Self-directed professional development used as intervention to enhance teachers' curriculum as praxis

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School teachers must be prepared for ongoing, unpredictable and rapid changes in the world, therefore, they need specialised and general knowledge to be able to think independently and imaginatively. The purpose with this article was thus to report on the effectiveness of a self-directed professional development (SDPD) intervention that guided teachers to enhance their curriculum as praxis, especially for 21st-century education. Self-directed learning (SDL) and the capability approach were used to support teachers, through SDPD, to become the teachers they would want to be or could be in the 21st century, in terms of enhancing their curriculum as praxis. Qualitative research was conducted in South-Africa with Grade 9 teachers. Pre- and post-SDPD interviews were conducted, and the SDPD-intervention continued for 3 to 5 months. The results from our research show that the SDPD-intervention effectively supported the participating teachers to enhance their curriculum as praxis.

Keywords: 21st-century education; curriculum as praxis; professional development; self-directed learning

Introduction

The continuous change that we are experiencing is not a new concept, however, constant change also implies that teachers should change and adapt their teaching perspectives and methods, their curriculum praxis, regularly. It is clear from the literature that teachers are not always able to constantly change and adapt their curriculum practices. Thus, self-directed professional development (SDPD) for teachers is becoming pivotal for continuous teacher improvement. In this article we elaborate on the successes of the SDPD to support teachers in their curriculum praxis.

Problem Statement

The constant change that the world is experiencing holds concerns and implications for the way(s) in which teachers should teach (Bernhardt, 2015; Ornstein & Hunkins, 2018). Saks and Leijen (2014) emphasise the remarkable change that the world is experiencing, mainly because of the undetermined burst of information, which requires special skills to adapt and survive. Considering this rapidly changing world, Kay (2010:xvii) explains that "[d]oing well in school no longer guarantees a lifelong job or career as it did for previous generations." He elaborates that only people, including teachers, who can mediate constant change with knowledge and skills, will succeed in life because they can reinvent themselves (Kay, 2010; Organisation for Economic Co-operation and Development [OECD], 2018). In his view, people who are competent in 21st-century skills will be capable of constant learning and of adjusting to change (Kay, 2010). Bernhardt (2015:1) emphasises that the educational demands of the 21st century "require novel and different teaching practices." However, articulating essential skills is only the first step, and it cannot be assumed that teachers will "break out of the 20th century box" without continuous self-development (Kay, 2010:xxv).

Constant change is also evident in the South African curriculum development of the past years. To gain insight into understanding the situation of teachers in South Africa, it is important to understand the process of curriculum development. This understanding becomes particularly relevant when examining the challenges that teachers face when transitioning between various curriculum changes, where a notable lack of support exists. The Department of Basic Education ([DBE], 2011b) elaborates on the experiences and positions of teachers that are caught up in the unstable curriculum changes that South Africa has experienced since 1994. Even though South Africa became a democratic country in 1994, the lack of support still exists as a curriculum challenge (Msomi, Mabusela & Ntshangase, 2023; Ngwenya, Sithole & Okoli, 2021). The lack of support left teachers unsure about what to teach (Carl, 2012; Hoadley & Jansen, 2012). Furthermore, recent concerns include that teachers are not adequately involved in the choice of content for teaching and learning, their needs are not considered, they are viewed as receivers of professional development rather than being actively involved, and their experiences are not appropriately considered (Louws, Meirink, Van Veen & Van Driel, 2017).

Even though much funding and effort went into the in-service training of teachers, the training was focused on making the transition to a new national curriculum and the theory of the curriculum, while other important areas, such as strengthening or updating of subject knowledge and practical ways of implementing the curriculum were excluded (DBE, 2011b; Msomi et al., 2023). What is important is that teachers should take ownership of the change by adapting the culture of the classroom and school (Carl, 2012), by inquiring "what education enables us to do and to be" rather than only viewing education as enhancing economic productivity and employment (Walker, 2006:164).

Curriculum changes caused resistance to change among some teachers. Teachers felt lost and uncertain about what was expected of them, because they did not receive sufficient and adequate support during the curriculum changes (Msomi et al., 2023). In this sense, Aoki (1984) argues that teachers are being oppressed within schooling in the conservative tradition, with top-down approach in subject-centred curriculum designs. Freire (1970) argues that the oppressed (i.e. the teachers) should become critically aware of their oppression through praxis. This praxis refers to reflection and action upon the world, especially to support transformation (Freire, 1970; Makrakis & Kostoulas-Makrakis, 2016). As a result, true reflection should result in action (Freire, 1970) through curriculum implementation and enactment.

Focusing on the difficulties and struggles that teachers have experienced with the changes in the curriculum, especially in South Africa, as well as the growing expectations of living in the 21st century, in the research reported on here, we explored how teachers could be supported in enhancing their own curriculum as praxis while being more self-directed. The purpose of this article was to propose a viable SDPD intervention for enhancing teachers' curriculum as praxis in the 21st century. Thus, the research question was: How can teachers be supported in utilising self-directed learning (SDL) capabilities to enhance their curriculum as praxis? The teachers initially participated in individual semi-structured face-to-face interviews to determine their understanding of the curriculum, their stance on their curriculum as praxis, and their use of SDL capabilities at the time of our research. The SDPD data are reported on in this article. Finally, follow-up individual semi-structured face-to-face interviews were then conducted to determine the possibly enhanced understanding of teachers' curriculum as praxis. Consequently, themes from the body of scholarship, the process of developing the SDPD, findings and the discussion of the presented data follow.

