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Teachers' perceptions of how they develop self-regulated learning

Abstract

The aim of this paper is to present a case study of the perceptions of self-regulated learning (SRL) of 14 secondary township schoolteachers and their teaching behaviour to develop SRL strategies in their learners. A qualitative, exploratory, descriptive research design was used. Semi-structured interviews and lesson observations were conducted with 14 purposively selected secondary school teachers. Specifically, this study explores how participants use teaching strategies to promote various SRL strategies such as goal-setting and planning, time management, peer learning, and self-evaluation. Findings indicate that participants' teaching behaviour differ in terms of opportunities to encourage learners to become conscious of their learning processes as they use SRL strategies in different subjects across Grades 8-12 in the two township schools. Discrepancies have been noted between some lesson observations and teachers' perceptions of how they integrate strategies to develop SRL. The findings underline the importance of developing teachers' knowledge and the use of SRL teaching strategies to foster SRL learning and, hence, academic success.

Keywords: *perceptions, self-regulated learning, township schools*

1. Introduction and Problem Statement

Self-regulated learning (SRL) has become a major worldwide educational goal in efforts to prepare learners for the skills and knowledge they need to function in the 21st century (UNESCO-IBE.2013). Educational researchers, across the globe, has reported on the importance of developing learners' abilities to self-regulate their thoughts, motivations, cognition and behaviours to prepare them to deal with the ever-changing expansion of knowledge, skills, challenges and complex demands they will experience throughout their lives (Zimmerman, 2002, Perry, Phillips, & Dowler, 2004; Moos & Ringdal, 2012). In literature, many empirical studies report on how SRL development enhances academic achievement of learners Zimmerman, 2002; Pintrich, 2002; Moos & Ringdal, 2012).

Since one's self-regulation ability is teachable, researchers also emphasise the need for clear policies on SRL in education, whole school approaches to integrate SRL into a curricula, teacher training and professional development of teachers to create awareness

amongst them of their roles in the development of SRL (Salter, 2012; Rajabi, 2012; Vandavelde, Vandebussche, Van Keer 2012).

SRL research in various countries, for example in, Hong Kong, Canada, United States of America, Australia, Iran and Austria emphasise that teachers should transform traditional teaching pedagogies to better support the development of SRL (Cheng, 2011; Perry, Phillips, & Dowler, 2004; Zimmerman, 2002; Salter (2012), Rajabi, (2012); Klug, Lüftenegger, Bergsmann, Spiel, & Schober *et al.*, 2016). In many countries such as Hongkong and Portugal, the development of SRL is an objective of educational reform (Cheng, 2011; Ferreira & Simão, 2012). However, Klug *et al.* (2016) who explored classroom structures and teachers' awareness of motivation and SRL in 36 schools in Austria, report that the education contexts of many countries are poorly prepared and ineffective when it comes to the development of lifelong learning practices that include the development of SRL. In the same vein, Salter (2012) states that in Australia there is no consistent school-wide approach to the development of SRL, but rather a "piecemeal approach".

Although teachers play a crucial role in promoting SRL (Jayawardena, Van Kraayenoord & Carroll, 2017), there are many factors that hamper their development of SRL skills in learners. Vandavelde *et al.* (2012) state in their study with seventeen Flemish schools in Belgium, that the teachers reported a lack of time, work pressure and diversity among learners as prevalent barriers to the implementation of SRL. Therefore this study focused more on teachers' perceptions of SRL and their teaching behaviour to develop SRL, which in turn, according to literature, affects individual academic success and national pass rates.

Although many learners appear to have many learning skills in place when they arrive in secondary school, they seldom receive instruction in methods of study or SRL skills (Zimmerman, 2002). In the absence of assistance, guidance or exposure, many learners never acquire these SRL skills and learners who are less self-regulated may experience problems with academic success.

