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## “Walking the talk”: The influence of an introduction to cognitive education on school leaders

 Karen Collett

Department of Educational Studies, Faculty of Education, University of the Western Cape, Cape Town, South Africa  
kcollett@uwc.ac.za

 Lena Green

Department of Educational Psychology, Faculty of Education, University of the Western Cape, Cape Town, South Africa

The current emphasis on curriculum leadership implies the need to update school leaders' pedagogical knowledge. This paper will interest local and international readers because it highlights both essential content and the importance of the pedagogy employed to convey it. The study explored the initial effects of an introduction to Cognitive Education on the understandings of curriculum of school leaders engaged in post-graduate study. Using a qualitative research approach informed by a social constructivist paradigm, it accessed 29 participants' perceptions of the course content and methodology. Data included participant observer field-notes, questionnaires, and focus group interviews. Data was thematically analysed and key themes identified using 'content' and 'process' of the short course as initial categories. Findings indicated that new knowledge regarding intellectual (cognitive) development was valued, as were active modelling of cognitive education strategies, engagement with one another as a social community of enquiry, and opportunities for reflection and practice. The process categories reflected several of the characteristics highlighted as important in the professional development and cognitive education literature. Discussion focuses on the importance of the active 'teaching of thinking' within the curriculum and on the urgent need to pay attention to how the curriculum is delivered at all levels of education, including the new Advanced Diploma for School Leadership and related leadership development courses.

**Keywords:** cognitive development; cognitive education; community of enquiry pedagogy; curriculum leadership; experiential learning; leadership development

### Introduction

This research was prompted by the widespread and growing concern about the need to improve levels of learner and teacher performance in South African schools. The national curriculum specifies critical and creative thinking as important curriculum outcomes, but school leadership in this area has not been actively developed. The paper brings together two strands of relatively unrelated scholarship, namely the literature on school leadership development, with a focus on curriculum leadership, and the literature related to the active teaching, or 'mediating', of thinking skills, sometimes referred to as 'cognitive education.' The latter strand offers insights into what is involved in the intentional teaching of creative and critical thinking, while the former provides the justification for engaging school leadership with the cognitive education movement.

Our argument is that, if schools are to become learning communities and learners to become more effective thinkers, curriculum leaders need to understand and engage with recent theories of intellectual (cognitive) development and cognitive education, perceive their implications for classroom and school level practice, and be capacitated with skills and strategies to empower them to apply this knowledge in practice. The study aimed to explore the immediate and longer-term effects of offering a relatively brief experiential introduction to cognitive education to a group of senior educators engaged in post-graduate study. This paper focuses on the initial responses to the pedagogical content and processes of the introductory short-course.

### School Leadership Development

In both national and international literature, leadership is recognised as a key factor in supporting teacher and learner performance (Leithwood, Pattern & Jantzi, 2010; Taylor, Van der Berg & Mabogoane, 2013; Williams, 2014). Leadership development is necessary to build a cadre of professionals with the capacity to support the development of vibrant schools that are centres of excellence in teaching and learning.

Leadership development in South Africa has been promoted through a nationally delivered qualification - The Advanced Certificate in Education: School Leadership (ACE: SL) - introduced in 2007 and referred to by Williams (2014:164) as "one of the most important departmental initiatives to actualise curriculum leadership." The purpose of the ACE (SL) qualification is to "promote quality education in South African schools through the development of a corps of educational leaders who apply critical understandings, values, knowledge, and skills to school leadership in line with the vision of democratic transformation" (Department of Education (DoE), Republic of South Africa, 2008:3).

The focus of leadership development through the ACE: SL is on building professional capacity through developing competence in attaining the key performance standards. The programme has been delivered through engaging participants in experiential learning opportunities such as building self-awareness; engaging in communities of practice; applying learning to practice; action research and mentorship support (Williams, 2014). This programme, as an entrance qualification for leadership development, will be replaced in 2017 by an

Advanced Diploma in Education (Adv. Dip. SL). It seems, therefore, an important moment at which to reflect on both the content and process of the qualification.