Curriculum as Praxis
Since it is expected that teachers will improve throughout their careers, they cannot passively repeat their curriculum practices every year; they should adapt (Steyn, 2013) and improve (DBE, Republic of South Africa [RSA], 2011a) towards curriculum as praxis. Schwandt (2007) explains that praxis entails a practical activity that informs peoples' lives and affairs as part of a community. The product of the practical activity is realised in doing that activity, which should lead to "practical wisdom" (Schwandt, 2007:242). This is different from the productive activity, where "firm control or objective, impersonal, making or fabrication" is exercised to produce the result (Schwandt,

2007:242). In the curriculum studies body of scholarship, this practical activity is also referred to a contemporary view on education and the productive activity is also known as the traditional view on education (Ornstein & Hunkins, 2018; Saçli Usunöz, 2016). For our research, the understanding of the practical activity, or praxis, was used. Because knowledge is continually changing and developing, we have entered a global community of development, where teachers are responsible for educating their learners for this continually changing community.

To regard the curriculum as a form of praxis, Grundy (1987) explains the following elements:
- action and reflection, where the curriculum itself develops through the dynamic interaction of action and reflection, rather than being a set of plans to implement;
- praxis takes place in real-world contexts, and the curriculum cannot be constructed without implementation in real situations with real learners;
- praxis operates in the world of interaction, socially and culturally, meaning that the curriculum cannot only be about learning things, but should be a social act as well as a dialogical relationship between the teacher and the learners;
- the world of praxis is constructed, and knowledge is a social construction, because groups of learners become active participants while constructing their own knowledge; and
- praxis assumes a process of meaning-making; therefore, critical orientations to knowledge become pivotal.

Breunig (2005) elaborates that praxis is reflective, active, creative, contextual, purposeful and socially constructed. These elements also link with SDL, as is explained next.

Self-directed Learning
A prominent definition of SDL that often features within this body of scholarship, is that of Knowles (1975:18) who describes SDL as the "process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes." More directly, Bolhuis (2003:335) clarifies self-direction as "being in command [of] oneself, moving towards one's own goals." Knowles's definition is the most encompassing; his definition was, therefore, primarily used in our research.

Self-directedness and SDL have become pivotal for 21st-century education (Bolhuis, 2003; Bolhuis & Voeten, 2001; Curran, Gustafson, Simmons, Lannon, Wang, Garmsiri, Fleet & Wetsch, 2019; Saks & Leijen, 2014). As SDL gains prominence, learners should also learn to take more responsibility for their own learning, which should prepare them better for higher education, work and

life (Bolhuis & Voeten, 2001) in the 21st century. For Bolhuis (2003), four reasons could be inferred to argue for self-directed lifelong learning:

- the need to prepare school learners for higher grades where more independent study will be relevant;
- the rapid economic and technological changes cause alternatives in information and knowledge,
- contexts are expanding and becoming part of the global village, and
- teaching for self-directed lifelong learning truly contributes to a democratic society.

The first two reasons seem quite clear and relevant, while in the third and fourth reasons, the reference to the global village and the contributions to the democratic society might be somewhat unclear. Globalisation has caused the world and its people, in a sense, to become closer to one another. Friedman (2005) explains this notion as the world becoming "flat." This notion of change also brought with it an awareness of divergent beliefs, views and even habits of life, which has led to confrontations and dealing with different truths as part of a newly developing global village (Bolhuis, 2003). Therefore, a truly democratic global society is needed, and SDL might contribute to this (Bolhuis, 2003). Darling-Hammond (1996, 2016, 2017a, 2017b) writes extensively about democratic education and social justice. Democracy, as Berger and Luckmann (1967) explain, can only be effective when people have equal possibilities for informing themselves, solving problems, making well-thought-out choices and taking part in the social construction of reality. This reference to Berger and Luckmann (1967) is still relevant today, because democracy and the social construction of reality links with curriculum as praxis (Verster, Mentz & Du Toit-Brits, 2018). Equal opportunities to inform oneself relate directly to individuals' functioning(s) and capabilities and making well-considered choices links entirely with curriculum development, SDL and the capability approach.

The capability approach functions on two levels, namely functionings (realised welfare) and capabilities (potential or feasible welfare) (Kuklys & Robeyns, 2010). Nussbaum (2011) explains the capability approach as considering each person individually, not only regarding the total or average well-being, but also in terms of the opportunities available to each person. Regarding this individual approach, in our study, each individual participating teacher contributed immensely towards this qualitative study. The SDL capabilities of this study were underscored by the personality traits of a self-directed individual (Guglielmino, 2013) and the psychological dimensions of SDL (Long, 2000). These personality traits are for individuals (i.e. teachers) to demonstrate initiative, independence and persistence in learning; accept responsibility for their learning; be capable of self-discipline; have a high degree of curiosity; have a strong desire to learn or change; and have self-confidence (Guglielmino, 2013). The psychological dimensions of SDL are primarily self-regulation, metacognition and motivation; and secondarily control, choice, competence and confidence (Long, 2000).

The prescriptive stance of the *Curriculum and Assessment Policy Statement* (CAPS) seems to corroborate the curriculum theory of Ralph Tyler (1949) which was oriented towards producing similar products (learners) based on similar technical classroom practices, controlled by the teacher (Booyse & Du Plessis, 2014; Hoadley & Jansen, 2012). In contrast, the expectation of developing 21st-century skills of learners and SDL capabilities of teachers, calls for interactive teaching and learning experiences (Bernhardt, 2015). Following these expectations, the South African DBE (2011a) also underscores the value of curriculum as praxis and SDL as an educational goal by stating that the CAPS aims to ensure that learners acquire and apply knowledge and skills in ways that are meaningful to their own lives, by promoting knowledge in local contexts, while being sensitive to global imperatives. The DBE, RSA (2011a) also based the intended curriculum, among others, on the principle of active and critical learning as well as high knowledge and high skills. Active and critical learning discourages rote learning and rather encourages an active and critical approach to learning (DBE, RSA, 2011a). The DBE (2011b) further states that professionalism, teaching skills, subject knowledge and computer literacy of teachers should improve throughout their entire careers, while it should not matter how prescriptive the intended curriculum seems to be. Steyn (2013) confirms that teachers need to be adaptable following the growing social and economic needs of South Africa as a developing country, which again corroborates curriculum as praxis and SDL.