De Zoysa, Chandrakumara and Rudkin (2014) and Dzulkifli and Alias (2012) noted that teachers' unawareness of SRL or lack of pedagogical knowledge of SRL might prevent them from developing SRL in learners. In a study, Jayawardena *et al.* (2017) found that few teachers prepare learners to learn on their own, and a lack knowledge of how much and what types of support they should provide to enhance learners' SRL capacities. Askell-Williams, Lawson, and Skrzypiec (2012), for example, reported that there is a dearth of strong knowledge on how learners learn direct ways to foster SRL, as well as how to create a conducive learning environment that nurtures SRL among beginner teachers.

This lack of knowledge stems from several sources, such as teacher education programmes that typically emphasise content-area knowledge and mastery of pedagogical methods, and focus less on principles of learning, development, and motivation. In many cases, teachers support learner-centred teaching and the development of SRL, while others still prefer to practise a transmission teaching approach that results in rote memorisation and learning without understanding (Peeters *et al.*, 2014).

The researcher supports the notion that if schools and teachers subscribe to the development of SRL skills, the academic success of many struggling learners, as well as the national pass rates will improve. Understanding teachers' own perceptions about SRL and

ways they develop SRL or not, will enable one to identify personal and contextual advantages and constraints in the development of SRL.

The development of SRL has been widely researched, but only a few studies involved secondary rural and township schools (Jayawardena et al., 2017). The research reported in this article explored township schoolteachers' perceptions of SRL, its value for academic success, as well as the extent to which their teaching behaviour develops SRL in their learners. Understanding the factors that impact on teachers' dispositions and aptitudes to develop SRL, as well as their actual teaching behaviour, is valuable from a theoretical, as well as a practical perspective across the globe. This study further contributes positively to the understanding of schools that are underperforming as why the pass rate is so low.

The research revolved around the following research questions: (1) What are teachers' perceptions of the concept SRL and its value for academic success? (2) How do teachers develop SRL strategies in learners?

The purpose of this article is to report on the findings of this research. To reach this aim, the remainder of the article is structured as follows: The next section contains the conceptual and theoretical framework in which the subsequent empirical investigation was located; that is followed by a report on the empirical investigation itself and a discussion of the findings.

2. Theoretical and conceptual framework

This research on teachers' perceptions and teaching behaviour to develop SRL was positioned in Zimmerman's (2000) social cognitive model of self-regulated learning.

Zimmerman (2000) defined SRL as self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals. This definition also refers to learners' conscious regulation of their cognitive strategies, metacognition, motivation and environment (Pintrich, 2002).

Zimmerman's (2000) three phase, cyclical model of SRL represents processes and sub processes that self-regulated learners demonstrate to achieve academic goals. The first phase is the forethought phase, which refers to influential motivational beliefs and processes such as planning and goal setting that lead efforts to learn and set the stage for learning. The two closely linked categories of forethought is task analysis and self-motivational beliefs. Task analysis is influenced by a learner's motivational beliefs. For example, analysing a task, planning time and strategies and setting goals to attain objectives are influenced by a learner's motivational beliefs such as his or self-efficacy, intrinsic interest in the task interest, goal orientation and outcome expectations (Zimmerman, 2002).

The second phase, the performance or volitional phase involves processes and sub processes that occur during learning efforts and influence concentration and performance to attain goals. Zimmerman (2000) distinguishes two categories of performance processes: self-control and self-observation. In this phase, self-regulated learners apply different task strategies, focus concentration, use imagery and seek help from others. They constantly observe their progress and use different self-control strategies to complete tasks (Zimmerman, 2002).

The self-reflection phase involves processes that occur after learning efforts and influence learner's reactions to their performances. In this phase, self-regulated learners evaluate their performance and make causal attributions about their performance. These positive or negative attributions generate self-satisfaction or adaptive and defensive behaviours that influence

how the learners approach similar and different tasks in future. Zimmerman's (2000) model is cyclical because learner's positive or negative experiences, in turn, influence forethought and volitional processes in subsequent learning efforts, thus completing the self-regulatory cycle. All the processes that occur in the three phases are teachable (Zimmerman, 2002).

