

## Chapter 6

### **Implications for policy, research and practice. Summary of findings, recommendations and conclusion**

#### **6.1 Introduction**

This chapter attempts to present a summary of the key findings and to foreground these findings against the research questions and theoretical framework of this study. The literature research assumptions outlined in chapter one, will be revisited in the light of the findings of this study. New knowledge that emerged from this study and suggestions for further research will be presented. The chapter concludes with recommendations for policy implementation to improve teaching and learning.

The main purpose of this study was to explore how national policy on information and communication technology influenced teaching and learning in school classrooms. In responding to the research questions of this study: What is the ability of the hierarchical unit within the education system to affect the behaviour of the teacher that is the target of the policy? and what resources does this unit require in order to have that effect? I present key findings according to provincial and district response to the national e-education policy, responses of schools and principals as change agents. In addressing the research questions: How does education policy on ICT influence teaching and learning within South African schools? and how do teachers appropriate education policy on ICT in schools? key findings are presented according to teachers' beliefs, attitudes and professional practices.

#### **6.2 Summary of key findings**

##### **6.2.1 Province and district response to the national e-education policy**

At the systemic level I found that the absence of incremental reform or guidelines in respect of the e-education policy from national government suggests that national government had not pursued the implementation of the e-education policy with the same conviction as it had with other education policy initiatives. The national e-

education policy implementation strategies seemed limiting, simplistic and without specific systemic (province and district) mandates, directives or time frames as indicated by the policy statement “each province will set its own targets within the broader framework” (Department of Education, 2004, p. 39). According to Spillane, Reiser, and Reimer (2002, p. 390) local implementation will be hampered if national government does not design clear and consistent directives with respect to the “behaviour desired from implementing agents and agencies”.

Furthermore province and district e-learning officials did not seem to pursue the national e-education policy as a policy that was destined for implementation. Spillane et al. (2002) explain how personnel at system structures modify policy intent and principles as they interpreted policy through their own frames of reference. In the current study, district and provincial e-learning officials appeared to view policy through their own experience and seemed to have missed (or misconstrued) the core intentions and implementation strategies of the national e-education policy (Spillane, Reiser & Reimer, 2002). It is apparent from the findings that district officials did not refuse, retard or resist policy, but seemingly did not understand the policy intent or implementation strategies of the e-education policy (McLaughlin, 2001).

Although district and provincial e-learning officials were officially authorised by the enforcement mechanism of the national e-education policy, any formation of policy had to be “warranted institutionally” (Levinson et al., 2009, p. 771) and supported by the personal qualities of “those involved”. However, there was a sense of ambivalence at both district and provincial levels on whether the e-education policy was meant to be implemented. This uncertainty may be a reason that district and provincial education departments did not pursue the government policy implementation agenda. In the current study, the e-learning directorates appeared not to believe in a need for their own interpretation of the e-education policy guidelines. They apparently viewed themselves as conduits of government policy by adopting the national e-education policy. Thus both province and district e-learning officials seemingly lacked the “will” to make policy or develop an incremental supporting policy for schools (Levinson et al., 2009, p. 771).

In the current study, exigencies expressed by teachers and principals in schools for policy guidelines could have been a catalyst motivating district and provincial e-learning leaders to respond to the call for support. Perhaps, e-learning officials' unresponsiveness to the policy support needs of teachers could be attributed to the fact that they may still be steeped in a traditional culture of a top-down approach to policy implementation. Local actors at district and provincial levels apparently did not exercise agency in the policy process. Consequently schools (teachers, principals) were not coerced, pressured or encouraged to implement the national e-education policy. This apparent lack of support from district and provincial e-learning officials, coupled with the lack of enabling policies had a consequential effect of alienating schools from the district.

### **6.2.2 Response of schools**

In the current study (against a backdrop of systemic instability and lack of systemic support) school-based initiatives were promoted to implement ICT. At school level, principals were key to the implementation of the school-based ICT policy. In most developed countries, principals and teachers have at least an overarching understanding of the national ICT policy directives (Harrison et al., 2002). Within the context of the current study, on the other hand, principals were uninformed and oblivious of the e-education policy directives, while on the other hand teachers expressed a superficial understanding of this policy. However, teachers in the current study developed and implemented a school-based ICT policy separate from the national e-education intent.

