificate in Education (ACE) leadership courses presented at several higher education institutions. Although the first cohort of principals has completed training, there remains a lack of ICT leadership in schools. This is our rationale for pursuing a study to find ways to enhance the leadership role of the principal in the use of ICTs from a new theoretical perspective. A clear conceptual framework is the fundamental starting point of this endeavour.

Conceptual Framework

This study is positioned in a conceptual framework that views the improvement of contemporary teaching and learning as dependent on the use of ICT, which can strengthen learning and can be influenced by the professional curriculum leadership role of a principal in a school. This conceptual framework is shaped by the community cultural wealth approach of Yosso, the system models for measuring ICT integration in teaching and learning, and the critical emancipatory research (CER) theory developed from Habermas and the Frankfurt School of critical theory (Lin, Wang and Lin 2012: 97; Luna and Prieto 2009: 217; Mahlomaholo 2009: 13). This framework informs our belief and involves the following:

- Teaching and learning content that focuses on a particular area of the curriculum that learners might normally find difficult can be simplified by using ICT. Some schools do not have laboratories; however, teachers and learners can use videos or CD-ROMs, or can download some of the experiments from websites to illustrate their lessons.
- Second, this study could use ICTs available in the school community that are underutilized. Though it is understandable that ICT alone does not enhance learning, it can help learners to progress in a sustainable and enjoyable way with the same avid concentration and commitment

they exhibit for computer games (Ellis 2013: 104). Cell phones can also be used to teach and learn optimally.

- ICT could trigger changes in activities, curriculum and interpersonal relationships in the learning environment, in which the socio-cultural setting and cognition shape and are shaped by ICT tools.
- Integrating ICT into teaching is not something that can be forced upon teachers. The more freedom teachers are allowed, the more likely they are to try it.
- The contemporary teacher is a global citizen whose agency is critical. Teachers should be permitted to become agents of change.
- A critical-leader approach seems to be more suitable for influencing teachers to create communities in a learning environment, in which both learners and teachers use a range of ICT tools to co-construct knowledge.

Methodology

This study adopted participatory action research (PAR) as a methodology to generate data because it complements critical emancipatory research (CER) as the fundamental lens used in the study. PAR tenets are geared towards empowerment and are emancipatory in nature (Zuber-Skerrit, Wood and Dick 2013: 2; Eruera 2010: 1; Hawkins 2008: 2). The leadership role of the school principal in the use of ICTs was the primary context for the data-generation process of this study. The leadership role was the fundamental focus and helped to move the study away from the dominant discourses about the role of principals. The dominant discourses assume that school management and leadership are controlled, controllable, instructive, predetermined, uniform and predictable. This argument is biased towards the human and social contexts, because leaders are human and operate in a social context (McNamara and McNamara 2011: 33; Mattsson and Kemmis 2007: 196).

PAR is relevant for this study because knowledge is socially constructed and should be co-constructed with participants (Eruera 2010: 3).

Therefore, leadership cannot be detached from followership, which is about the human agent. Thus, an attempt to show respect to human agency remained the core compelling reason for applying PAR in this study. This research focuses on human beings and is constructed with participants as co-researchers, as opposed to research done on people by 'experts'.

We chose PAR due to our view that PAR is driven by the following three distinct elements: a shared ownership of the research project; a community-based analysis of social problems, and an orientation towards community action (Shea et al. 2013: 4; Kemmis 2006: 462; Titterton and Smart 2008: 57; Kemmis

2010: 19). The goal of the study is to confirm that everyday knowledge will always shape the lives of ordinary people (Cameron and Gibson 2005: 317). We also assume that this type of research enables the voices of the usually less valued people in research strata to be heard and respected. For instance, we were invited to be involved in the coordinating team, which was made up of ordinary members of the school community – as long as they were interested and willing, they could participate. Although the research project dealt with the leadership role in the use of ICT for teaching and learning, members of the school community were invited to participate through engagement and involvement. Another reason for us to consider PAR appropriate for this research is the fact that it values local and indigenous knowledge of marginalized groups and uses it as a basis for revolutionary action. We were convinced that PAR has the potential to improve people's lives (Tshelane 2015: 101). PAR is based on authentic commitment because it values the process of genuine collaboration, which is rooted in the cultural capital of the people (Reason 2000: 328). Our action was encouraged by the community's cultural wealth, which is based on the following expression.