This study explored the perceptions of a community of school leaders enrolled for the ACE: SL in 2015. It examined how the active incorporation of ‘cognitive education’ with a strong emphasis on Philosophy for Children (P4C), implemented as part of the module entitled ‘Management of Teaching and Learning’ within the ACE: SL programme, supported curriculum leadership development. It focused specifically on participants’ perceptions of how the course content and methodology might influence their curricular leadership practices and build capacity.

#### Curriculum Leadership

Curriculum leadership is recognised as a key factor in improving on the quality of teaching and learning (De Jong, 1999; Fullan, 2003, 2004; Leithwood et al., 2010, Taylor et al., 2013; Williams, 2014).

Curricular leadership is defined by Tony Bush (2007:401) as the leadership role that focuses on “teaching and learning and on the behaviour of teachers in working with students. Leaders’ influence is targeted at student learning via teachers.” While the terms curricular or instructional leadership are used interchangeably in the literature to refer to this function, both Williams (2014) and Ylimaki (2012) regard curriculum leadership as a broad concept that subsumes instructional leadership, which, they contend, has a narrower focus on teaching and learning at the classroom level. School leadership responsibilities focused on instructional leadership include engagement in the cycle of curriculum development, delivery, monitoring and evaluation and review to improve the type and quality of teaching and learning (Henderson & Gornik, 2007; Mays, 2014; Southworth, 2002). We agree with Williams (2014:157) that curriculum leadership ought to include wider considerations of “social justice and equity” in curricular decisions.

Williams (2014) points out that school leaders are required to play a key role in curriculum leadership, which includes a focus on supporting teachers to plan, teach, monitor and reflect on the extent to which they are developing the ability of all learners as critical and creative thinkers. However, a study by Hoadley, Christie and Ward (2009) involving 200 schools in the Western and Eastern Cape provinces found that most principals did not understand this aspect of their role. Williams (2014) contends that school principals in South Africa currently tend to play a more informal role, by creating the contextual and organisational conditions within which other staff members can exercise formal curricular leadership.

The recently released revised South African Standard for Principals (Department of Basic Education (DBE), Republic of South Africa, 2014) requires all leaders to develop schools as learning organisations. This requirement implies active attention to the thinking processes that enable successful learning at both classroom and organisational levels, together with the promotion of staff engagement in communities of practice both within and beyond the school and a commitment toward “deep learning” (Davidoff, Lazarus & Moolla, 2014). These are desirable practices but, as Christie (2008) argues, a strong commitment by leadership towards an ethics of care and intellectual rigour is required to fuel the process of curricular innovation and change. The Norms and Standards for Educators (DoE, 2000) and the Standards for Principals (DBE, 2014) recognise the importance of intellectual rigour by requiring teachers and school leaders to be competent scholars and researchers with the capacity to reflect critically on their practice in order to improve it. If leaders have not themselves experienced learning within an ethics of care and intellectual rigour they are unlikely to be able to promote it in their schools.

#### Cognitive Education

Cognitive education is the name given to a range of practices that intentionally mediate thinking processes and encourage students of all ages to notice and take charge of their own thinking and learning and develop their intelligence. This movement comprises a number of different ways of actively ‘teaching thinking’ and its theory supports the notion that critical and creative thinking skills can be intentionally taught, as asserted by Barab and Plucker (2002), Halpern (2001), and Paul and Elder (2006).

Intelligence is a difficult concept to pin down, and different researchers approach it in different ways. Meadows (1993:159) wrote that “there has been a tension between different meaning of intelligence both in the specialised work of psychologists and in the way the term is understood by the general public.” Those interested in the structure of intelligence include several theorists writing around 1970 as well as more recent authors such as Carroll (2005) and Sternberg (1985), whose triarchic theory of intelligence is well known. These writers focus on the identification of the components of intelligence by empirical means, frequently with the aid of statistics. This strand in the ‘intelligence’ literature tends to relate to the measurement of intelligence, which was originally conceptualised as a fixed attribute.