Teachers' Professional Development

Ornstein and Hunkins (2018) argue that open discussions should underscore the implementation process of a new curriculum. Hlebowitsh (2005) refers to this communication as the co-ordination between the design and the practice of the curriculum to be implemented. Ornstein and Hunkins (2018) further argue that implementing a new or adapted curriculum should be tailored to each different school and school context. However, concerns have been raised about teachers' professional development (Louws et al., 2017). Consequently, Louws et al. (2017) continue that when teachers direct their own learning, they are likely to show high ownership, because their needs are included. Therefore, although much earlier, Bouchard (1996) defines SDPD, where teachers are deliberately placed central in the process of professional development in a way that their needs

can be incorporated and addressed. Therefore, SDPD for teachers as self-directed learners, should, as derived from Brockett (2006)

- assist them in making good decisions about their own curriculum as praxis,
- while also recognising that they can still improve, and to
- take responsibility for their choices about their curriculum as praxis.

Teachers need to be assisted in using SDL capabilities so that their curriculum as praxis could be enhanced. In order to use SDL capabilities effectively, teachers need to be assisted to make good choices by

- figuring out goal(s);
- evaluating the importance of each goal;
- considering the options;
- evaluating if these options will reach the goal(s);
- choosing the best option; and
- utilising the consequences to modify the goal(s), the importance that was assigned to the goal(s), and to evaluate future options (Schwartz, 2016).

Successful curriculum implementation in the 21st century relies on teachers' professional authority and autonomy regarding their own curriculum as praxis, through meaningful curriculum implementation as situational praxis and through successfully using available SDL capabilities so that an SDL environment could be established that provides learners the autonomy to be inquisitive and to discover the world in which they live.

Research Design and Methodology

The research design was underpinned by a realist evaluative philosophical orientation and basic qualitative research as a methodology. The way(s) of sampling, together with the methods of data generation and of data analysis are elaborated on below.

Philosophical Orientation

The philosophical orientation for our research was that of realist evaluation (Pawson, 2013). Pawson (2013:15) explains that realist evaluation aims to inquire "what works for whom in what circumstances" or more broadly "what is it about a programme that works for whom, in what circumstances, in what respects, over which duration and why." The programme and intervention in our research was SDPD. The influences thereof for each individual participating teacher resulted in the development of a list of SDL capabilities that could support teachers' curriculum as praxis. Ogrinc and Batalden (2009) explain that realist evaluation is an emerging model that shows promise for the evaluation of educational interventions, or the "programme" to which Pawson refers.

Methodology

In this research we followed a basic qualitative research methodology (Merriam & Tisdell, 2016) because real-world settings were studied to discover how people cope with and thrive in these settings, and to become more aware of the contextual richness of people's lives in everyday working contexts (Yin, 2011).

Sampling

The population for our research was teachers in the North West province of South Africa of which the sample was 36 teachers teaching Grade 9 learners. The sampling strategy was stratified sampling, because the four departmental school districts of the North West province were all included. Three schools per district were then randomly selected after which the sourcing of the sample occurred through an informal introduction at each selected school. Teachers were then allowed to decide whether they would want to volunteer to participate in this research. Because the schools where Grade 9 learners were being taught had been randomly selected, schools from different contexts were included. The participating schools ended up being rural and semi-rural schools, but this selection was not imperative for the research focus, although the different contexts influenced the teachers' capabilities. The seven teachers who completed the SDPD were Teachers 4, 5, 8, 9, 10, 12 and 14.

Methods of Data Generation

Three phases of data generation occurred in this research. The first phase was the pre-SDPD individual face-to-face semi-structured interviews, which focused on determining the participating teachers' positions regarding their curriculum as praxis and their SDL capabilities. The second phase was the SDPD intervention, which aimed to enhance the participating teachers' SDL capabilities through structured reflective prompts and their curriculum as praxis. The final, third phase, was the post-SDPD individual face-to-face semi-structured interviews. During these interviews, teachers were asked about the SDPD to determine their position regarding their SDL capabilities and curriculum as praxis once again.

Method of Data Analysis

In accordance with the confirmability verifications of our research, a paper trail of six classes of data was developed and preserved. Each teacher's interview and SDPD data were kept together but separated according to each method of data generation. Discourse analysis was applied to analyse the meaning of the spoken and the written word (Hyland & Paltridge, 2011; Nieuwenhuis,

2009; Paltridge, 2006). In our research, the spoken word comprised the transcriptions of the pre- and post-SDPD interviews and the written word consisted of the SDPD data. Discourse analysis may include additional critical and theoretical considerations for analysing institutionalised ways of thinking, which also define people's social lives (Hyland & Paltridge, 2011). Discourse analysis is further concerned with the effect of language during engagements between the world and people (Hyland & Paltridge, 2011). These language engagements shape social, political and cultural formations within a society (Hyland & Paltridge, 2011). The discourse analysis was positioned towards language formations that emanated from the data regarding the teachers' experiences of the SDPD concerning the enhancement of their curriculum as praxis.

All the data were coded through the use of ATLAS.ti, which is a computerised program that is applied for qualitative data analyses. Initially, a priori coding was used, but open coding was also used in order to not limit the codes that emanated from the data (Saldaña, 2016). These codes were then categorised to highlight the themes.

Trustworthiness of Data
The principles of credibility, transferability, dependability and confirmability (Babbie & Mouton, 2008; Merriam, 2009) ensure better trustworthiness of research data. These principles were adhered to for our research. Credibility and dependability were ensured through triangulation, member checks, alternative explanations, the researcher's position and peer examination (Babbie & Mouton, 2008; Merriam, 2009). An audit trail (Merriam, 2009) strengthened dependability as well. Rich and elaborative descriptions assured transferability (Babbie & Mouton, 2008; Merriam, 2009). The confirmability was verified through conducting a confirmability audit trail for evaluating the conclusions, interpretations and recommendations (Babbie & Mouton, 2008) of the research.