> <ext> *Motsoga pele a re, 'moroto e si ga o elele, sedikwa ke ntja pedi ga se thata'. (The early riser says one person's urine does not flow. That which is surrounded by two dogs is easy to catch.)* <ends>

Therefore, PAR is a research approach that takes a stance against oppression and inequalities that are prevalent in everyday life (Mahlomaholo and Netshandama 2012: 12). The application of PAR in our project was encouraged by our national agenda, which is enshrined in the constitution of South Africa. The constitution is based on social justice as an ethical position, committed to democratic involvement and engagement, transparency, equality, openness, and hope, particularly in the leadership arena (Sanginga, Kamugisha and Martin 2010: 696). We opted to use PAR in response to the notion that people take action to eradicate an undesirable situation they experience in their communities.

Data Generation

The focus is on implementing the data generation techniques with an aim of clearing any biases in the research project (De Vos, Strydom and Fouché 2005: 417). The coordinating team engaged the identified stakeholders of the project and gathered information in a collective manner. We used a variety of data generation techniques, namely, community forums, photo voice, workshops and focus groups. We also strived to achieve a balance in gender, age and position or rank and status; this is a basic principle advocated by CER (Mahlomaholo 2009:

228). After recruiting people from the school's constituents, we embarked on a self-empowerment project, which involved a range of training events relating to data gathering, analysis and report writing. In the first meeting with the coordinating team, we engaged in discourses explaining the brief of the coordinating team. The first action that we took, due to the discourses pertaining to the brief, was a team-building exercise conducted by the pastor. During the team-building exercise characterized by a free attitude interview (FAI),we were each given a page, on which we had to write one strength and one weakness about ourselves. After the exercise, each person had to provide a detailed explanation of his or her views regarding the problem statement to the team. We circulated a copy of the research proposal and discussed the document. The clearance certificate from the University of the Free State (UFS) and the permission letter from the Free State provincial DBE were once again circulated. We confirmed amongst ourselves that the project complied with ethical standards, and was genuine, as the UFS and DBE had approved it. There was a unanimous decision to work together to enhance the leadership role of the principal in the use of ICT in the school (Tshelane 2014: 723). One member of the team, the SMDG, who was also busy with PAR studies elsewhere, explained the principles of PAR and what the technique required of us. We agreed on the principles and values that would guide our information generation and that we would remain accountable to them. We decided that focus groups, photo and video documentation would be the central instrument used. We used video recordings, photos and minutes of meetings as the main tools for generation of data (Tshelane 2013: 20). We used Lategan's argument that creative research involves new procedures and inventions, and that it takes a much less structured approach than mainstream research and cannot always be pre-planned (2005: 25). Thus, we adopted the free attitude interview (FAI) technique advocated by Ineke Meulenberg-Buskens (2011) as a means of being creative and an instrument for generation of data. The FAI technique has elements of CER, because it involves asking just one question to initiate a discourse with respondents. The discourse is followed up by a reflective summary; it is thus persuasive to respondents and encourages members to think carefully about their arguments (Tshelane 2013: 418; Mahlomaholo 2009: 228). The term 'Free Attitude Interview' can be traced back to Vrolij and Timmerman (Meulenberg-Buskens 2011: 1). Meulenberg-Buskens argues that FAI is non-directive in nature and opens the space for the respondant to intervene. It is thus possible for the researcher and respondants to assess and negotiate issues of reliability and validity emphasised in positivist and phenomenological paradigms (Meulenberg-Buskens 2011: 2). FAI enabled us to employ reflexivity as a means of controlling the effects of researcher-bias and its influence on the research process.

Discussions and Results

Conditions in the School Prior to the Intervention

The school has approximately 1,900 learners from grade 10 to grade 12, with a teaching staff of fifty-three educators, including eight heads of department – four men and four women. The principalship comprises two deputy principals, one female and one male, and a male principal. There are eight support-staff members, of whom six are women and two are men. The curriculum of the school consists of five streams from grade 10 to grade 12. In 2012, more than eighty grade 10 and 11, and forty grade 12 learners are registered for CAT, with some restrictions on using the internet. This means that a small proportion of learners are exposed to ICT. However, the introduction of 'HeyMath!' in the sciences has created a platform for maths and science teachers to incorporate ICT into their lessons. The school was able to produce a 97 per cent pass rate for the first cohort of CAT learners in 2009 and 100 per cent in 2010, but the rate dropped to 85 per cent in 2011. The enrolment of learners in Matric was forty-three, on average, for the past three years, but it dropped significantly to only thirty learners in 2012. Two subjects in which the average pass rate is below 45 per cent are geography and history. The worst performing subject, physical sciences, has a pass rate of 33 per cent.