Authors interested in the development of intelligence (in recent literature often referred to as ‘cognitive development’) comprise a different theoretical cluster. They draw on the work of Piaget

(1959, 1971) and Vygotsky (1962, 1978) and by the mid-1990s had introduced the notion of 'learnable intelligence' (Perkins, 1995). Feuerstein's theory of structural cognitive modifiability, which emphasises the plasticity of the human brain (Feuerstein, Klein & Tannenbaum, 1991; Green, 2016), underlies the cognitive education movement, to which we introduced the participants in our study.

The theoretical foundation for the belief that better thinking can be taught, or mediated, is the assertion by Feuerstein et al. (1991) and Vygotsky (1962, 1978) that intelligence is not innate, but acquired. Both claim that individuals learn more effective ways of using the innate thinking abilities ('lower mental processes' or 'basic cognitive functions') that all human beings possess. 'Higher mental processes', they maintain, are socially constructed mental 'tools' developed in human communities. Vygotsky emphasised language as a key resource, or psychological tool, for structuring and enhancing thinking. Feuerstein developed this notion and proposed criteria for the effective mediation of thinking. If the 'thinking tools' constructed in language need to be taught, or mediated for each new generation, it follows that curricula in schools ought to include mediating for children how to refine their innate 'lower mental processes' so that they can think, learn and make judgements as effectively as possible.

The notion of learned intelligence does not imply that children's thinking processes should be rigidly shaped according to socio-cultural patterns and values. There is an element of cultural transmission, but both Feuerstein and Vygotsky acknowledge the inevitability and importance of change. Wertsch and Sohmer (1995) point out that, although at times Vygotsky seemed to favour progress towards decontextualised abstract rationality, he also valued contextual and uniquely individual meanings. Cognitive development involves the creative appropriation of what a culture has to offer.

Teachers need to understand their own and their learners' thinking processes and to create the kind of teaching-learning relationships that favour the collaborative construction of 'higher mental processes'. They are unlikely to do so successfully without the understanding and support of school leadership.

#### Philosophy for Children

There are many different ways in which linguistic 'thinking tools' can be mediated, as evidenced by the different cognitive education programmes available and by the fact that some individuals acquire sophisticated thinking tools and habits without the benefit of any programme. This project focused on Philosophy for Children as an example

of cognitive education, but made it clear that there are others.

Philosophy for Children (P4C) (Lipman, 1993, 2009; Lipman, Sharp & Oscanyan, 1980) was not originally conceptualised as a form of 'cognitive education.' Although it includes attention to thinking processes, its overall aim is to create thinking communities in schools in order to transform education in ways that promote democracy. This emphasis seemed particularly appropriate given Williams' (2014) conception of curriculum leadership. Lipman argued that citizens of a democracy need to be able to think for themselves and to make reasoned judgements. He maintained that 'doing philosophy' in the classroom in a democratic and meaningful way, and internalising the thinking 'moves' used by philosophers, was an ideal preparation for citizenship. P4C has in common with other cognitive education programmes the intention to equip participants with linguistic thinking and reasoning tools, although the extent to which this intention is made explicit varies among different practitioners. It is claimed that there are no experts in P4C with regard to the content of an enquiry - the facilitator may be as puzzled as the participants when exploring complex philosophical concepts. The facilitator's expertise lies in the area of process. He or she models social and thinking moves and encourages their use within the enquiring community.

International and local research suggests that the systematic mediation of thinking through regular experiences of philosophical enquiry has various positive effects in schools (Green, 2012; Green & Condy, 2016; Green, Condy & Chigona, 2012; Topping & Trickey, 2007; Trickey & Topping, 2004) and more recent positive research findings are to be found on the website of SAPERE, a UK charity devoted to P4C ([www.sapere.org.uk](http://www.sapere.org.uk)). However, there is also research indicating that thinking skills interventions tend to be unsustainable without the support of school leadership (Burden & Nichols, 2000; Moolla, 2014). Interventions and research in cognitive education (both generally and in applications of Philosophy for Children) have tended to focus directly on learners or on pre- and in-service teachers. This study broke new ground in working with school leaders.

If learners of all ages can benefit from active interventions that help them to think and learn more effectively, and any teaching/learning event is an opportunity for cognitive growth, teachers at all levels need to know how to mediate thinking, and school leaders need to be aware of the importance of doing so and be able to support and encourage their staff. Our study highlighted the effectiveness of modelling cognitive education in the course of mediating its principles and practices.