Development of the Self-directed Professional Development as Intervention
The SDPD intervention was designed around structured reflections (cf. Appendix A). Structured reflections entail regular and systematic reflection (Reymen, 2001, 2003). Structured reflections have been applied in many different contexts, including using it as a principle of design reflection (Reymen, 2001, 2003) or compiling structured reflections of teachers through images in order to empower them (Ryan, 2005), and conducting structured reflections through journal writing (Shumack, 2010). Structured reflections have also been applied in higher education to prepare and transform students through learning (Cazzell, Theriot, Blakey &

Sattler, 2014; Hayden & Chiu, 2015; Jackson, 2017; Johnston, Conneely, Murchan & Tangney, 2015; Knutson Miller & Gonzales, 2016). Furthermore, Goodnough and Murphy (2017) used five prompts to which teachers had to respond regularly. The reason for referring to these studies is to show how widely structured reflections can be used and that it can be adapted to support the specific requirements of a research study; hence, also the reason for finding it suitable for the SDPD intervention.

For our research, structured reflections seemed to be viable because such reflection can be adapted to suit individual teachers. The SDPD intervention of our research was conducted for 3 to 5 months with all the participating teachers and in four phases, abbreviated as SDPD 1, SDPD 2, SDPD 3 and SDPD 4. Although specific reflective prompts were regularly shared with the teachers, the teachers' contexts and infrastructure differed, leading to different ways in which they were able to respond to these structured reflective prompts. Even though the teachers were asked to respond every 2 weeks, not all the teachers complied with this request. The structured reflections triggered individualised answers, and as explained from the perspective of realist evaluation, where the central question asked, "[w]hat works for whom in what circumstances?" (Pawson, 2013:15).

The structured reflections were shared electronically with each individual teacher. All the teachers preferred electronic mail (email) communication. Egan (2008) found that email communication can be economical and time-efficient because it can reduce travelling time as well as transcription time, because the electronic communication will be captured automatically. Another reason for conducting the structured reflections electronically was that the participating teachers were from schools in a large geographic area which did not allow regular physical visits. However, the first author provided continuous electronic support to assist the teachers with their questions regarding the SDPD.

Teachers repeatedly need to reflect on the process of planning, preparing for and implementing the curriculum, by working through and answering different questions (cf. Appendix A). They also need to include and prepare for authentic facilitation, though real-world examples and experiences. Furthermore, they had to elaborate on their challenges regarding working through this curriculum process. Referring to Appendix A, the structured reflective prompts were developed for the specific SDPD, by drawing from the SDL process, the SDL capabilities and the concerns raised about professional development. SDL and professional development were then combined to design an SDPD, which also

considered making good choices in the 21st century.

During the SDPD, parameters were provided to the participating teachers in relation to the elements of curriculum as praxis (cf. Appendix A).

Results

In this section we focus on elaborating on the SDPD data. Appendix A includes the condensed responses from the participating teachers. As indicated in Appendix A, all the Teachers (4, 5, 8, 9, 10, 12, 14) set specific goals to reach, but only Teachers 4, 8, 9 and 14 completed SDPD 3 and SDPD 4. Teachers 4 and 12 experienced personal challenges during the research period and, although both completed the empirical research, their challenges hindered their SDPD because they could not spend as much time on the SDPD as they would have preferred to. Teachers 5, 10 and 12 did not complete SDPD 3, although they did participate in the post-SDPD interview. Teacher 10 developed an elaborative plan during SDPD 1 and SDPD 2, but she never continued to implement it during SDPD 3 due to time constraints and because of her own planning. The two prominent codes that emanated from the SDPD data refer to teachers' experiences regarding the SDPD and their critical evaluation of their own pedagogical orientations. These themes are presented using with participants' verbatim quotations.

Theme 1: Teachers' Experiences with SDPD
During SDPD 4 and the post-SDPD interviews, it was confirmed that all the Teachers (4, 5, 8, 9, 10, 12, 14) were positive about SDPD. Teacher 4 stated that "*it did put me to thinking quite a bit, I did try to think what I can do better*". Teacher 5 shared the following:

> [I]*t was an eye opener ... talking to you and coming up with the ideas and your questions, which will make a person think about other things, that if I hadn't talked to you about that I wouldn't have known about it. I would have just continued the way I was continuing and not think about other ideas.*

Teacher 8 elaborated:

> *It made a difference. It made me go and do introspections. It got me to be more engaged. It made me not to always come to the class and to always do a presentation. It made me to be aware that the learners also have to take centre stage and that it is what our curriculum aims at doing. Learning is not only depending on the teacher.*

Teacher 9 explained:

> *This process that we were put through was very meaningful to reflect and to formulate certain goals. ... It can really add value. ... The process highlighted that proper planning could improve teaching and to set proper goals should make a difference in the quality of teaching. The curriculum, as provided by the department should only be used as a guideline; further planning is the teacher's own responsibility.*

Teacher 10 also appeared to be positive about SDPD, although she fully completed SDPD 1 and 2, she never continued to implement her plan. Interestingly, however, she blamed herself more than external influences. Teacher 10 explained:

> [T]*ime had an influence, yes, but also my lack of planning ... I was focused on the planning that I already had for this term* [...] *I didn't apply it* [the SDPD] *now, but the planning* [SDPD] *I did would definitely help, because you do not always know what is going on with the learners and I think that is why we lose their interest many times ... it would be more important to listen to the learners.*

Teacher 14 stated: "*It made me think outside the box. Rather than just focusing on delivering the content to the learners, I focused more on how to actually make it effective.*"

Theme 2: SDPD Assisted Teachers to Evaluate their Curriculum as Praxis
Referring to Appendix B, the teachers' critical evaluation of their pedagogical orientations applies here. Teacher 4 implemented her plan to address her goal of grasping and holding the learners' attention during teaching and learning. Initially, in the pre-SDPD interview, she did not reveal any of the personality traits of a self-directed learner. Through the SDPD, though, Teacher 4 seemed to gain awareness of SDL capabilities and learner-centred curriculum as praxis.