Dignath-van Ewijk and Van der Werf (2012) argue that, therefore, SRL could only be developed in a conducive, constructivist-learning environment with teachers that allow active construction of knowledge and who provide learners with learning strategies to develop SRL.

SRL and social constructivist learning complement each other. Similar to SRL, constructivists view learning as an active process where learners are the responsible agents in the knowledge acquisition process (Loyens & Gijbels, 2008). Proponents of SRL and constructivism both advocate that teachers should model or teach learners explicitly how to plan, to set goals, to reflect and to self-evaluate their progress. SRL is developed in constructivist classrooms, for instance, when teachers recognise learners' effort and individual progress, create awareness of the personal relevance and meaningfulness of the content, and help learners to see mistakes as opportunities for learning. Teachers should furthermore provide opportunities for some choice and control over activities and motivate individual progress. Learners should be taught not to learn socially isolated, but to seek help from others, to take initiative to share ideas, to persevere, and to adapt study methods (Schunk, Pintrich, & Meece, 2014).

Besides creating social constructivist classrooms, teachers should also be skilful models of SRL to facilitate organised and interdependent interaction between them and their learners if teachers do not model, guide, scaffold and allow opportunities for independent practice, learners are less likely to incorporate the SRL strategy into their academic routines (Lee, McInerney, & Liem, 2010).

Literature shows a variety of teaching strategies teachers can use to develop SRL. Examples are direct instruction and modelling, guided and independent practice, social support, feedback, and scaffolding. The creation of an open environment is emphasised where learners are motivated to participate in tasks, assessment, goal setting, planning, use of different learning strategies, and help seeking peers and teachers to enhance their SRL (Kramarski & Michalsky, 2009).

According to Kramarski and Michalsky (2009), teachers' perceptions of teaching and learning lie on a continuum from teacher-centred activity to learner-centred activity. These perceptions are formed from their knowledge and beliefs about how to teach and how to learn. Therefore, teachers' knowledge and beliefs about SRL predict their teaching behaviours to develop SRL or not (Dignath-van Ewijk & Van der Werf, 2012).

The next section contains a report on the empirical investigation that was done.

3. Empirical investigation

This qualitative case study, located within an interpretivist philosophical orientation, was intended to provide food for thought about the uniqueness and challenges of township schoolteachers' perceptions and practices to develop SRL strategies when teaching the national curriculum. With this purpose, it followed Maree's (2014) guidelines for conducting a case study and provided a description of participants' perceptions and actions while teaching. This study furthermore offers an interpretative and evaluative analysis of the findings based on the semi-structured interviews with teachers and classroom observations of SRL strategies,

as the participants were using them. The researcher did not plan to generalise the results of this study to other domains or population, considering its design. However, although this case study is subjective in nature, it is objective in its particular teaching context, namely township schools, and the research area of SRL.

4. Context and participants

In the 2016 National Senior Certificate (NSC), the Eastern Cape Province remained the worst performing of the nine provinces, with a 56.8% pass rate. High failure rates are attributed to the effect of Grade 11 learners who have been progressed to Grade 12 (Mail and Guardian, 5 January 2016), poor teaching, lack of resources and support for rural and township schools which cause major setbacks for self-regulated learning and academic achievement (Hoadley & Jansen 2013). Consequences of failure result in negative academic self-concepts, relatively low levels of drive and an accumulated scholastic backlog in poverty-stricken communities (Mampane, 2014).

The 14 teachers who voluntarily participated in this study were purposively selected. They are qualified staff members of two Quintile two township schools located in the Eastern Cape. They teach different subjects across Grade 8 to Grade 12. Quintile two schools are representative of communities with high poverty and unemployment rates and low levels of education. The academic backgrounds of 11 teachers consist of four-year Bachelor's degrees in Education, two teachers have honours degrees in Education and one participant holds a Master's degree in Education. All the participants have didactic and pedagogical training in education and undergo continuous professional development and training for curriculum implementation when it is offered by the school district in the region. Except for one participant, all the participants teach the subjects in which they have specialised.