### Overview of the Intervention

The cognitive education input consisted of two seven hour sessions on Saturdays. Day One accessed and discussed cognitive developmental theory as recalled from participants' training as teachers and introduced the concept of cognitive education, understood as the active and intentional 'mediation' of thinking processes. The idea of learnable intelligence and ways of making it possible were introduced through practical activities. After exploring some teaching implications, participants observed, actively experienced, and discussed two practices designed to encourage thinking and equip learners/individuals with the 'tools' to think well. These were: Philosophy for Children (Lipman, 1993), which was the major focus, and Six Thinking Hats (De Bono, 1985). Participants subsequently completed an assignment that required them to experiment with the above practices and reflect on the implications of their experience for their own contexts. A further twelve hour course to consolidate the practice of Philosophy for Children was offered to 12 volunteer participants from this cohort. Data collection took place prior to this additional input, which is mentioned to illustrate participant interest.

### Research Procedures

The research design was informed by a social constructivist understanding of knowledge. A qualitative research approach was used to access participants' perceptions. The data analysis relied on the procedures of grounded theory, while acknowledging that the meanings constructed by participants were interpreted through our own meaning making lenses (Babbie, 2009).

The research setting was the University of the Western Cape. The participants in the study were students attending a module on Managing Teaching and Learning as part of the ACE School Leadership and Management programme offered at this university. Within the above module, one section focused specifically on leadership for teaching and learning. Within this section two sessions were devoted to the meaning of leadership for teaching and learning from a cognitive education perspective.

Our convenience sample included 29 students registered for this course, divided roughly equally between the sexes and aged between 30 and sixty-five. They worked in a range of primary, high and special schools in the Cape Town Metropole area of the Western Cape as principals, heads of department or phase heads. The majority of participants taught in schools that were historically disadvantaged under the apartheid system and served children from low income communities. Most leaders had not studied since their initial teacher training.

Four sources yielded data for the study. Two were questionnaires consisting of qualitative items. One questionnaire accessed participants' prior knowledge and the other accessed perceptions of the intervention. The third source was focus group interviews, of which two were conducted, one immediately after the sessions and a second two weeks later. The fourth source was the notes of the participant observer.

A pre-training questionnaire was developed which included categories related to the current use of thinking skills in schools and classrooms and prior levels of training. The pre-course questionnaire was piloted with two teachers and one principal. Based on the effectiveness of the responses and questions asked during the pilot administration, changes were made. The revised questionnaires underwent further review and refinement by members of the research team and colleagues. During this phase, a number of changes were made to the phrasing of questions and the number of questions was reduced. The post-training questionnaire and interviews focused on eliciting responses related to the value of the course content, the course process, and anticipated challenges related to the practical implementation of the new learning.

Analysis of questionnaire responses and interview transcripts was undertaken using themes that we identified in the data. The analysis of data included a number of stages. Initial data analysis included the sorting of the data into two broad categories, provisionally named course content and course process. Drawing on Grounded Theory procedures (Glaser & Strauss, 1967), data was then openly coded within these categories. Using constant comparative processes, similar codes were then clustered into themes and sub-themes. Researchers worked separately in the coding of the data and identifying key themes. Categories and themes were then reviewed collectively through a process of cross-checking of codes under categories and refining categories and the names of the themes. Validation of data analysis included the critical reflection and cross-checking of analysis by the two research team members throughout the data analysis process; and critically reflecting on the findings in relation to current literature in the field.

The rights of all individuals and schools participating in this research were respected at all times. Ethics clearance for this research was obtained from the University of the Western Cape's Research Ethics Committee in 2015. Informed and signed consent was obtained from each of the research participants before the research process began. Participants and schools were assured of confidentiality, anonymity and the protection from any possible harm as a result of their participation in this research process (Babbie, 2009).

## Findings

Research findings are reported under the two main categories of course content, and course process. Within the former category themes related to knowledge, skills and attitudes were identified and subthemes created where necessary. Within the latter category, the major themes identified were: role modelling and mediation, active and critical learning with colleagues, learning by doing, and learning by reflection.