Even though Teacher 5 initially, during the pre-SDPD interview, came across as quite contemporary regarding her curriculum as praxis, she still chose to follow up on her goal of creating resources for the learners. She did not quite get to implementing these resources before the time of the post-SDPD interview, but in the post-SDPD interview, we had a lengthy discussion regarding specific teaching and learning strategies that might engage the learners better in her teaching and learning (Teacher 5's second goal). Therefore, Teacher 5 seemed interested in learning and trying out different approaches for her curriculum as praxis, which indicated that she was willing to take initiative for her own learning.

Teacher 8 already seemed to be contemporary in her curriculum as praxis during the pre-SDPD interview, but she still confirmed that the SDPD contributed towards her curriculum as praxis. Her curriculum as praxis seemed to enhance as well.

Teacher 9 initially came across as being traditional in her own curriculum as praxis, and this position did not seem to improve through SDPD. Nevertheless, Teacher 9 revealed immense growth in relation to awareness of the worth of SDPD and possible improvement of her own curriculum as praxis.

Even though Teacher 10 did not fully complete SDPD, she did seem to realise the necessity for learner-centred teaching and learning. She also seemed to realise the importance of

curriculum as praxis, rather than only curriculum as product or process, as will is elaborated on in the discussion of the findings of this study.

Teacher 12 did not complete SDPD 3, but she set goals. According to these goals, she responded as follows: "*I really think it is possible, especially in the Grade 9 context. ...it will be achievable ... Even though I didn't apply everything that I heard from you, it just focuses your mind again.*" Teacher 12 experienced personal challenges throughout the SDPD, but she still seemed to gain confidence regarding her own curriculum as praxis, which is elaborated on later in this article. It was evident that Teacher 12 gained from SDPD in order to be more aware of her own curriculum as praxis, than what she used to be.

Teacher 14 showed enormous growth, even though she already seemed contemporary during the pre-SDPD interview, because she acknowledged that the focus of her teaching and learning had shifted to be more useful to the learners.

Discussion

To support the consolidation of all the data, Appendix B was included to summarise each individual teacher's position of their curriculum as praxis from the pre-SDPD to the post-SDPD interviews. Appendix B also demonstrates each teacher's position regarding their SDL capabilities and how these related to their curriculum as praxis.

As summarised in Appendix B, Teachers 8 and 14 who presented with most of the SDL capabilities during the post-SDPD interviews, also used most of the elements of curriculum as praxis, while realising the control they could have and the choices that were available to them at the time to improve their own curriculum as praxis. These two teachers did not seem limited, restricted or passive to utilise SDL capabilities during the pre-SDPD interviews. They also appeared to exercise many of the elements of curriculum as praxis during the pre-SDPD interviews and, therefore, they seemed to have a contemporary stance regarding curriculum in the pre-SDPD interviews. Even though it was clear from the pre-SDPD interviews that Teachers 8 and 14 were more learner-centred than the other teachers, the SDPD still seemed to improve their curriculum as praxis. Neither of these teachers (8, 14) initially seemed to have choices about their own teaching and learning, whereas, during the post-SDPD interviews, both of them seemed to have choices to adapt the prescribed curriculum and their curriculum as praxis to focus on learner-centredness. Teacher 8 initially seemed to only realise how limited her own control over her curriculum as praxis was, while at the post-SDPD, she seemed to have gained own control of her curriculum as praxis. Although Teacher 14 initially seemed to have control over her curriculum as praxis, this control seemed to strengthen because of the choices that became more relevant to her than before.

Teachers 5 and 9, who seemed to present only a few of the SDL capabilities during the post-SDPD interviews also seemed to be limited in their curriculum as praxis, while still being controlled by the DBE expectations regarding their own curriculum as praxis. During the pre-SDPD interviews, Teacher 9 already presented a lack of SDL capabilities, and she also appeared hesitant to take control of her curriculum as praxis. Teacher 5, on the other hand, in the pre-SDPD, appeared frustrated by the control exercised by the DBE expectations and thus took some control of her own curriculum as praxis, even though she also only presented a few SDL capabilities. Even if the control from the DBE were negatively experienced by both of these teachers throughout the SDPD, both teachers still experienced the SDPD as positive. During the post-SDPD interviews, both teachers seemed to realise the choices that were available to adapt their own curriculum as praxis. It did seem though, that both teachers might need more time to develop their realisation of these available choices.

Teachers 4, 10 and 12, who presented some of the SDL capabilities during the post-SDPD interviews, also demonstrated many of the elements of curriculum as praxis. During the pre-SDPD interviews, Teacher 4 and 10 presented a lack of SDL capabilities and they seemed hesitant to take control of their curriculum as praxis. Therefore, they both seemed traditional in their curriculum stance. Both Teacher 4 and 10 did, however, experience the SDPD as positive. Fortunately, during the post-SDPD interviews, both Teacher 4 and 10 seemed to have enhanced their SDL capabilities and their elements of curriculum as praxis. Consequently, both Teacher 4 and 10 seemed to realise that choices regarding their own curriculum as praxis existed, even if they still experienced control regarding DBE expectations. During the pre-SDPD interviews, Teacher 12 seemed frustrated by the control exercised by the DBE expectations and, therefore, took control and responsibility of her own curriculum as praxis. She also seemed to realise the available choices for her own curriculum as praxis, even though she presented fewer SDL capabilities than in the pre-SDPD interview. Teacher 12 did, however, experience personal challenges during the SDPD.