The Afrikaans, isiXhosa and English additional language speaking learners from both schools are mostly from socio-economically middle and lower class families. Most Grade 8 and 9 classes are overcrowded, with 40 to 56 learners. Grades, 10, 11 and 12 classes have fewer learners, approximately 30 to 35, depending on the subject. Mathematics and Science classes have approximately 15 to 20 learners.

5. Data collection

Data were collected via observations and semi-structured interviews. A self-regulated learning observation schedule, based on Zimmerman's (2000) model for SRL, was developed to explore the direct or indirect teaching of SRL skills that could develop learners' SRL. Participants were observed in their natural settings, namely teaching lessons of 45 minutes. The researcher decided on an *a priori* process of SRL strategy based on Zimmerman's (2000) model and social constructivist teaching to observe (for example task analysis, planning, goalsetting, learning strategies, cooperative learning, self-evaluation, checking progress, motivation, persistence following failure, and interactions with learners). On the observation schedule participants' teaching behaviour facilitating SRL was recorded as never observable, rarely observable, often observable, or mainly observable.

The presence or absence of pre-coded SRL strategies in the teaching was supplemented by field notes of the teaching and learning environment, social interaction patterns among learners and the participants and learners. SRL was observed as an event (Winne & Perry, 2000), meaning that a participant developing SRL strategies and behaviour was ticked off in the

observation schedule when it occurred. This observation method resulted in a rich database of verbal and non-verbal behaviour in relation to participants' teaching to develop SRL.

Semi-structured interviews seemed relevant to explore participants' perceptions regarding (1) their understanding of SRL and (2) their teaching behaviour that promoted SRL. The interviews took place after school hours to prevent disturbances in participants' teaching duties. The broad questions in the semi-structured interviews were: What do you understand under the concept SRL? Why do you think SRL is important, or not, for academic achievement? Can you explain why you think teachers have a role to play, or not, in the development of SRL? How do you teach to develop SRL?

Reliability was assured by using the data collection methods consistent with the theoretical framework of SRL and the research questions. A systematic approach to data collection was also used. All interviews and observations were conducted in similar procedures. The researcher avoided influencing the behaviour of the participants by conducting the interviews after the lesson observations and by sitting at the back of the classrooms.

6. Procedure

Permission was obtained from the Eastern Cape Department of Education, the school principals and their School Governing Bodies. The Ethics Committee of the North-West University also approved the study, and written consent was obtained from the participants. Privacy, integrity, professional dignity, as well as trustworthiness of the information, the anonymity of the participants, and their rights to withdraw from the investigation without any consequences were all ensured.

The researcher visited the classrooms of all the participants before the data collection began in order to familiarise learners with her presence and to explain to them the reason for her presence in their classes. Possible uncomfortable feelings and anxiety was reduced by reminding participants of the aim of this study and assuring them that the aim was not to inspect, evaluate or judge them as persons, but to observe their teaching behaviour. The researcher employed a participant observer role throughout the observations and did not participate in lessons.

7. Data analysis

The researcher studied the data looking for explicit evidence, relevant responses and qualified data about participants' perceptions of SRL and ways they developed SRL with their teaching. The researcher also compared and contrasted data, moving backwards and forwards between notes of participants' lesson observation and the transcribed interviews.

The next section contains a summary of participants' perceptions of the concept SRL and its value for academic success. Thereafter follow the observations of SRL skills developed in the lessons.

8. Participants' perceptions of SRL and its value for academic achievement

Based on the interviews it can be concluded that participants' knowledge of the concept SRL and their perceptions of their roles to develop SRL influence their teaching behaviour to develop SRL (Dignath-van Ewijk & Van der Werf, 2012).