In their need for guidance and mutual support principals and teachers initiated "communities of practice" (Wenger, 1998; Wenger, 2000) in the implementation of ICT. These communities of practice developed within each of the schools in the current study, forming networks with other schools. All participating schools in this study attempted to develop a network of like-minded schools. Initially, communities of practice developed through mutual engagement and a shared vision. Schools and teachers affiliated to other schools as members of a community of practice and tried to understand and negotiate meaning about the implementation of ICT. The former model

C school aligned itself with forty-three other schools, the township school forged links with another public school within the same socio-cultural context, and the independent school developed mutual engagement with other private schools.

These communities of practice were not determined by locale, but were based on the need to establish an understanding of how to integrate ICT into the teaching and learning practice across the curriculum. In these communities of practice, principals and teachers shared a common purpose needing to stay abreast of ICT innovation and pedagogical trends. The partnership thus developed was subject to continual negotiation “in the very process of pursuing it” Wenger (1998, p. 77). The independent school and former model C school were committed to the idea of communities of practice and pursued it with a sense of purpose that promoted sustained and supportive communities of practice. As the township school however, operated on an ad-hoc and needs basis, the community of practice did not develop into a structured format. Furthermore, it was evident that all three schools demonstrated social responsibility towards the identified resource scarce schools by offering professional support in terms of ICT skill and pedagogy development to these schools in a collective vision of a better society.

### **6.2.3 Principals as change agents**

I argue that communities of practice led school principals (as change agents) to form policy as “a kind of purposeful knowledge making” (Wenger, 1998). In this regard the leadership of principals was pivotal in determining the direction in which the school would move to integrate ICT. The personal qualities of principals, combined with their engagement in communities of practice, and the practical exigencies arguably created an institutional environment warranting the need for a policy on ICT integration within the school context. Principals evidently created the warranting conditions and had the will to make policy for their schools (Levinson et al., 2009).

#### 6.2.4 Teachers' beliefs, attitudes and professional practices

In responding to the main research question “How does education policy on ICT influence teaching and learning within South African schools?” and “how do teachers appropriate education policy on ICT in schools?”, I put forth the view that teachers' beliefs, attitudes, and professional practices were the main drivers of change in ICT e-education policy formulation and implementation.

This study created an opportunity to view and understand policy formation and appropriation as a socio-cultural practice “[as] a set of activities embedded in and informed by certain cultural models and social relations” (Sutton & Levinson, 2001, p. 141). Appropriation as a ‘form of creative interpretive practice’ (Sutton & Levinson, 2001; Levinson et al., 2009) provides the backdrop against which teachers in the current study are viewed. Teachers engaged in their own interpretation of what was important and essential as they became involved in the practice of an e-education policy. So what drives teachers to appropriate, formulate and implement a local school policy? Why did teachers in this study change their teaching practice when many other teachers have not taken on the challenge (Wilson-Strydom et al., 2005)? What influenced the professionalism of these teachers given the educational landscape from which they emerge?

I argue that the beliefs and attitudes of teachers' use of ICT were the mainstay of their classroom practices. Beliefs and attitudes of teachers inform their value system, which in turn dictates their actions and classroom practices (Drake, Spillane & Hufferd-Ackles, 2001; Spillane 2000). In this study I found that teachers believed that they could make a difference in the lives of learners.

Within a conducive and supportive institutional culture that promoted ICT implementation in the school, teachers in the current study actively took on the challenge of integrating ICT into their teaching practice and became the main drivers of change in their schools. Participating teachers were engaged in numerous practices that promoted ICT integration into their teaching-learning repertoire. In the current study teachers' practices guided their beliefs and attitudes (Spillane, Reiser, Reimer,

2002). School policy on ICT was developed through teachers' practices - I posit that the life history of actors in each research site influenced the construction of local policy. In this regard experiences of three teachers in the corporate world contributed to a change in their belief systems about the use and value of ICT in education. They thus returned to the teaching profession motivated to empower learners to meet the vocational challenges of the corporate world.

Teachers in this study were engaged in pedagogical experimentation, and recognised their role as drivers of ICT. They exhibited a strong will to learn and develop, were innovators and trendsetters and had a strong sense of concern to develop ICT skills of learners for vocational purposes. This array of qualities indicates that teachers in the current study were personally competent. According to Sutton and Levinson (2001) and McLaughlin (1987), policy successes are critically dependent on the local capacity and will of teachers as implementers of policy. McLaughlin (1987) indicates that local capacity can be addressed by policy initiatives for teacher training and by the allocation of financial resources. However, teachers' will, attitude, motivation, and beliefs are less influenced by policy intervention.