Teachers 4, 9 and 10 initially, during the pre-SDPD interviews, seemed to have a traditional stance on curriculum. Nonetheless, during the post-SDPD interviews, Teachers 4 and 10 appeared to use several of the elements of curriculum as praxis, which could indicate that their curriculum stance shifted to be more contemporary. Teachers 5, 8, 12 and 14 were contemporary in their

curriculum stance during the pre-SDPD interviews. Nevertheless, Teachers 8, 12 and 14 seemed to be capable of exercising more control over their own learning than during the pre-SDPD interviews.

From the results and discussion it was clear that SDPD (developed around SDL capabilities) could provide the necessary support for teachers to enhance their curriculum as praxis and their SDL capabilities. The application of SDPD in this research proved to have a positive influence to support teachers to enhance their curriculum as praxis as well as their SDL capabilities. We are of the opinion that it is due to the fact that teachers were supported, as part of the SDPD, to gain realisation about the choices that were available to them and the benefits of such choices.

The process that emanated from this research, in order to enhance teachers' self-directedness and their curriculum as praxis, is demonstrated in Figure 1.
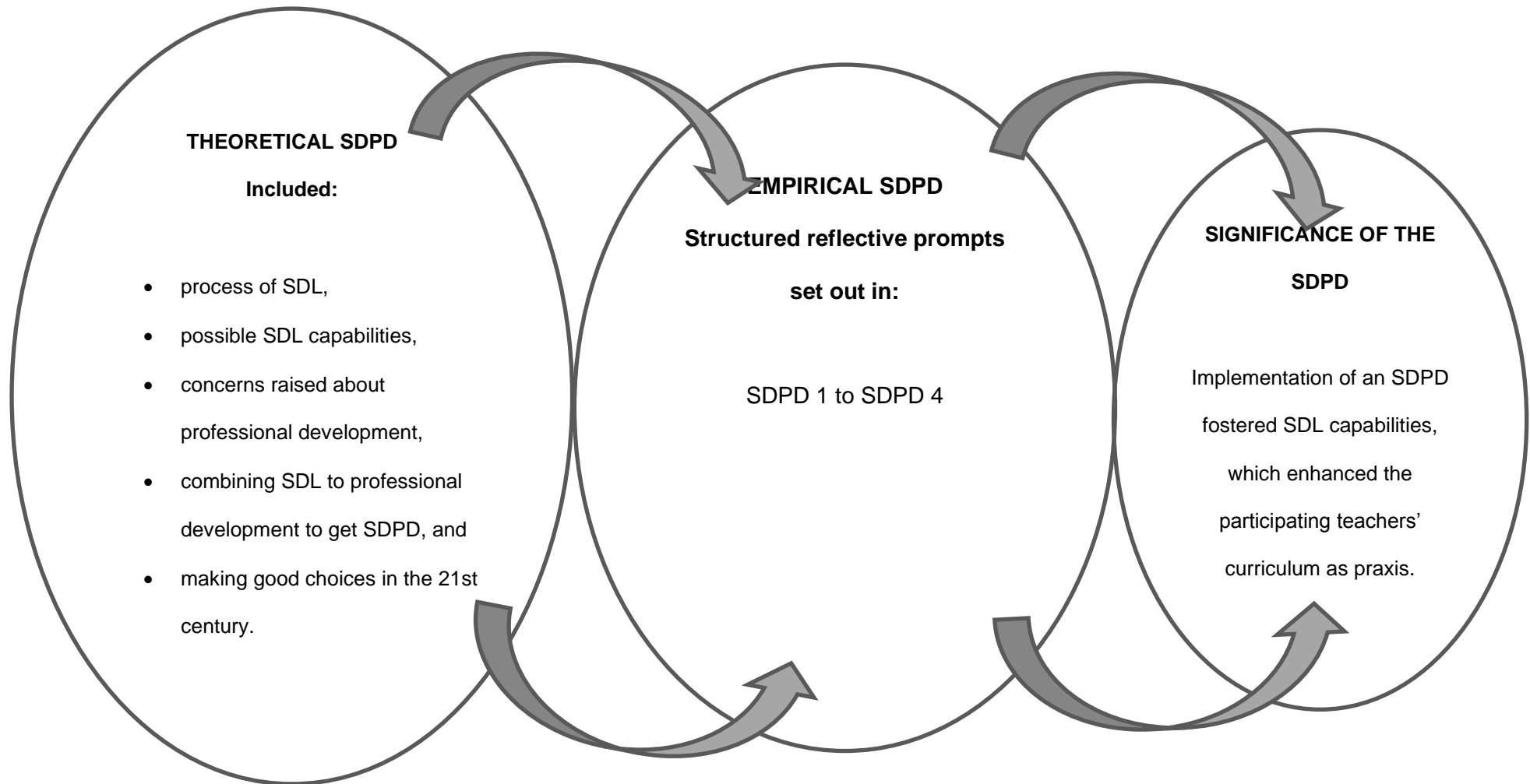
Figure 1 Theoretical and empirical bases of self-directed professional development to enhance teachers' curriculum as praxis

Conclusion

All seven teachers who participated in the SDPD experienced it as positive and worthwhile to enhance their curriculum as praxis. These teachers' feedback ranged from the SDPD assisting them to think broader about their curriculum as praxis to realising and broadening their views regarding their choices to gain professional authority and autonomy in their curriculum as praxis.

The empirical research also confirmed that the SDPD assisted some teachers to take control of their own learning and their own curriculum as praxis, while all of these teachers' SDL capabilities were used more effectively, thus becoming more self-directed in their curriculum as praxis. Therefore, the process and structured reflections of the SDPD intervention were presented because these can effectively influence teachers' understanding and use of their curriculum as praxis. Teachers and even other educational professionals can thus also follow these structured reflective prompts to enhance their own curriculum as praxis.

Authors' Contributions

All authors contributed to this manuscript.

