

CHAPTER SIX CONCLUSIONS AND RECOMMENDATIONS

‘Identity formation is dynamic, versatile and active’ – Vandebroek (1999).

‘The identity of teachers is a kaleidoscope of many permutations: race, class, gender, language, age and stage of career’ – Michael Samuel (2008).

6.1 INTRODUCTION

In Chapter Five the findings of the study were presented and discussed by placing the results within the conceptual framework and existing literature.

In Chapter Six, a synopsis of the study is provided. The research questions that guided the inquiry will be answered. Thereafter, the conclusions and recommendations of the study are suggested. In conclusion, the final thoughts on this study will be given.

6.2. A SYNOPTIC OVERVIEW OF THE STUDY

This study was about the professional teacher identity formation of six beginning teachers in their first year of teaching MST at the FP and ECP level in different school settings. The purpose of this study was to explore, understand and describe the formation of these beginning teachers’ professional identity. Furthermore, this study identified internal and external factors that influenced these beginning teachers’ professional teacher identity formation and explained how these factors influenced their professional teacher identity formation. The question of why beginning teachers sustain or change their professional teacher identity in the context of teaching early MST in the different school contexts was discussed.

Chapter One focused on the background to the study. It introduced the reader to the research problem and postulated the significance and purpose of the study in relation

to the formation of professional teacher identity of FP and ECP beginning teachers in early MST teaching.

In Chapter Two, the literature review focused firstly on the background of teacher education programmes and further explained the notion of beginning teachers' professional teacher identity. This chapter also explored the teaching and learning of early MST. The conceptual framework was designed from the literature review.

In Chapter Three the research methodology of phenomenology was discussed. Furthermore, a multiple case study research approach to explore the phenomenon of professional teacher identity formation was clarified. The sampling procedure and data collection methods were described. To conclude this chapter, the ethical considerations, validation and verification of data, as well as the limitations and significant challenges, were set out.

Chapter Four reported the results of the six case studies. The six professional teacher identity portraits were described through themes illustrating the formation of professional teacher identity of the six beginning teachers.

Chapter Five presented a discussion of the results of six beginning teachers' professional teacher identity formation in early MST to existing literature. An analytical strategy was followed for cross-case comparison to determine the formation of professional teacher identity in early MST and how the process was influenced. The external and internal factors that affected the process were identified and the way in which they affected the formation process was discussed.

The research questions will be addressed in the following section.

6.3 MAIN RESEARCH QUESTION AND SUB-QUESTIONS

6.3.1 MAIN RESEARCH QUESTION

How do beginning first-year early childhood and foundation phase teachers form, sustain or change their professional teacher identity in the

teaching of mathematics, science and technology (MST) in the early years and in different school settings?

The question of how beginning first-year teachers adjust, change and or sustain their professional identity is discussed and answered in this section.

The professional teacher identity formation process of the six beginning teachers is assumed to have started during their teacher education programme and continued during their first year of teaching. The first year of teaching is acknowledged as an important learning opportunity that can be negative or positive, resulting in a willingness or otherwise to stay in the profession. The knowledge and skills that the beginning teachers acquired through their teacher education programme positively affected their professional teacher identity formation process, enabling them to teach early MST with confidence, to make informed decisions and to take risks. They explained that they applied the MST content and pedagogical knowledge that they acquired through the initial teacher education programme to their classroom practice. For them, this was an important pedagogical consideration as it formed part of their learnt professional teacher identity. The process of becoming a teacher who can make decisions, take risks and participate in ongoing change is complex and continuous. The core beliefs about MST teaching and being a teacher that the beginning teachers acquired during their teacher education programme were important in the professional teacher identity formation process. This research highlights the important role that the initial teacher education programme played in the process of professional teacher identity formation.

This study underlines the importance of the first year of teaching as a learning opportunity and a contributing factor to the continuous and ongoing formation of professional teacher identity. When the six beginning teachers in this study were confronted with the reality of teaching in their own classrooms, they experienced an initial period of instability and uncertainty. They were confronted with workplace realities which did not necessarily match their expectations and purpose for teaching and being a teacher. Everything was a new experience and a challenge which included factors such as curriculum interpretation and implementation, teaching the children, accommodating the parents and the culture of the school. In spite of these

difficulties, they learnt adaptive coping and decision-making skills and strengthened, adapted and sustained their learnt professional teacher identity because they believed in what they were doing.