### Course Content

#### *Theme 1: New pedagogic knowledge*

Participants said they gained new knowledge about theories of learning and cognitive development, about thinking processes, and about different ways of teaching critical and creative thinking. This included understanding that intelligence was not fixed, and that language played a key role in the mediation of thinking and learning.

The following quotations illustrate the knowledge participants found important:

- ... intelligence is not a fixed thing, but one needs some mediation in order to improve skills ...
- ... thinking is not always about giving answers ...
- ... it changed my way of thinking about thinking skills ...
- ... how to think creatively and critically as well as how to make people around me do likewise ...
- ... It's the language we use to get them to think further ...

#### *Theme 2: New pedagogic skills*

Participants reported gaining practical strategies and skills to encourage thinking and implement enquiry.

- ... People tend to say things without thinking – this helps us to know how to think.
- ... the techniques, the strategies that were shared with you, they were valuable because you could implement it immediately ...
- ... When we were studying to become teachers you hear about Piaget and Vygotsky. You hear about their theories and you learn and you were even tested about these theories but it stopped there ... You were not taught at that time how to implement these theories in school [...] This step that's been done here should have been done when we started ... showed me how you use those theories to develop the thinking skills of the children ... I actually went back and tried to do a little experiment [...] it was amazing [...] I never, ever saw children reacting in this way ...
- ... the techniques. It's that learners who never spoke before suddenly also have something to say ... and they are so much more confident in giving their own opinion ...
- It does not only work for children – I did it with my staff and it worked brilliantly ...

#### *Theme 3: Changes in attitudes*

Participants said they had changed their attitudes to learners, particularly those who struggled to learn. They had also changed their attitudes to teaching.

They realised that spending time on the process of learning was as important as presenting content and they had begun to rethink their role as leaders and managers.

The following quotations illustrate new attitudes to children:

- ... actually took me away from the norm that if a child cannot do something, we tend to [label] the child as, you know, dumb or whatever ...
- [...], we say, like, we know that people say, this child just can't do nothing, can't think. The other child is just so brilliant. But each and every individual child has the ability to think and to give back, because I could see it ...
- ... We should not stigmatise a child because he cannot reach a certain thing. We actually have to guide the child to get to that. That was very important for me as well ...

The following quotations illustrate changes in attitudes to teaching:

- ... We need to give the opportunity to think ...
- ... Especially after this course, I'm thinking, I can see, oh, but we need to just link everything and then have a conversation where we are going to stimulate thinking instead of just teaching content ...
- ... We are just turning children into machines, training, exams and writing ...
- ... We are teaching them what to learn, what to study, but this course made it clear to me that we need to go beyond that. We actually need to equip them to think, you know ...

The following quotations illustrate new thoughts about curriculum leadership

- ... Teaches people to disagree graciously (would be great in our staffroom discussions) ...
- ... we need to relearn what we thought we knew then. Maybe that's one step, is to relearn. So that becomes my responsibility now [as a school leader], to relearn things, to re-teach, to re-inform those around me ...
- ... If we would go back to our schools and the people whom we work with, let's go and look at what we're supposed to be doing. The way that we were brought in through this course too, let's go and look at the theory behind your teaching, and that, sort of [...] that gives you more impetus to do what you're doing ...
- ... Actually, the CAPS [Curriculum and Assessment Policy Statement] document is a beautiful [sic] ... on paper. The ideals are noble. It's high. It's meaningful if we would use that and re-teach it and bring it in as managers ...
- ... If I can do it, you know, through that kind of interaction, I can take it to first of all the people in my phase, you know, and then perhaps to the people, you know, in ... and bring it across to the school. So that is why there is the problem we're sitting with now – our children cannot think – because we know about these theories, we know what it means and all that. But to implement, I think that was basically lacking; and doing this course now, made me refreshed and realise, this is how Piaget fits into the school context, and this is how Vygotsky fits into the school context, and maybe that was lacking for those 20 years of teaching, as such ...