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Appendix A: Condensed Responses from Participating Teachers regarding the Structured Reflective Prompts

Structured reflective prompts of the SDPD	Condensed responses from participating teachers
	SDPD 1:
1) When you are reflecting about your curriculum process of planning, preparing and implementing your lessons, do you include any of the following?	All the teachers responded with "*yes*", except for Teacher 5, who replied with "*no*."
i. Learner-centred teaching–learning activities and strategies;	
ii. Real-life problems to work through during your teaching–learning process;	Eight teachers (3, 5, 8, 9, 11–14) said "*yes*" and Teachers 4 and 10 said "*no*." Teacher 10 explained that she rather tried to allow the learners to use their own imagination than to include her view of real-life problems.
iii. Adaptability to be able to change your planning if the need or opportunity would come up;	All the teachers said "*yes*."
iv. Teaching–learning opportunities for deeper understanding by the teacher and the learners; and/or	All the teachers said "*yes*" here, except for Teacher 5, who said "*no*."
v. Reflection on the curriculum by the teacher and the learners within your context?	Only four teachers (3, 8, 10, 12) said "*yes*", while six teachers (4, 5, 9, 11, 13, 14) said "*no*."
2) Please provide examples of how these five points are included in your curriculum process.	Teacher 10 elaborated, "[w]*hen I plan my lessons, I do it in such a way that I can provide main points regarding the topic and the learners can add detail and examples of their own*."
i. Learner-centred teaching–learning activities and strategies;	Teacher 12 explained, "[w]*e often have open class discussions, especially for practical demonstration lessons. Learners have the theory and now they need to put the theory to the test and either confirm or disprove it*."
ii. Real-life problems to work through during your teaching–learning process;	Teacher 5 stated, "*I give real-life examples connected to the topic*."
	Teacher 8 elucidated, "*most of the scenarios are based on local areas or within the conditions of the community. I manipulate and ensure that data is within the objectives of CAPS*."
iii. Adaptability to be able to change your planning if the need or opportunity would come up;	Teacher 5 continued, "*I change my presentation during lessons to cater for different learners*."
	Teacher 12 explained, "[s]*chool is per definition a place where you should be adaptable*."
	Teacher 14 elaborated
	[d]*uring the lesson and after each lesson, I do a lesson reflection to check if learners understood me or not. This helps me to know whether to change the lesson structure in order for it to be more effective and learner-centred. It is pointless to keep talking to the learners without them getting what you are saying*.
iv. Teaching–learning opportunities for deeper understanding by the teacher and the learners; and/or	Teacher 4 clarified, "*I make use of videos to show the working of, for example, the heart*."
	Teacher 8 continued, "*as a lifelong learner I share practices of researching and deploying the internet as a useful tool*."
v. Reflection on the curriculum by the teacher and the learners within your context?	Teacher 12 stated, "[i]*t occurs in-between*."
	Teacher 14 stated, "*I never do reflection with the learners*."
3) Please provide challenges that you encounter within your curriculum process in relation to these five points.	There were some similarities in the challenges that the teachers shared. These challenges were:
	• Ineffective group work (Teachers 3, 4).
	• Restricted or no time for reflection and learner-centred teaching (Teachers 3, 9).

	• Language barriers that restrict the learners' understanding of the content (Teachers 4, 8). • Limited resources (Teachers 5, 8, 9, 12). • DBE prescriptions (Teachers 9, 10, 12, 14). • Learners' limited motivation and interests (Teachers 3, 5, 10, 14).
SDPD 2:	

1) Regarding the challenges within your curriculum process that you previously identified, formulate goals for yourself that you think you might be able to achieve within the next few weeks.
 	
 Please consider:
    i. whether these goals are equally important;
    ii. which options you have to help you to achieve these goals; and
    iii. which option(s) will help you the most to achieve these goals.
 2) Now formulate your own teaching–learning goal(s), with the option(s) that will mostly assist you in achieving these goal(s).
	The teachers shared some similar views, as well as some different views regarding the goals they set for themselves in SDPD 2. These goals were as follows:
	 • Implement science experiments to keep learners' attention and that most learners should pass the subject she teaches (Teacher 4).
	 • Make resources for the learners and to learn about how to keep learners interested (Teacher 5).
	 • Introduce continuous assessments through using ICT [information communication technology] (Teacher 8).
	 • A class average of above 67%, to implement continuous informal assessments, to have more practically oriented class sessions, and to include trips to practical industries (Teacher 9).
	 • Grasp and include learners' interests (Teacher 10).
	 • Make the content more relevant and necessary for the learners (Teacher 12).
	 • Create resources because of the overloaded subject content and limited time, she wanted to implement effective group work and use effective worksheets (Teacher 14).

SDPD 3:	
1) Regarding the goal(s) and option(s) that you previously identified, which human and/or material resources do you have available to assist you in achieving these goal(s)? 2) How can you now go about learning more in order to address the challenges you identified in the SDPD 1? 3) During the following 2 weeks, I would like you to implement these options in your real context of planning, preparing and implementing the curriculum, in order to try and address your challenges.	Teachers 4, 8 and 9 stated having internet videos and a data projector as available resources. Teachers 5 and 14 referred to having photocopying machines to copy worksheets and other resources. Teacher 8, 12 and 14 mentioned liaising with colleagues as human resources. Teachers 10 and 12 noticed needing the learners as human resources. Teachers 4, 8, 9 and 14 implemented their plans, whereas Teachers 5, 10 and 12 did not implement their plans.
SDPD 4:	

1) Regarding the challenges within your curriculum process that you previously identified, how well were you able to address these challenges, keeping in mind:
    i. the goal(s) and option(s) you formulated for yourself;
    ii. the resources that you identified to approach and use; and
    iii. how you went about learning more about your challenges?
	Teacher 4 stated that some of the challenges were still there, but that worksheets, continuous assessments and experiments regarding the content seemed to focus the learners' attention better than when these are not used.
	
	 Teacher 5 made extra resources, but she only started utilising these resources just before the post-SDPD interview.
	