They all expressed a desire to be supported, respected and acknowledged as teachers. From their accounts it seems that support, respect and acknowledgement were important for sustaining a learnt professional teacher identity.

During their first year of teaching, these six beginning teachers experienced many learning opportunities. All of them used hands-on, practical, inquiry-based approaches in their MST teaching. In spite of the seeming mismatch between them and the other teachers in the interpretation and implementation of the MST curriculum, content and pedagogical knowledge, they tried to improve their teaching competence and skills. Furthermore, they retained their beliefs about the inquiry-based approach.

These learning events encompassed not only the practical experiences and reflective practice in the classroom, but also included discussions and negotiation with colleagues. The six beginning teachers acquired practical insight into pedagogical approaches.

The beginning teachers often used emotional language to describe the fulfilment, excitement and enjoyment of their practice and their interaction with the children in their classes. They expressed their caring roles as they positioned themselves alongside the knowledge and beliefs they had about children and the way children learn. This trusting, loving and caring position was important in the understanding of their professional teacher identity formation.

For the beginning teachers, the formation of a professional identity was an ongoing and multifaceted learning process. They had to cope with the demands of teaching, which meant that they had to evaluate their own beliefs and practices. As outsiders and newcomers they were sometimes frustrated and surprised by the nuances, meanings and beliefs that the other teachers brought to the understanding and implementation of the MST curriculum (content and pedagogical knowledge). During

their first year of teaching, the identity formation process involved finding a voice amongst the other, often contradictory, voices of the other teachers in the school. One of the key issues for the beginning teachers was to establish their professional teacher identity and to get professional recognition. In order to sustain their reform-mindedness they had to negotiate a professional voice and justify a respected place in the school culture. They further had to improvise and find ways to match their practice with their vision and beliefs about early MST teaching and the specific requirements of the school.

These six beginning teachers had to work and teach in creative and innovative ways to be consistent with their acquired MST knowledge and beliefs. They described their first year of teaching as a period of highs and lows that included transformative moments where their beliefs and images of what it meant to be a teacher were affirmed or in many ways challenged. They had to negotiate creative and innovative ways of taking risks and participating in changing MST teaching in their schools. For most of them, their self-knowledge and reflective practices helped them to conceptualise and express who they were as teachers and who they wanted to become. It seems as if the synergistic blend between MST knowledge acquired through the teacher education programme and the experience gained during the first year of teaching infused their MST classroom practice and their continued growth as early MST teachers.

This study highlights the effect that internal and external factors have on beginning teachers' professional teacher identity formation in the context of teaching MST.

6.3.2 SUB-QUESTION ONE

What internal and external factors, if any, influence beginning teachers' professional teacher identity formation in the context of teaching MST?

The professional identity formation of the six beginning teachers was an ongoing process of integration of the 'personal' and the 'professional' aspects of their working environment against the background of institutional support or lack thereof. Through the beginning teachers' own accounts, observations and analysis of their work environment, the researcher was able determine how their learnt professional

teacher identities were deconstructed and reconstructed on the basis of key influencing factors such as the initial teacher education programme, personal histories and character traits, and the school/classroom environment.

Table 6.1 summarises the external and internal factors that affected the six beginning teachers' professional teacher identity.

Table 6.1: External and internal factors that affected beginning teachers' professional teacher identity

External factors	Internal factors
<ul style="list-style-type: none"> • Initial teacher education • MST curriculum interpretation and implementation • MST teaching • School context • Support or lack of support 	<ul style="list-style-type: none"> • MST knowledge and skills • MST beliefs, values and assumptions

6.3.3 SUB-QUESTION TWO

How do the identified factors, if any, affect the beginning teachers' professional teacher identity formation in the teaching of MST in different school settings?

The ways in which these internal and external factors influenced the beginning teachers' professional identity are explained in order to answer the research question. Each factor is discussed in turn.