Ten participants (P1, P2, P4, P5, P6, P7, P8, P9, P11, P14) indicated that they understand the concept well, and knew it by other names, such as strategic learning, independent learning, or lifelong learning. Their perceptions indicate that they see a teacher as a model of SRL and a facilitator and guide to develop SRL. They could identify characteristics of self-regulated learners, and mentioned the equally important roles of teachers in the development of SRL and agreed with the value of SRL to achieve academically. This is the perception of P7:

To me it is a question of learners being the initiators of learning, where you do not spoon-feed them. They take responsibility for their learning and I guide them. It helps when learners can work on their own, see their mistakes, start afresh, seek help and do things without a teacher. These characteristics are needed in our overcrowded classrooms and the teaching situation at our schools today.

However, four other participants' (P3, P10, P12, P13) perceptions mirrored limited, one-dimensional understandings of SRL and contestations about their roles to develop SRL. This was noted in the way in which they emphasised learners' roles in the development of SRL practises. Participant 12 encapsulated the views of three others said:

"Yes self-regulated learning is important, but I do not have time to teach them how to learn. I must teach subject knowledge. They must figure out on their own how, when and where to learn". This is the perception of P10: "It is important, but how should we do it? Currently it is not something we emphasise in our teaching and learning. I have noticed at workshops it is not a term that is used, but it is required in the curriculum. At workshops the focus is on the content in the syllabus. It is never about how our learners learn and how we should help them. For the past fifteen years I have never heard someone talking about how learners learn maths and science".

As indicated by De Zoysa *et al.* (2014); Salter (2012) Vandeveldel *et al.* (2012) and Dzulkifli and Alias (2012), these perceptions that some of the participants hold, could be the result of various influences. These include a lack of time, work pressure, traditional transmission perspective that is still dominant in some schools. Additionally it also includes a lack of exposure to the development of SRL during teacher education sessions and workshops, national curriculum policy statements that do not clearly emphasise the teacher's role in the development of SRL and teachers' resistance to change and to adopt new social constructivist, methodological teaching approaches. The limited understanding of SRL among these four teachers might explain why lower demonstrations of SRL were observed in their lessons.

When asked how they teach to develop SRL, it was notable that many participants struggled to give explanations and examples. Jayawardena *et al.* (2017), who noted teachers' lack of knowledge to develop learners' SRL capacities, support this finding.

All 14 participants mentioned their subject knowledge, being well prepared and fostering motivation in learners as vehicles to develop SRL. Other strategies mentioned, were creation of constructivist learning environments, regular testing, independent homework, self-assessment, and revision of previous question papers. Only five participants mentioned planning, goalsetting, task analysis, different learning strategies, and cooperative learning as strategies to develop SRL. One participant teaching mathematics and science, who notably has a positive perception of SRL and its value for academic achievement, was adamant that he is against group work in his subjects. This is what he, P10, had to say:

Our classes are overcrowded and we have too many ELSEN learners in each class. When it comes to group work it is obvious that only the good learners work together and the weak ones just copy. I believe in independent accountability when it comes to learning.

In conclusion, it seems the majority of participants has knowledge about SRL and holds positive beliefs about their roles in the development of SRL.

9. Class observations of SRL development

Based on the observations, participants' teaching for the development of SRL was classified in two categories: lower and higher demonstration of SRL development. The processes and sub processes in Zimmerman's (2000) SRL model as well as characteristics of teaching in social constructivist classes were used in the observation schedule. The participants, who never or rarely demonstrated the use or development of SRL strategies, were categorised as the group of lower demonstration and those who often and mainly demonstrated the use or development of SRL strategies were categorised as the higher group of demonstration of SRL. The observations from the two groups will be discussed next.