I examine teachers' beliefs and attitudes as significant constructs to explain why teachers appropriate ICT policy. From a socio-cultural approach to policy analysis, it appears that teachers in this study were motivated by their instinctive professional attitudes and beliefs to overcome educational challenges and to pursue what is in the best interest of learners and institutions (schools). The ICT classroom practices of participating teachers go against the norm of challenges experienced in their daily lives, namely: education policy overload, low teacher morale, overcrowded classrooms, class of diverse learners, new teaching philosophy, curriculum policy changes, absence of systemic directives and support. Notwithstanding these challenges, participating teachers appropriated and implemented an ICT policy negotiated at a personal, cultural and social level. Sutton and Levinson (2001) affirm the exceptional practice of these teachers as a socio-cultural approach to policy:

*'social democratic processes must have leaders and groups struggling with courage, passion, and a strong sense of moral conviction to bring about change'* (Sutton and Levinson, 2001, p. 119).

Teachers in the current study demonstrated a strong sense of moral conviction to bring about change in the lives of learners. Teachers were intrinsically motivated to pursue ICT implementation at their schools without the promise of service benefits, monetary incentives, promotion opportunity or professional benefits.

Why did these teachers choose to incorporate ICT in their teaching practice? The corporate experiences of some of the teachers in this study seemed to be a significant contributing factor to their beliefs and attitudes culminating in their changed classroom practices. In each of the schools (the former model C school, township school and the independent school) I encountered at least one teacher in the sample that had left the teaching profession, entered the corporate world and subsequently returned to the teaching profession. At each of these schools, teachers were seemingly the drivers of ICT integration. Plausibly their corporate-life experience reflected a reality of the world beyond school. These teachers apparently understood the demands of the corporate world and this experience entrenched their belief system. The sole intention of these teachers was to make a difference in the lives of learners by being effective teachers and doing their professional bidding.

But, it is not only this experience that seemed to have a bearing on the belief systems of teachers' appropriation of policy. Teachers in this study were motivated to equip learners with ICT tools of the future. Teachers exhibited a strong sense of commitment to optimise learners' chances in education - as mediated by teachers' own ICT experiences. Almost all teachers expressed that ICT in their teaching and learning practice will enhance the lives of learners and prepare them for the workplace. A teacher at the township school explains his beliefs in the use of ICT in his classroom practice.

*“The classroom must be made as real as possible to what the learner’s experience home, and eventually greatest is preparing them for the workplace... But to make them realise that this thing will be a part of their working life in a big way. Office, factory, even if you clean floors you know, it’s an electronic gadgets.(School A - Teacher 1).*

The principal of the former model C school explains his level of conviction that ICT has a place in the education of learners to:



*“Like I say children in primary schools now, don’t even know what they going to do one day. There will be jobs that do not even exist at the moment that they will be doing. So, who must equip them, we must equip them...” (School B – Principal).*

I submit that the corporate experience and teachers’ vision for futures of learners represent two compelling factors driving the belief systems of participating teachers. In this regard I posit that teachers’ life experiences, will and determination influence their belief systems to appropriate school-based ICT policy in their teaching practice. It is teachers’ beliefs and attitudes that drive their commitment and dedication to teaching. This is evident from the manner in which participating teachers undertook to develop and improve their knowledge, skills and pedagogy. Most of the participating teachers took the initiative to further their education in ICT by making use of their own initiative to be self-taught.

Teachers in this study therefore believed that exposing learners to ICT learning experiences could enhance career chances of learners. To my mind this belief initiated intrinsic motivation to form communities of practice in order to meet technological challenges in teaching. All teachers in this study formed their own informal reference groups drawn from teachers utilising ICT across the curriculum, within their school and between other schools. This school collaboration initiative allowed teachers to discuss ICT issues such as, instructional pedagogy, curriculum relevance, skills and assessment methods. After much collaboration and deliberation teachers formulated an instructional framework policy consisting of ICT curriculum integration and ICT attainment standards, which ultimately formed the basis of an ICT curriculum policy for schools. Hence, a bottom-up policy formulation process occurred. My findings indicate the significance of policy appropriation (Levinson, Sutton & Winstead, 2009) within a local context and the ability of teachers not only to be developers of policy that has meaning for them, but also to be drivers of ICT implementation in schools.