6.3.3.1 External factors

The six beginning teachers described some external factors that affected their professional teacher identity.

- **Teacher education programme**

In this study, the initial teacher programme provided the beginning teachers with MST pedagogical knowledge and competences that they applied in their classrooms.

The initial teacher programme therefore helped them to develop a positive professional teacher identity that enabled them to cope with the varied situations they experienced during their first year of teaching. They further said that they had acquired insight into MST pedagogical approaches. The programme provided them with adaptive coping and decision-making skills.

6.3.3.2 MST curriculum interpretation and implementation

Implementing the National Curriculum was regarded as a challenge to the beginning teachers. The focus was mainly on mathematics, which also had a prominent place in the curriculum, whereas science and technology were mostly integrated. The beginning teachers in the primary school setting found it difficult to implement the science and technology learning areas. There was uncertainty about how much science and technology should be included because the time allocation was insufficient for inquiry-based learning. Curriculum changes and the imminent removal of science and technology from the curriculum caused stress and anxiety and increased the pressure on their learnt professional teacher identity.

- **MST teaching**

All six beginning teachers planned MST activities and mostly used an integrated approach which was not always easy to apply. Science and technology were not regarded as important by the schools and therefore the beginning teachers in the FP found it difficult to find time and space for teaching these learning areas.

- **School context**

With regard to the school context, the six beginning teachers firstly experienced the reality shock of moving from being a student teacher to being a beginning teacher in their own classrooms.

Second, the beginning teachers' position and status within the school culture in which they found themselves sometimes caused tensions and uncertainty.

Thirdly, issues such as the pressure to conform to the school culture, the expectations of parents and the many unexpected administrative duties caused

identity dilemmas. Most of these factors led to emotional reactions that temporarily threatened the formation and sustainability of their professional teacher identity.

- **Support or lack of support**

Institutional support was important to all six beginning teachers. They had mixed experiences regarding support. Positive support had a positive emotional effect and resulted in feelings of acceptance and confidence in their own abilities. Positive support therefore strengthened professional teacher identity, whereas a lack of support resulted in negative emotional reactions such as feelings of vulnerability, uncertainty, frustration, failure and disagreement.

6.3.3.3 Internal factors

A number of internal factors also affected their professional teacher identity.

- **MST knowledge and skills**

The six beginning teachers said that they had acquired insight into MST pedagogical approaches during their teacher education programme and that they were emotionally committed to applying these pedagogical approaches which could benefit their children. In the six cases, the beginning teachers described the challenges that prevented them from creating opportunities to plan and implement their knowledge about science and technology teaching. The internal tensions noted in this study were the complex notions of the place and time for teaching science and technology activities in their classrooms as well as the lack of support from colleagues to apply inquiry-based approaches in their teaching.

- **MST beliefs, values and assumptions**

The six beginning teachers indicated that they did not change their convictions and beliefs about MST teaching acquired through their teacher education programme, although there were instances where some had to conform to some extent to avoid conflict. Nevertheless, there were indications throughout their classroom practices during the first year that all of them had retained their beliefs about MST teaching. The core beliefs teachers have about teaching and being a teacher are important for supporting and sustaining their professional identity.

6.3.4 SUB-QUESTION THREE

Why do beginning teachers sustain or change their professional teacher identity in the context of teaching early MST in the different school contexts?

The study has highlighted the interactive effect of the teacher education programme and the working environment in shaping the professional teacher identities of six beginning teachers in early MST teaching. It explored how early MST teaching and being a reform-minded teacher at FP and ECP level were challenged and accepted in the different school settings. Although the transition from student teacher to beginning teacher was mostly an unstable period of coping and surviving the unpredictable reality of the new workplace, for the six teachers this transition was also mainly a positive learning experience.

In spite of the positive learning experience, some identity dilemmas occurred when factors that may have been internal or external to their learnt professional teacher identity in their new teaching environment caused tension. In order to survive and cope in their new working environment, the beginning teachers made adjustments, developed strategies or adapted their learnt professional teacher identity.