After reflecting on these challenges, we were troubled and even owned up to the problems, which led us to intervene. Intervention in this context means a 'purposeful action by human agency to create change' (Greenwood 1993: 34-40). In response to an invitation to participate in the study and to address challenges at the school, we established as a first step a community forum at which the major problem facing the school was discussed. At that meeting the school's results were presented and discussed at length under the leadership of the School Management and Governance Developer (SMGD) (in accordance with the Employment of Educators Act [EEA] 76 of 1998, Section 3.4). The general attitude at this meeting was that the results are unacceptable. Participant statements confirm this. They took turns suggesting solutions to the challenges faced by the school. The people-centred nature of the meeting made constructive changes more sustainable, because participants, as active agents, realized that they had a role in improving their own situation and their community's quality of life, and thus had a stake in sustaining the results of their efforts (Zuber-Skerritt, Wood and Dick 2013: 2). After the presentation of a comprehensive report, the school stakeholders were invited to make inputs. The final resolution was to elect a coordinating team, which was given a brief to report to the school community forum on a quarterly basis.

Identification of a Common Need

The identification of the need to enhance the principal's leadership role in the use of ICT was crystallized when the school invited all stakeholders to a consultative forum, at which the SMGD presented the results of the whole school over a period of three years. The general feeling among the stakeholders was that the results were unsatisfactory. Although some learners joked during the presentation, the mood gradually changed, from excitement to silence and anxiety. The presenter ended the presentation with the following words:

> <ext> *Jaanong Bagaecho re ne re kopa go re lo rethuse go fetola boemo joo le rona re ke re tshwane le dikolo tse dingwe*
> *(Now, family, we were asking for your help to change this situation so that we can also perform like other schools around.)* <ends>

It was clear that performance over three years had fluctuated, but in general, academic performance had been poor. One parent asked somewhat rhetorically:

> <ext> *What can we do to help improve the performance in the school? Yes, we can see that something must be done. We are not teachers remember?* <ends>

The answer was clear – everyone was willing to help but not sure how to go about it. One parent suggested that the forum elect people who could look into the possibility of improving teaching and learning by integrating ICT. This led to the second step, presented below. A coordinating group to represent the research team was formed, comprising the chairperson, secretary and RCL representative, the pastor, principal, a community development worker (CDW) and a teacher. The team size was considered an important structural variable for determining team process and subsequently team performance and productivity (Eurera 2010: 2; Hoegl 2005: 209). The team started its activities with a team-building exercise, during which every team member had to indicate one personal weakness and one personal strength. This activity clearly indicated the diverse qualities among the members, which had the potential to ensure a successful research project but that needed to be communalized into a shared vision.

Shared Vision

Due to the diverse skills, knowledge, autonomy, cohesion, and informal communication skills possessed and exerted by individual members, each with a different purpose, the team agreed to create a common vision that would

enable the realization of functional and innovative progress and performance (Carmen, de la Luz and Salustiano 2006: 180). Consultative processes were followed among team members; arguments and debates lead to the formulation of a collective and shared vision (Kemmis and McTaggart 2005: 560; Kemmis et al. 2010: 112). The vision agreed upon is *letting learners learn using ICTs*. The team vision took learning styles and teaching styles and strategies of teachers into consideration. The purpose of the vision was to deepen learners' understanding and to encourage them to apply high-order thinking skills, and not merely recall (RSA 2004: 20). The intention of creating a team vision was to achieve the objectives of the research process. However, the team realized that there were further questions that needed to be answered in order to achieve the objectives of the project .Therefore they engaged in a PESTLE and SWOT analysis.

PESTLE and SWOT Analysis

The concept PESTLE is a mnemonic, in which P stands for political, E stands for economic, S for social, T for technological, L for legal and E for environmental (Peng and Nunes 2007: 229). It gives an overview of the whole environment, which the team had to check and report on from many angles. The PESTLE factors are deemed to be macro-environmental factors. The usefulness of the analysis lies in the assumption that, in this case, the success of the school regarding the improvement of performance cannot be understood without gathering information relevant to specific physical and social factors outside the school environment. The team decided to use PESTLE analysis as a way of developing an in-depth understanding of the context of professional curriculum practice using ICT in order to achieve the objectives of the study.

SWOT analysis is a design method that addresses the Strengths, Weaknesses, Opportunities and Threats experienced in the school. This was used to conduct strategic planning (Friesner 2011: 2). The intention of the team was to build on and solidify their PESTLE analysis and to embrace all factors that would enable it to achieve success. The coordinating team also wanted to eliminate limitations and barriers that might prevent it from achieving their objectives (Gao and Peng 2011: 796). After the coordinating team completed the SWOT analysis they proceeded to determine their priorities.

Team Priorities

Priority setting is a way of harmonizing contending claims for resources; but the nature of the exercise is unclear. By setting priorities, the team could influence or denote importance, set relative value precedency and allocate special status or lexical ordering (Spicker 2009: 117). The coordinating team set priorities

with the hope that the points collected would encourage all stakeholders to react to the various issues presented.