In this study, teachers and principals were agents of change, generating new and enabling policy (Sutton & Levinson, 2001). Irrespective of the lack of systemic support, teacher agency was encouraged by leadership, support and guidance from the principals within the school context (Sutton & Levinson, 2001). The current study also adds another dimension to the socio-cultural approach to policy analysis (Sutton & Levinson, 2001). In this regard teachers’ ignorance of nationale-



educationpolicy may be conceived as a kind of appropriation, since it resulted in the need for policy development and implementation at school level by teachers. This appropriation seemingly stems from the professional attitudes and beliefs of teachers.

I found that the will, beliefs and attitudes of teachers in the implementation of ICT was not driven by the e-education policy mandates, but rather by teachers' professionalism and a desire to improve teaching and learning. The school-based e-education policy was informed by teachers' classroom practices, their belief systems, the leadership and will of the principal, and warranting institutional demands. Practices of teachers coupled with their professional conduct and beliefs determined the e-education policy of the school. In this manner, teachers exercised agency and appropriated a school-based policy. Significantly the school-based ICT practices reflected the policy intentions of the national e-education policy. The latter thus requires a further investigation into the purpose of policy if practice is effective in the absence of knowledge of policy.

### **6.3 Significance of findings – new knowledge generated**

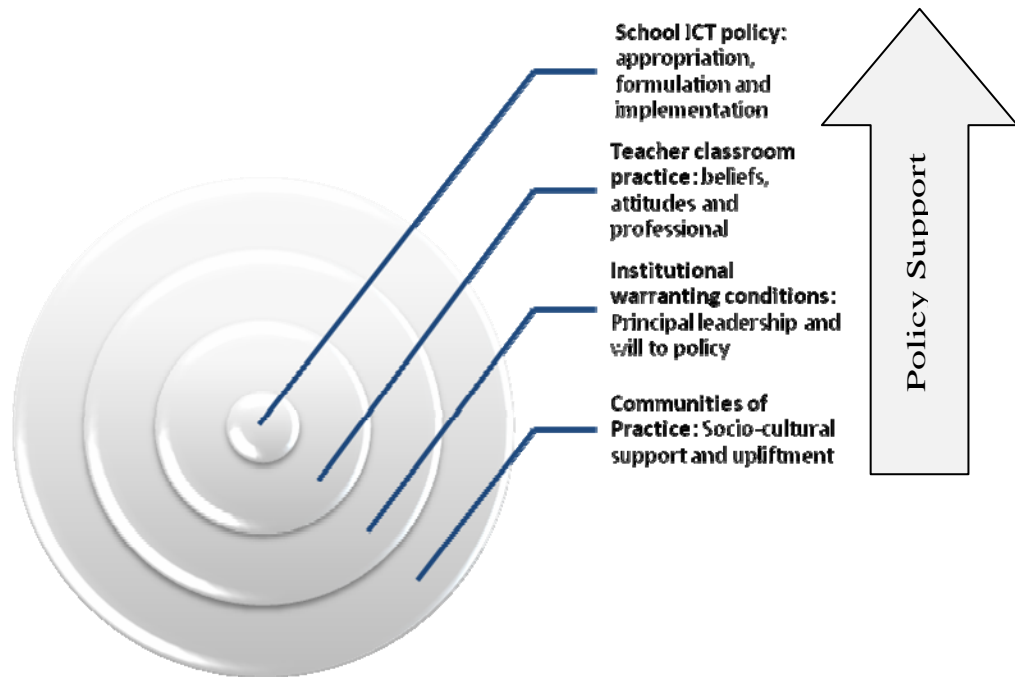
The new knowledge that emerged and pushed boundaries back in this field of study was fourfold in nature. First, teachers' professionalism and agency was crucial in formulating and implementing a school-based e-education policy in practice. Second, teachers repositioned themselves not as recipients or reactors of the e-education policy but as social and cultural actors of school-based policy appropriation and formulation. Third, the lack of systemic support catalysed communities of practice between schools. Fourth, teachers' ignorance of the nationale-educationpolicy may be conceived as a new construct to policy appropriation (Sutton & Levinson, 2001), since it resulted in the need for policy development and implementation at school level.