This process of adjustment was continuous. The beginning teachers saw themselves as reflective thinkers who felt the need to continually find creative and innovative ways to teach early MST. It seems that the initial teacher preparation programme influenced the attitude and pedagogical knowledge of the six beginning teachers.

The six beginning teachers changed, adapted or sustained their learnt professional teacher identity. In their first year of teaching, the teachers questioned and reflected on their own MST teaching when they were confronted with the turbulences and flux of the new school context. External and internal factors affected the equilibrium of their professional teacher identity and this sometimes caused identity dilemmas that activated the adjustment process of changing, adapting or sustaining their professional teacher identity. The beginning teachers applied their knowledge, skills and beliefs to change, adapt or sustain their identity. The strategies for changing, adapting or sustaining their identity were reported through their narratives and observed in the reaction and actions of each individual beginning teacher. Some of

these strategies were acquired from their teacher education programme and others were found in their working environment.

The six beginning teachers indicated that they acquired the following skills and knowledge from their teacher education programme:

- Reflective practice skills.
- Creative, negotiation, thinking, improvising and coping skills.
- Teaching, content and pedagogical knowledge and learning theory.

The six beginning teacher pointed out that the following aspects from their working environment assisted or hindered them from sustaining or developing their professional teacher identity:

- School context: Teachers' work is emotionally demanding (children, parents, management, colleagues, school culture, responsibilities other than teaching and the beginning teacher's position in the school).
- Support or lack of support: The social and cultural organisation of schools.
- Curriculum interpretation and implementation.
- The nature of MST teaching in FP and ECP classrooms.

6.4 CONCLUSIONS OF THE STUDY

In this section the conclusions that derived from the findings are discussed.

6.4.1 CONCLUSION ONE: PROFESSIONAL TEACHER IDENTITY

The formation of a professional teacher identity is a dynamically evolving learning process (identity and learning are linked) intrinsically related to the beginning teachers' views of themselves as teachers (their beliefs and attitudes towards MST teaching), the knowledge they acquire about MST (content and pedagogical knowledge) and the school context in which they may teach. This means that internal and external factors can affect the process of professional teacher identity formation. It appears as if the nature of the teacher education programme can assist beginning teachers to acquire a core learnt professional teacher identity which will enable them to teach MST successfully.

The caring nature of the six beginning teachers was evident in their actions. They indicated through their actions and statements that they were compassionate and caring towards the children in their care and felt that they were successful if they made a difference. Being a caring FP or ECP teacher seems to be an important characteristic of teachers who feel that they are making a difference in children's lives and in MST teaching.

6.4.2 CONCLUSION TWO: TEACHER EDUCATION PROGRAMME

The initial teacher education programme is an important learning experience in the process of constructing a core learnt professional teacher identity. The initial teacher education programme should provide beginning teachers with MST knowledge, pedagogical content knowledge and skills. Initial teacher education programmes should provide experiences that improve early school teachers' MST knowledge.

A sound initial teacher programme with adequate MST content and pedagogical knowledge may equip beginning teachers to successfully implement MST in their classrooms and help them to cope with internal and external factors that may influence their professional teacher identity.

Conversely, a lack of sufficient exposure to science and technology during practice teaching may lead to insufficient preparation for teaching these subjects.

6.4.3 CONCLUSION THREE: MST TEACHING AND LEARNING

MST teaching and learning should be based on problem solving, reasoning, hands-on, creative inquiry-based teaching strategies which would advantage the children by providing basic MST knowledge, concepts and skills.

However, due to the lack of time and space allocated for exploration and investigation in many FP classrooms, MST teaching has become workbook-orientated, leaving no time for inquiry-based MST teaching. This has unfortunately led to worksheet-dominated classrooms to the detriment of children learning MST.

- **Mathematics**

The six beginning teachers in this study were positive about mathematics and regarded the subject as important and meaningful for the conceptual development of young children.

- **Science and technology**

The six beginning teachers regarded science and technology as important for the development of young children and therefore implemented an inquiry-based pedagogical approach. Because they believed that this approach would benefit the children they planned and strategised to teach science and technology in spite of impediments such as time constraints and restrictions.