Strategic Plan

A strategic plan is a framework for strategic thinking, directions and actions that lead to achieving consistent and planned results. The focus was mainly on realizing the vision, mission and values set by the team for the research project. A strategic driving force, strategic objectives and programmes were also drawn up (Vaara, Sorsa and Pälli 2010: 687); financial forecasts and, finally, an executive summary, were compiled. The team was aware that implementing a strategic plan required financial resources, so priority was given to activities that needed minimal financial resources. Thus, planning was restricted to activities that could be covered by resources available in the school. Because the team realized that it would require more than three years to implement all the priorities identified, we agreed to select only major activities per objective that were within the team's capabilities. Thus, the coordination committee decided to prioritize three dimensions, namely, pedagogical, technical, network and collaborative dimensions.

Action Plan

An action plan was necessary to demonstrate the wealth of leadership skills and ability possessed in the school that may yet be untapped. The team brought their skills and shared them as a communal product for the entire school's benefit. The action plan was integrated in the strategic plan and captured the following aspects: the activity to be executed, the person responsible, the resources required, and the evidence to indicate whether the activity had been executed successfully The action plan also showed the duration of the activity.

Monitoring the Intervention Programme

In order for the intervention programme to be sustainable, the coordinating team integrated a monitoring plan. The purpose of designing a framework to enhance the leadership role of the principal in the use of ICT in school was driven by the desire to improve the quality of teaching and learning at the school, with the overall aim of achieving quality education (Mokhele and Jita 2012: 577).

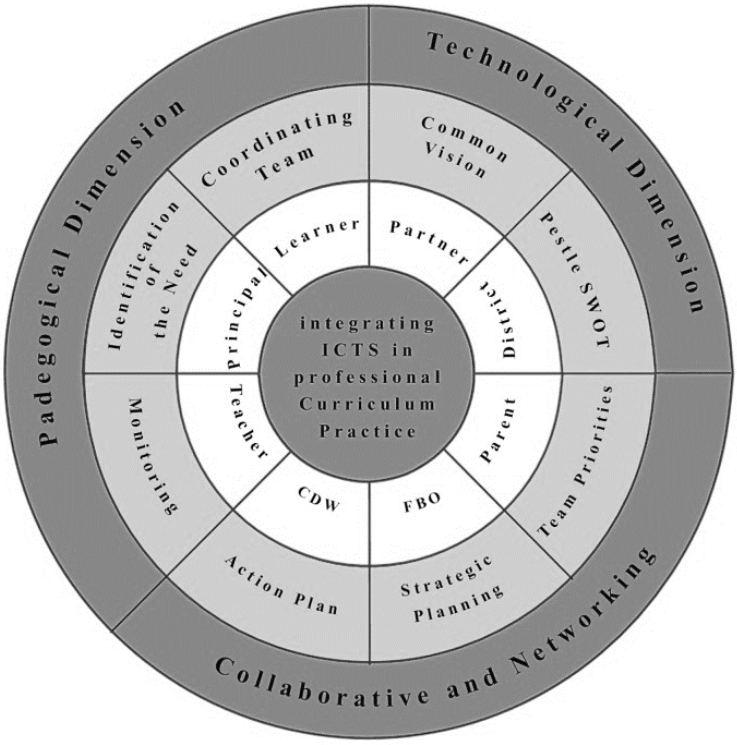
The Framework

The coordinating team designed and implemented the framework to enhance the principal's leadership role in the use of ICT, which confirms the argument that

> <ext> social reality is constructed and social science knowledge is similarly a construct of social inquiry. There is no independent social reality that exists outside of human reflection and inquiry (Babbie and Mouton 2001: 40). <ends>

The first stage of building towards the framework was operationalized through PAR. People were brought into a space to reflect on the performance of the school. After they had gained a deeper understanding of the context, the team resolved to transform the situation while simultaneously working towards self-empowerment and an emancipatory agenda framed and set by the consultative forum. Merely reflecting on the undesirable situation validates the research project; thus the coordinating team owned the problem and felt responsible and accountable for solving it through teamwork and following a thorough cyclical approach to the problem (Zuber-Skerritt 1996: 84). The proposed framework is depicted in Figure 1 below.

Figure 1: The Proposed Framework



Conclusion

This article has documented the processes and procedures of exploring the path followed by the coordinating team through the PAR paradigm, focusing on the principal's leadership role in persuading teachers to use ICTs in their professional curriculum practice within the school. It has deliberated on the basis of these three emerging themes. In order to understand the principal's leadership role in the use of ICT, the article analysed the data from the pedagogical dimension, with special focus on the principal's provision of sustainable leadership. The contributions of the principal's leadership role in influencing teachers to use ICT in professional curriculum practices were dealt with using a special focus on the technical dimension theme. The strategy or framework for technology integration in the school were also presented and discussed under the theme of collaboration and network.

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