Contrary to much of the literature on ICT policy implementation at schools this study found that the innovative ICT practices of teachers determined the formulation and implementation of a school-based ICT policy (Somekh, 2000; Hopkins & Levin, 2000;

Carnoy, 2004; Tondeur et al., 2006; Wilson-Strydom et al., 2005). The status of the national e-education policy existed as an ‘invisible policy’ within the school context. Teacher professionalism included professional confidence, professional interpretation and professional consciousness that were crucial to the policy appropriation process. Teachers repositioned themselves not as recipients of policy (merely reacting to policy) but as social and cultural actors with the ability to articulate, construct and implement new educational procedures that eventually became formulated and appropriated as new educational policy within a school (and community of practice) context.

Furthermore, teachers were disillusioned by the manner in which government programmes reforms were imposed on them, without adequate support or expertise on the way to apply the new educational reform. District e-learning officials seemed to lack capacity and competence to provide ICT-integration and policy support to teachers. Schools seemed to operate in vacuums in terms of implementing the e-education policy. Lack of district support however led to improved teacher collaborative efforts, shared experiences, trust, collegiality and the willingness to experiment with new pedagogies. Participant teachers were content to try out new approaches to teaching, to develop and integrate ICT across the curriculum to suit their local context and to make decisions to develop, modify and expand on the ICT attainment standards.

Literature on the socio-cultural approach to policy implementation (Sutton & Levinson, 2001) reveals that the conventional flow of policy (as it filters down to be implemented within the school context) assumes one of three responses: teachers may modify their actions in adherence to policy, may purposefully delay implementation or may simply resist policy directives through inaction. This study adds a new dimension in policy appropriation, namely that teachers’ ignorance of the national e-education policy may also be conceived as a kind of appropriation. Figure 6.1 below provides a schematic indication of how socio-cultural conditions may promote local policy to be appropriated, formulated and implemented at schools.



**Figure 6.1: A socio-cultural approach to local policy formulation and implementation**

## 6.4 Research assumptions revisited

This section responds to the research assumptions made in chapter one.

### **Research assumption 1:**

*Once policy has been formulated it will be implemented.*

Findings do not support this assumption. In the current study it was found that the national e-education policy, though well crafted and inclusive in its design, was not implemented at schools and remained as symbolic policy. I posit that teachers should be included as co-constructors of policy.

### **Research assumption 2:**

*Policy that is officially authorized and backed by government enforcement mechanisms filters in a linear fashion from macro to meso to micro levels in the education system.*

Findings do not support this assumption. In the current study the national e-education policy filtered from national to province and district, but remained inaccessible at the school level for which it was ultimately intended. I posit that a bottom-up

consultative approach inclusive of relevant stakeholders be adopted that affirms practice as a crucial mechanism to inform policy.

**Research assumption 3:**

*Actors at these various levels are knowledgeable about authorized policy, and implement policy according to guidelines.*

Findings do not support this assumption. In the current study, province and district were knowledgeable about the authorised policy but they did not implement the policy according to their mandates. Principals, on the hand, were ignorant of the authorised policy; teachers were aware that such a policy existed but were ignorant of the contents of the policy. However, a school based policy was formulated that ironically reflected the ideals of the authorised policy. I posit that a participatory approach to policy formulation be adopted that encourages policy appropriation.

**Research assumption 4:**

*Teachers may modify their actions in adherence to policy, or purposefully delay implementation or simply resist policy directives through inaction.*

Findings do not support this assumption. In the current study, teachers were ignorant of the mandates of the e-education policy and thus did not resist, delay or adhere to national policy imperatives. However teachers' classroom practice determined and formulated a school-based e-education policy. Thus, the implementation of the e-education policy unfolded not as 'policy *in* practice' but as 'policy *as* practice'. I posit that teachers have the professional ability, knowledge and vision to formulate policy. If policy is formulated from practice it will be willingly appropriated and effectively implemented.

**Research assumption 5:**

*Systemic structures provide sustained policy support and resources to teachers.*

Findings do not support this assumption. In the current study systemic policy support and guidance from province and district were lacking. Schools did not receive resources to promote the implementation of the e-education policy. I posit that officials at the district and provincial levels be teacher experts in the field of ICT to improve teaching and learning by means of sustained policy support to teachers.

Furthermore, officials should perceive their role beyond that of policy administrators to that of policy formulators and implementers.

**Research assumption 6:**

*The practice of policy is determined by actors situated at the point of policy implementation and may be different to policy as conceived by the policymaker.* Findings do not support this assumption. Significantly different in the current study was that teachers although ignorant of the e-education policy as envisioned by the policymaker, implemented the policy as intended. I posit that teachers have the knowledge, expertise and professionalism to formulate policy with the same vision and insights as policy makers. Thus, teachers are an extremely valuable resource in policy implementation and should not be ignored in the policy formulation process.