10. Lower demonstration of SRL development

Seven participants teaching Grade 8, 9 and one Grade 12 class, teaching behaviour demonstrated low development of SRL. All the classes except for the Grade 12 class were overcrowded, with approximately 50 learners. The dearth of subject posters, instructional aids and displays of learners' work were noticeable in these classes. The following similarities in the seven participants' teaching behaviour were noted. They all used the transmission approach and relied on textbooks, notwithstanding the fact that three to four learners were sharing textbooks. This finding is supported by the observations of (Peeters *et al.*, 2014). In none of their lessons, the objective of the lesson was explained to learners. In one Economic Management (P7) lesson learners were sitting passively and were not encouraged to participate. The whole lesson was used to revise concepts, such as liability, profit, assets, etc., learners had been taught the previous week. In a Life Orientation lesson (P5) about development of the self and sexuality, Grade 8 learners were told to underline in their books, while the participant was reading definitions from the book. In a Social Science lesson (P6) the participant spoke isiXhosa in between his lesson to help learners understand concepts such as meridian, solstice, equator, etc. The participant later asked learners to draw a diagram to show the tilt of the axis of the earth and the position of the overhead moon on June 21. Although the participant knew the learners were lost, he did not intervene and told them to go through the work at home. In two other classes (P1 and P8) most of the teaching time was used to control homework and to sign books while the rest of the class were doing an activity from the textbook.

It seemed these types of activities were chosen to keep learners busy and to help participants to maintain order and discipline in the overcrowded classrooms. It seemed that some participants believed that when they were talking and as long as learners were writing, they were learning. Participant 1 said after her lesson, *"I am not trained to teach Afrikaans. I am just helping out until they find a teacher hopefully next year."*

Participant 11 gave a history lesson on Nazi Germany and the First World War. When learners could not answer the questions, it became their homework, for example: *"Go find out where Germany is, find out what a colony is and find out what a recession is."* Later in the

lesson the participant tried to relate problems caused by wars to real life in South Africa, such as price hikes in products. Only four learners could relate and responded. They were praised, while the rest of the learners were sitting passively throughout the lesson. The participant did not intervene when learners were uncertain which countries were involved and started the war. Although the participant tried to be enthusiastic and seemed to have good subject knowledge, he did not succeed in keeping the learners' attention. Many questions were asked to activate the learners' prior knowledge, but it was not directed to any specific learner (P10). In the lesson of P8, the learners' prior knowledge was tested and the aim of the lesson was explained to learners. The participant asked many interrogative questions (why, when, what) in an effort to develop learners to reflect and to think critically, but only the same few learners answered. For the rest of the period learners did activities from the black board and homework was given.

In general, very little and, in some cases, no direct or indirect development of SRL skills was observed in the lessons of the seven participants in this group.

The teaching behaviour of four participants (P10, P11, P6 and P7) reflected their limited understandings of SRL and their perceptions of their roles to develop SRL. Their teaching behaviour showed they perceived a teacher's role in SRL to be that of a subject specialist, who transmits knowledge and that learners should become automatically self-regulated or the responsibility for themselves to develop SRL.

In this group, discrepancies were also noted between four other participants' interviews and observation data. These participants (P8, P6, P7 and P5) attested to the value of SRL for academic achievement and perceived their teaching behaviour as one promoting SRL. However, the observations of their lessons proved otherwise. Similarly, to the other three participants in this group, they were still doing "talk-and-chalk" teaching.

11. Higher demonstration of SRL development

In seven participants' teaching behaviour, higher demonstration of SRL skills was often and mainly observed. The tidy physical environment and posters in these classes create an expectation for learning. The participants made efforts to develop goalsetting, planning and task analysis in their teaching. Direct instruction was used to model different learning strategies. They used questioning to check prior knowledge, to intervene when learners did not understand new content or steps, and to teach learners to monitor their understanding. No planned cooperative learning was observed; however, five participants allowed learners to question, to discuss, and to work with peers of their choice, which gives learners some freedom of decision-making and allows them to take responsibility for their learning. The participants also gave homework for independent practice and made learners aware of time management. The fostering of persistence, self-efficacy, and motivation to learn was also observed in their teaching. Next, a brief description of the observations of few participants will be given to illustrate their efforts to develop SRL.

Participant 13 gave a lesson on ratios, exchange rate and proportions, from Module 2 in mathematics for Grade 12. The participant started his lesson with direct teaching, using a calculator displayed on an overhead data projector. He directly modelled how to use alternative strategies to get to the same answers. He revised steps, (for example, how to convert kilometre to metre and ways of making the units the same), gave verbal feedback when learners were confused, and focused on developing cognitive skills to solve the mathematical problems.