### Course Process

Key themes among responses from participants about how the course process facilitated their acquisition of new pedagogical knowledge and practices were: role-modelling and mediation by the facilitator; active and critical learning with colleagues; learning through doing; and learning through reflection.

#### *Theme 1: Role modelling and mediation by the facilitator*

Modelling by the mediator/facilitator was mentioned by participants as a key factor in their learning about both the theory behind cognitive education and about ways of teaching thinking skills. They valued the mediator's belief in what was being presented, and the way the practical implications of the new knowledge were demonstrated through practical examples and by the actions of the mediator throughout the process of the course.

*... I felt she believed in what she's doing. She showed us by doing it ... She let us think [...] She believed in it, and I think we as educators must believe in what we do and it must be clear to our children, our learners, and I think for me the modelling is the most important thing ...*

*... she got us to do the talking/thinking ...*

*... she taught us that by having a very soft way of doing things you can get a lot out of children. You don't need to have this loud voice, this loud voice and, you know, this forceful way ...*

*... a way of doing things to get something out of us, which we could do to get out of the children, and that was a fantastic way of making us realise as teachers that you can get a lot out of the children by the way you do things*

*... The examples that she used within the course made us realise that you can, you can teach people, children, to think ...*

#### *Theme 2: Active and critical learning with colleagues*

The experience of learning through engagement with peers, sharing practices and building on each other's ideas, was valued. Participants also identified the importance of creating a safe environment for peer learning and engagement through the setting of group norms for learning and enquiry which went beyond the usual classroom norms for good behaviour.

*[The lecturer] was not quick to give us answers. It was as if we had to go through a process to make that discovery ourselves. Very often the conversations or the direction of whatever was going to be discussed came from everybody in the lecture, everybody present, so direction was taken from those present as well ...*

*... I've heard about Piaget and all of that many years ago, and the day when she started we didn't know what she was talking about. And then suddenly somebody says ... the one with the ... what's his name? He's a principal, one of our students. I can't remember his name now. He said,*

*'I remember Piaget', and then the other one says, 'Vygotsky!' And I was still sitting, thinking, I don't know what you're talking about. And then it came back ...*

*... A fantastic way of making us realise as teachers that you can get a lot out of children from the way you do things ...*

#### *Theme 3: Learning through doing*

Participants valued the experiential learning gained by practicing the activities recommended for the classroom and seeing them demonstrated.

*... The practicality is the demonstration, [the] PowerPoint, the way she presented, [...] 'these are the Hats, and you will wear this Hat and you will' [...] So me experiencing that first, so it's not an impossible task ...*

*... I think that for me [what] was valuable, that it's not just talking 'pie in the sky' and 'it's wonderful', and whatever. You had to actually go and experience it ...*

*... The practical application and examples done in class - the experiential learning ...*

*... The practical activities were a very good tool for enhancing comprehension of what teaching thinking entails ...*

#### *Theme 4: Learning through reflection*

Participants valued individual and group analysis through "reflection-on-action" and "reflection-in-action." Learning from self-reflection on their own actions and from reflection on the actions of peers and giving and receiving feedback added multiple layers to the learning process.

The following quotations capture instances of reflection:

*... And then going through that process where you're teaching yourself, you know, and with the assignments, how it was set up, you know, where you went back and also just made the links again because this is what she did in class – oh, yes, I can see that coming through ...*

*... what we just learned here was that the theory for education existed a very long time ago. The research has been done, and we have been practising without linking the two ...*

*... when you study you see this as this hectic amount of material that you're going through and for me it's not real at that time, you know what I mean? And now 20 years later, you know, now it's actually for me more valuable than what it was, you know, that time ...*

### Discussion

We plan to follow up and extend this small qualitative study and intend to add a quantitative dimension. In this study we had a different aim. It was important to include 'rich descriptive data' so that the voices of participants would be clearly heard and it would not have been appropriate to separate out specific groups of participants. We are aware that our findings to date cannot be generalised, except by analogy to similar contexts, and that we do not yet have information about the

sustainability of the enthusiasm we observed. Nevertheless, they raise important issues, regarding which curriculum leadership developers and others working in the field of teacher education ought to be aware. Current theories of intellectual/cognitive development have important implications for teaching and learning. The majority of participants in our study were unfamiliar with theories of learned intelligence and unaware of related cognitive education practices. They valued the new knowledge and the opportunity to review their own prior knowledge of theory. They recalled the names Piaget and Vygotsky from their initial teacher education, but acknowledged that they had not, to date, perceived the relevance of theories of cognitive development to their everyday work as teachers. Participants' insight regarding the practical implications of various theories developed during the course, as did our sensitivity to some shortcomings of teacher education, our own practice not excluded.