6.4.4 CONCLUSION FOUR: MST CURRICULUM

The three beginning teachers placed in the primary school FP classrooms experienced difficulty at first in interpreting and implementing the curriculum. They felt restricted and did not know how to accommodate everything they had to accomplish in the time available. By way of contrast, the beginning teachers in the ECP felt that they had more freedom to teach the way they wanted to. Established teachers in the primary schools were opposed to teaching science and technology and regarded teaching technology as a waste of time. Consequently, the beginning teachers found it difficult to teach science and technology and they had to negotiate time and space to teach these subjects.

Curriculum change caused feelings of frustration for some of the beginning teachers and where the interpretation and implementation of curriculum differed from their own beliefs about MST teaching, serious dilemmas arose.

Although an integrated curriculum is developmentally appropriate and reflects the natural way of young children's learning, the implementation posed some challenges for the six beginning teachers. The integration of early MST seemed to be more easily accomplished in the ECP than in the FP.

6.4.5 CONCLUSION FIVE: SCHOOL CONTEXT

The first year of teaching was a meaningful learning experience but the transition from student teacher to beginning teacher was difficult. The transition required new roles and responsibilities from the beginning teachers, which caused stress experienced as a reality shock with accompanying conflicting emotions.

Beginning teachers wanted to be recognised and accepted as colleagues and to feel that they contributed. In some instances they were made to feel like outsiders by the school hierarchy or the veteran-orientated professional culture of a school that prevented the new teacher from being recognised and acknowledged as a skilled colleague. The school environment and other teachers often pressurised them into employing practices that were in conflict with their personal beliefs about MST teaching and how children learn. Each school seemed to have a distinct character that beginning teachers had to cope with and adapt to and this pressurised their learnt professional teacher identity.

An important component in the formation of professional teacher identity is the support, acceptance, affirmation, and interaction with the other teachers in the school; and this affected the six beginning teachers positively or negatively. To be valued as knowledgeable colleagues in MST teaching may have contributed positively to their professional teacher identity formation. It therefore seems that institutional support is important for creating and maintaining motivation and professional growth.

6.5 RECOMMENDATIONS AND FUTURE DIRECTIONS FOR RESEARCH

In this section, the recommendations and further directions for research are discussed.

6.5.1 RECOMMENDATION ONE: PROFESSIONAL TEACHER IDENTITY FORMATION

This study finds that if beginning teachers are confident, committed, flexible and creative lifelong learners who are able to participate in ongoing change and to cope

in the different school and classroom contexts, they will be able to negotiate and teach inquiry-based (exploration and discovery) MST activities.

This study recommends that beginning teachers be provided with opportunities for developing and sustaining a reform-minded professional teacher identity to address the challenge of ECP and FP MST in practice.

6.5.2 Recommendation two: Teacher education programmes

The conclusions of this study clearly indicate that the initial teacher education programme is an important learning experience in the process of constructing a positive professional teacher identity and becoming a reform-minded teacher.

This study recommends that the initial teacher education programme should provide beginning teachers with sound MST knowledge, pedagogical content knowledge and skills that will enable them to effectively teach inquiry-based FP and ECP MST activities.

6.5.3 Recommendation three: MST teaching and learning

The feedback from the beginning teachers on the difficulties they experienced about finding adequate time and opportunity to teach MST creatively and interactively, as well as the lack of opportunities to teach specifically science and technology, is of great concern.

This study recommends that the teaching of MST should be considered as extremely important for the development of early learners. This means that urgent attention should be given to the inclusion of creative and interactive teaching and learning opportunities and inquiry-based teaching. It is further recommended that there should be sufficient provision for science and technology and that the two subjects receive adequate recognition in terms of time allocation in the curriculum.

6.5.4 RECOMMENDATION FOUR: MST CURRICULUM (POLICY)

Evidence from this study points to the existence of various curriculum inadequacies and restraints at FP and ECP levels. Aspects such as frequent curriculum change

and the possible exclusion of science and technology caused uncertainty and frustration. Furthermore, the interpretation of the curriculum led to problems regarding its implementation. In addition, the teaching of an integrated MST curriculum caused some difficulties.