The participant developed self-evaluation, reflection, and monitoring of understanding by giving learners two examples to compare on their own. A few learners were then asked to explain their understanding and reasoning of each example to the class. He kept learners motivated by relating the relevance of the content to their everyday lives and triggering their prior knowledge with practical examples. He used examples of relations between business partners and the sharing of profit in the television series, *Muvango*, which most learners watched. Learners' self-efficacy was strengthened when the participant constantly assured them they would be able to do the work if they just listened and practised ("*You can do this. Only use your calculator to test whether your own answer is correct*"). He monitored learners' understanding by asking questions, such as: "*What do you expect the answer to be if I press this button?*" Learners were given activities on worksheets to complete in class and after school. Learners had a choice to work alone or in a group. Hereby the participant taught learners to take responsibility for their own learning by deciding on with whom and where to learn.

Like all other participants who showed higher demonstration of SRL, Participant 6 stated the objectives of his Business Management lessons and what learners are expected to learn right at the beginning of the lesson. Research shows when the learning objectives are clear, learner motivation improves, learners stay on-task, their behaviour improves, they are more inclined to engage in self-regulation, and they are also able to make better decisions about how to go about the task (McTighe & O'Connor, 2005).

Although the participant used direct teaching, learners were not mentally passive. He related Business Management to the real world. He started the lesson on government by asking questions about the opening speech of President Jacob Zuma, which had been broadcasted the previous night on television. It can be concluded that this participant developed SRL by triggering his learners' personal desire to learn, which will motivate them to persist when they are faced with challenges in their learning. In line with research on the development of SRL and constructivist teaching, he let learners know why the subject, Business Management, is relevant to their everyday lives (Schunk *et al.*, 2014).

Questions were rephrased and verbal feedback was used to help learners to process new information. Learners were told how they should take responsibility for their learning, how to manage time to do homework, to form study groups, to read newspapers, and to watch the news on television. The participant used humour to keep learners interested, and asked many higher order questions. Learners were given enough time to think about questions before they answered, which promotes reflection and monitoring of their understanding. He furthermore modelled cognitive learning strategies in the way he organised the content on the writing board and other charts he had prepared. During his lesson, he showed learners how important concepts were highlighted in different colours or underlined. Learners were explained how to take notes and to form acronyms. He gave examples of how different questions could be asked from the same content.

Participant 10, a Grade 10 Physical Science teacher, taught SRL skills directly and indirectly in his lesson on symbols. He gave step-by-step explanations of the formulae and on why and when to combine positive and negative integers. Learners were taught to use self-questioning to improve their understanding. The participant gave examples and answers of homework on the writing board. This offered the opportunity for learners to see and hear the teacher's thinking and to monitor their own understanding. Explanations and examples

of how the same question could be asked differently in examinations were given. Learners were instructed to use some of their break time to compare their answers again and to further assess their understanding. When learners answered wrong or did not understand, the participant referred them to work previously done and to their notes to figure out why they had the answers incorrect. This prompted learners to activate prior knowledge, to revise, and to take responsibility for their own learning. The participant facilitated reflection and self-instruction by asking learners to explain their answers and own thinking to the learner next to him or her (Zimmerman, 2002). From the learners eagerness to participate, their attentive listening and willingness to explain their answers and own reasoning, their motivation and self-efficacy were evident.

When observing Participant 14 in a Grade 12 mathematics lesson, it was remarkable how many strategies for the development of SRL, proposed by Zimmerman (2000) she applied. Participant 14 allowed time for learners to discuss, to reflect upon, and practise strategies. The participant explained and modelled the different steps to calculate compounded interest while learners had to work with her on their own calculators. When learners gave wrong answers, she required them to reflect and to give reasons why their answers were wrong. The participant made learners aware of the importance of focused attention to promote their learning. She constantly asked questions to model how learners should use self-questioning and self-talk to monitor their own understanding and progress. Throughout the lesson learners worked cooperatively in heterogeneous pairs on the writing board, while the rest of the class seated themselves in pairs or smaller groups. They were allowed to change their groups during the lesson if they struggled to understand and no one in the group could assist them. A few struggling learners changed their pairs, when neither of them could not figure out the challenging part in a calculation, and moved to another group. This teaching strategy developed learners to take ownership of their learning and progress. It additionally taught them to make use of human resources to find more information. In the lesson each pair gave explanations and had to answer questions from other pairs, for example, why interest is different when calculated on a monthly basis.