## **6.5 Suggestions for further research**

Any qualitative study uncovers more to investigate, and whether one scans the horizon or delves for depth in the field, opportunities for further research abound. The ICT policy landscape is rich with possibilities for research in educational issues. New frontiers to explore relate to policy implementation issues, and the role and responsibilities of local actors within this context. A number of areas for possible research were identified as a consequence of this study:

- How does the e-education policy influence teaching and learning in secondary schools?
- How can communities of practice be sustained as a means of support to teachers implementing the e-education policy?
- How does the socio-cultural context of districts influence e-education policy appropriation?
- Why is there a lack of will to formulate e-education policy at district and provincial levels?

- How can districts be supported in providing practical guidelines and support to schools in implementing ICT policy?
- How do e-education policy mandates affect the structures of schooling, and how do these in turn mediate teacher identity and agency?
- What socio-cultural contexts in township schools influence the implementation of ICT in teaching and learning?
- How do ICT communities of practice operate within former model C schools?
- How can effective ICT communities of practice be established at township schools?

Further studies may build upon the findings of the current study and may deepen the quality constructs of transferability and generalizability. I recommend these areas of research to better understand experiences of teachers with regard to e-education policy appropriation, mediation and implementation.

## **6.6 Recommendations for policy and practice**

The following recommendations for policy, practice and scholarly interest are made as a result of this study. These recommendations emerged within the context of this bounded case study. However they may be translated to similar policy implementation scenarios.

- **Recommendation 1**

This study entrenches teachers as significant role players in the implementation of policy. In order for policy to change teachers' practice, policymakers should engage teachers as pedagogical professionals in the formulation of policy. In this regard, teacher agency and the appropriation of policy are key to successful implementation.

- **Recommendation 2**

The use of backward mapping model as a research strategy may improve our understanding of policy implementation issues, create new opportunities for policy studies and contribute to the achievement of policy goals.

- **Recommendation 3**

Principals as leaders of schools should be knowledgeable of the national e-education policy in order for government mandates to filter into classrooms.

- **Recommendation 4**

District and provincial e-learning directorates should elevate their professional status beyond administrative functioning and transmission of policy. E-learning directorates should formulate policy guidelines and offer sustained support to schools. Furthermore, curriculum directorates and e-learning directorates should by necessity be an integrated unit with a shared vision for ICT curriculum integration.

- **Recommendation 5**

Officials at both curriculum and e-learning directorates should be professional experts in ICT, in curriculum and in ICT-integration curriculum delivery. These directorates should aspire to translate policy into practice at directorate level, by applying ICT to their own administration and services. Communities of practice may be developed through district initiatives. These communities of practice may exist between districts, and between districts and schools.

## **6.7 Conclusion**

Utilising a socio-cultural approach to policy *as* practice, this study added various nuances and textures to the expanding body of research that explored teachers' experiences of the implementation of the e-education policy. The beliefs, attitudes, will and professionalism of teachers to improve teaching and learning through the use of ICT are integral to policy implementation. Policy implementation whether



favoured by top-down policy analysts or backward mapping proponents, continues to occupy centre-stage in policy studies. A sustainable benefit of the backward mapping approach is that, as actors at various levels are drawn in, their own positive and proactive professional roles are enhanced in an interlinked process of defining and implementing policy. It could be expected that over time, this flexibility and responsiveness of the educational system would develop to include teachers' voices.

Whatever the intention of government for crafting the e-education policy, the introduction of ICT into schools created change in the school environment and left an indelible mark on the practice of teachers. Teachers should not be seen as mere conduits of national policy, but rather as social, cultural and professional actors that have the ability to articulate, construct and implement new education policies. Teachers are crucially situated at the point where policy meets practice. They are an extremely valuable resource in policy implementation and should not be ignored in the policy formulation process.

*“Those who seek to understand the meaning and import of educational policy seek at the same time to inform it, as citizens and as professionals. Being mindful of the dangers of speaking for others, policy researchers are nonetheless in a position to raise awareness in the policy formation process of the multiple sites in which policy manifests, as well as the multiple meanings that governing policy may acquire in daily practice.”*

(Sutton & Levinson, 2001, p. 15).