This study recommends that the curriculum should provide clear guidelines on the teaching of MST at ECP and FP level. This study also recommends the retention of science and technology at ECP and FP levels, considering the obvious beneficial value these subjects have for young children. More emphasis and clearer guidelines should be provided for teaching mathematics, science and technology in an integrated curriculum.

6.5.5 RECOMMENDATION FIVE: SCHOOL CONTEXT

The school context in which the beginning teachers found themselves indicated that some schools did not welcome the beginning teachers as knowledgeable and valuable colleagues and consequently made them feel like outsiders. Also, the beginning teachers felt that school support was an important factor to sustain their professional teacher identity. In the instances where school support was provided, the beginning teachers felt safe and they could teach MST creatively within a positive environment.

This study recommends that attention should be given to the professional and emotional developmental needs of beginning teachers. The school should provide adequate support and strive to sustain and reinforce a beginning teacher's positive professional teacher identity in order to retain beginning teachers in the profession.

This study further recommends that schools should give beginning teachers a voice and should be receptive to the new ideas that beginning teachers may bring to ECP and FP MST teaching and learning. Schools should recognise that context is part of professional teacher identity formation and that they must support beginning teachers at the beginning of their careers.

6.5.6 RECOMMENDATIONS FOR FURTHER RESEARCH

This study recommends the following areas for further research:

1. More research is needed to know and understand the core learnt MST professional teacher identity that beginning teachers have to acquire through their teacher education programme to successfully plan and teach MST in the ECP and the FP.
2. Further research may be undertaken on how the learnt professional teacher identity can assist beginning teachers to be reform-minded teachers who are able to make informed decisions and to become the nucleus of reform in their classroom and professional settings.

6.6 FINAL THOUGHTS

In this study, professional teacher identity was defined as the ongoing ‘becoming’ of an image of a teacher. The narrative stories of the six beginning teachers gave an insight into this ongoing learning process. It indeed gave an image of who these teachers were at that given time in their career and who they aspired to become in future.

The beginning teachers in this study had MST learning experiences from their initial teacher education programme and their different school contexts that formed and shaped their learnt professional teacher identity at that beginning stage in their careers (Figure 6.1).

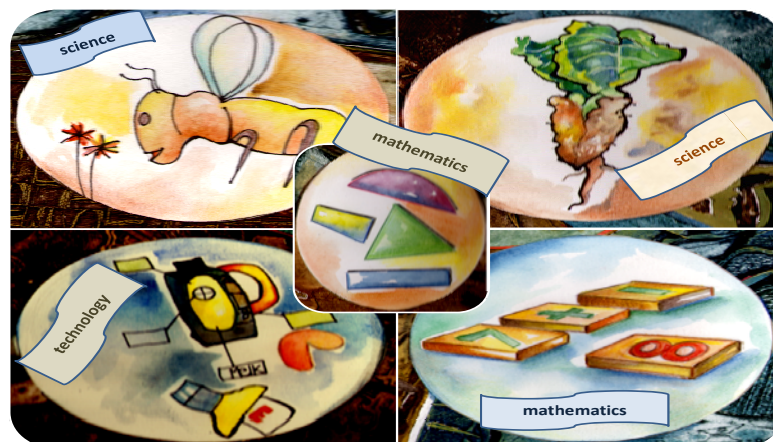


Figure 6.1: Operational learnt professional teacher identity reflects MST classroom practices

In this study Samuel's (2008:9) analogy that a beginning teacher's professional identity is a 'kaleidoscope of many permutations' is adapted and combined with Vandebroek's (1999:25) idea that professional teacher identity is 'dynamic, versatile and active' and may therefore be altered, changed or sustained. For this reason the finding of this study is that external and internal factors influence the adaptation, change or sustainability of beginning teachers' core professional identity and therefore affect classroom practice. The question still to be answered in further research is: What is the core professional teacher identity of a beginning teacher?

In this study it became clear through the practices, experiences and voices of the beginning teachers that their initial teacher education programme was an important factor that influenced their professional teacher identity formation.

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