Learners were mentally active and their concentration and motivation to learn were evident. The participant walked around in class, frequently interacting with all the groups. She kept them on their toes because they never knew which group would be asked to explain a sum. Learners were challenged with more difficult work for individual practice at home. The participant reinforced learners with praise and motivated them to persist. The participant also made learners aware of time management when they did their calculations in class, as well as approximately how much time should be spent on specific calculations in the National Grade 12 examinations. This teaching behaviour can be viewed as a democratic and interactive process that encourages learners to be active and autonomous learners.

In a Grade 10 mathematics class, Participant 9 directly taught different strategies to calculate simple interest. Higher order questions were asked and frequent explanations were given. The participant code switched from English to isiXhosa when she noticed learners struggled to understand. She also used individual questioning to monitor learners' understanding. The enthusiastic nature of the teacher and constant praising for interaction motivated learners. New content was related to work already done. Learners were asked to do calculations on the board and explain them to the rest of the class. Learners' self-efficacy and motivation to learn could be observed by the ease with which they answered and explained to others. The learners worked in small groups that they had formed on their own.

In a Grade 9 mathematics lesson, Participant 4 modelled the steps on the board and used different practical examples from their daily lives and explanations to teach learners how to calculate interest. Learners were shown different ways to use their calculators to calculate interest. The participant provided appropriate amounts of scaffolding while learners were practising. Learners were taught to go back if they made mistakes, to cross out wrong answers and to write the correct answers above the crossed-out ones. Verbal feedback was given and it was evident that the participant monitored individual learners' understanding. Questions were directed to individual learners, for example: "*Peter, explain to us why do you divide by two years? Rose, how would you convince someone to rather save and buy furniture cash?*"

12. Conclusion

The aim of this study was to explore teachers' perceptions of the concept "self-regulated learning" and its value for academic success, and to determine how teachers develop SRL strategies in learners.

It is concluded that all participants perceive SRL as valuable and a requirement for academic achievement. Participants varied in their theoretical and practical knowledge of SRL. Half of the participants had a limited understanding of what SRL entails and what their roles in the development of SRL are. Many participants believe that primary schoolteachers, parents or learners themselves should develop SRL.

There was a considerable variation in the occurrence, as well as the quality of participants' teaching behaviour to develop learners' SRL. Discrepancies were noted between some lesson observations and teachers' perceptions of how they develop SRL. Although all participants claimed to develop SRL, only half of the participants demonstrated teacher behaviour that develops SRL. These findings are supported, among others, by De Zoysa *et al.* (2014) and Dzulkipli and Alias (2012).

In line with literature, it can be concluded that the participants who had more knowledge about SRL, who were more positive about SRL, and who understood their roles in the development of SRL, demonstrated more observable teaching behaviour that develops SRL (Dignath-van Ewijk *et al.*, 2012).

This study indicated a serious need for interventions to make practising teachers, as well as student teachers aware of the importance to develop SRL. Workshops to train teachers to the development of SRL should be convened and literature about SRL should be circularised to schools.

The results on teachers' perceptions and teaching behaviour allow the assumption that the perceptions and teaching behaviour of many other secondary township schoolteachers might be even more limited and less promising for the development of SRL. However, the main limitation of the study is that only one lesson from each participant was observed. The teaching SRL skills might have been demonstrated more frequently if more lessons were observed. An interesting point that requires further investigation is the inconsistency between teacher perceptions of their knowledge of SRL and their teaching behaviour.

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