	 Teacher 8 explained that she was exposing the learners to use their mother tongue language to learn from and to understand the content. She continued that she used applicable examples to refer to rather than the examples of the textbooks with which the learners are not familiar.
	
	 Teacher 9 said it is meaningful to reflect and to formulate goals. She ended up doing more informal assessments than she planned to do, but she also added that it was quite a short time to implement it.

Teacher 10 did not implement her plan.

Teacher 12 also did not implement her plan, but stated that it would definitely help. She continued that it is good to think differently about teaching, because one can get comfortable with just finishing the curriculum.

Teacher 14 concluded

> [s]*o some of the things that we spoke about, assisted me in making sure that I do cover the entire curriculum in time and I do follow up. I'm able to monitor that the learners actually do the work and that they do understand it*.

2)	What did you learn from this self-directed professional development intervention? And will you be able to apply it again?	Most teachers (5, 8, 9, 10, 12, 14) answered that the SDPD taught them to think differently about their own teaching–learning to be more engaged with the learners, to do proper planning and to interact with colleagues.
3)	What are the challenges that you experienced or foresee that could hinder you in applying this self-directed professional development process again in order to improve your curriculum process (curriculum as praxis)?	Most teachers (9, 10, 12, 14) responded that time to complete all the DBE expectations was the biggest challenge. Teacher 8 answered that her fellow colleagues, who "*does not want to be agents of change*", really challenged her.

Appendix B: Teachers' Positions Throughout the Process of the SDPD Intervention

Teacher	Pre-SDPD	Indication of each teacher's extent of growth	Post-SDPD
4	SDL capabilities: no personality traits of SDL; superficial choices. Elements of curriculum as praxis: actions and reflection; real-world contexts; interaction. Under control of the DBE, with limited choices.	Through the SDPD, Teacher 4 showed immense growth in utilising SDL capabilities and from initially being quite traditional regarding her curriculum as praxis to becoming quite contemporary.	SDL capabilities: initiative, independence, persistence in learning; responsibility for own learning; motivation; desire to learn and change; choices. Elements of curriculum as praxis: actions and reflection; real-world contexts; interaction. Realised more choices, under some control.
5	SDL capabilities: desire to learn and change; own control. Elements of curriculum as praxis: action and reflection; real-world contexts; interaction. Frustrated by DBE control, thus took own control.	Since the pre-SDPD interview, Teacher 5 seemed to have control over some elements of her curriculum as praxis, but from the post-SDPD interview, it seemed that Teacher 5 were not able to exercise the same control over these elements of curriculum as praxis. It did seem though that she started to realise the choices available to her to change her curriculum as praxis.	SDL capabilities: desire to learn and change; choices. Elements of curriculum as praxis: action and reflection; real-world contexts; interaction. Under control from DBE, but realised choices.
8	SDL capabilities: desire to learn and change; high curiosity; initiative, independence and persistence in learning; taking responsibility for own learning; motivation; superficial choices. Elements of curriculum as praxis: action and reflection; interaction; real-world contexts; construction of knowledge. Superficial choices with limited own control.	Teacher 8 seemed to be contemporary in her curriculum as praxis throughout the SDPD, but she initially seemed to only exercise superficial choices with only some control in her curriculum as praxis. Her awareness of choices and own control seemed to enhance during the SDPD.	SDL capabilities: desire to learn and change; responsibility for own learning; self-discipline; motivation; self-regulation; high curiosity; choices; control. Elements of curriculum as praxis: action and reflection; interaction; real-world contexts; meaning-making of knowledge. Choices with own control.
9	SDL capabilities: desire to learn and change. Elements of curriculum as praxis: interaction; real-world contexts. Under control of DBE, with superficial choices.	Although Teacher 9 seemed quite traditional regarding her curriculum as praxis throughout the SDPD, she did seem to develop a realisation of choices that are available to her to act and reflect differently.	SDL capabilities: desire to learn and change; choices. Elements of curriculum as praxis: action and reflection; interaction; real-world contexts. Under control of DBE, but realised choices.
10	SDL capabilities: desire to learn and change. Elements of curriculum as praxis: interaction. Under control of DBE, with superficial choices.	Even though Teacher 10 did not fully complete the SDPD, she seemed to enhance in her SDL capabilities, which also enhanced her curriculum as praxis. Through realising the available choices to enhance her curriculum as praxis, Teacher 10 seemed to gain more control over her own curriculum s praxis.	SDL capabilities: self-regulation; self-confidence; confidence; choices. Elements of curriculum as praxis: action and reflection; real-world contexts; interaction. Choices, under some control.
12	SDL capabilities: desire to learn and change; own control. Elements of curriculum as praxis: action and reflection; real-world contexts; interaction; construction of knowledge. Frustrated by DBE control, took own control.	Throughout the SDPD, Teacher 12 seemed contemporary in her curriculum as praxis. She was initially frustrated by the DBE control and later seemed to realise that she has choices to better her own curriculum as praxis.	SDL capabilities: confidence; self-confidence; choices. Elements of curriculum as praxis: action and reflection; real-world contexts; interaction; meaning-making. Choices, under some control.
14	SDL capabilities: desire to learn and change; own control. Elements of curriculum as praxis: interaction; construction of knowledge.	Teacher 14 seemed to enhance her SDL capabilities greatly during the SDPD, which also seemed to improve her curriculum as praxis. Although she seemed to have own control over her curriculum as praxis, she seemed to gain in	SDL capabilities: desire to learn and change; self-confidence; confidence; responsibility for own leaning; self-discipline; motivation; self-regulation; initiative, independence, persistence in learning; metacognition;

Teacher	Pre-SDPD	Indication of each teacher's extent of growth	Post-SDPD
	Own control, with superficial choices.	her realisation of the choices she has to enhance her own curriculum as praxis.	choices; control. Elements of curriculum as praxis: action and reflection; interaction; real-world contexts. Choices with own control.