If theory that is widely accepted suggests that more effective thinking can be taught, it is important to inform school leaders and their colleagues about such theory, convince them to believe it, and equip them with the skills to implement it. We commend the fact that in South Africa, the new Advanced Diploma in School Leadership, scheduled for implementation in 2017, includes cognitive education in its curriculum. This input has the potential to equip school leaders to support and guide their colleagues in the theory, practice and mediation of a range of thinking skills. School curricula, both local and international, emphasise the importance of developing learners as critical and creative 21st century thinkers, who will become resourceful members of society able to contribute to the economy. Cognitive education offers a practical means to work towards this goal, and describes the learning climate most likely to facilitate it.

Participants' comments about the process of the course revealed the crucial importance of pedagogy as modelled practice. They claimed to have acquired skills to promote thinking, inquiry and learning in classrooms and staffrooms. They recognised the value of thinking together, raising their own questions, and coming to their own conclusions. Through practicing and reflecting on strategies that increased awareness of their own thinking processes, they developed insight and the confidence to share with their colleagues some practical ways of encouraging critical and creative thinking.

If anything was new about our pedagogy, it was the integration of widely accepted guidelines for professional development, with ideas about the development of thinking individuals and communities. Principles of professional development include experiential learning (Kolb, 1984) the so-

cial construction of knowledge (Lave & Wenger, 1991) and reflective practice (Rossouw, 2009; Schön, 1987). Feuerstein et al. (1991), who argue for the intentional mediation of 'cognitive functions' (thinking skills), take care to specify the socio-emotional climate necessary for successful mediation and the development of individual self-efficacy. Lipman's (1993) conception of learners of any age as 'communities of inquiry' describes the social construction of knowledge within a democratic community structured by a commitment to reasoned inquiry. This loosely connected conceptual framework enabled the encouragement of teacher professionalism within an ethic of care and intellectual rigour (Christie, 2008).

Some of the pedagogical practices described above are common in leadership development programmes. Our study illustrated the benefits of integrating them with ideas from other sources in order to empower individuals with the confidence and skill to both try out and model new ways of teaching and interacting in schools.

Moreover, it suggests another possible benefit. The literature (Clarke & Hollingsworth, 2002, De Clercq, 2013; Lave & Wenger, 1991) and current teacher development policy (DBE & Department of Higher Education and Training (DHET), 2011) stress the important contribution of collegial communities of practice to the strengthening of teacher professional development. Successful communities of practice tend to be characterised by distributed leadership, which, according to research (Fullan, 2003, 2004), correlates with improved learning outcomes and school improvement. Our intervention illustrated some of the ways in which learning situations can promote the knowledge and skills to capacitate the effective functioning of collegial teacher communities as recommended by Green (2014) and Wenger (1998). The participants in the study experienced a different way of leading and of relating to colleagues and learners as well as a different way of learning. This form of capacity building could over time undermine the conservative and undemocratic curricular leadership practices which Williams (2011, 2014) has identified as still being the norm in many South African schools.

What are the implications for school leadership? We argue that school leaders need to know about the theory and practice of cognitive education in order to support their colleagues and lead curriculum development. Furthermore, school leaders are most likely to appreciate the value of cognitive education practices if these are demonstrated in lecturers' own practice. Our experience of this project has confirmed our intuitive sense that the power of any theory must be demonstrated in lecturers' own practice. Pedagogy in leadership development, and in teacher

education, needs to model the connection between theory and practice within democratic and respectful learning environments. In other words, we must ‘walk the talk’, remembering that, as one participant said, “you can get a lot out of children [and learners of all ages] from the way you do things ...”

#### Note

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