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Mismatch between Policy Implementation and Ground Realities: The Case of Science Educator Mentoring in South African Schools

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ABSTRACT Research findings indicate mismatches between the substantive and procedural components of policies and what happens at the grassroots level. It has been found that mentoring policies were not exceptions. Mentoring is an integral part of the South African schools' Integrated Quality Management System (IQMS) and was intended to enhance the professional growth of educators. This study sought to find out whether mentoring actually takes place among high school science educators as part of IQMS. The sample consisted of 40 persons: all 38 high school science educators (the population itself) from six high schools, the district science advisor and the district IQMS coordinator. The study was carried out in one education district in the Eastern Cape Province of South Africa. Questionnaires, interviews and document analyses were employed to gather data. The data were categorized and then grouped in order to find frequencies and themes. The conclusions, amongst others, were: educators had some knowledge of mentoring but it was very limited; educators saw mentoring as a good idea to support them in their professional growth, but they needed to be helped to understand and be able to implement it; mentoring was dependent on the successful implementation of IQMS; educators sounded positive about mentoring, except for a few expressions of fear of change and a lack of readiness to embrace change. The overall conclusion was that there were mismatches between policy and its implementation. The recommendations include a multifaceted approach involving several stakeholders to enhance the success of mentoring as part of IQMS.

1. INTRODUCTION

Research activities on policy studies in general and educational policies in particular have been ongoing. Several papers have focused on the effectiveness of policy implementation (Aitchison 2003; Wilibald 2006; Karlsson 2007; Wasburn-Moses 2010; Ijaduola 2011). In general, research findings indicate mismatches between the substantive and procedural components of approved policies and what actually happens at the grassroots level. It has been found that mentoring policies were not exceptions (Wasburn-Moses 2010).

1.1. Characteristics of Policies and Distinction of Educational Policy from Educational Change/ Innovation/Planning/Reform

Ijaduola (2011) succinctly summarises the different characteristics of the concept of policy, *inter alia*, as: **t**he thinking at a high level of abstraction which expresses the goals and means of achieving them; the basis of day-to-day administration which serves as a guide to administrators when deciding the lines along which the system should be conducted; a definite course of action selected from among alternatives, especially in the light of given conditions; an overall plan and action which consist in general goals and procedures intended to chart and guide meaningful decisions; established course of action or plan reflecting the general goals and procedures and intended to guide and determine decisions.

According to Ijaduola (2011), the term educational policy has assumed a puzzling dimension, making it nebulous even among the practitioners of education. This researcher observes that many writers use the term loosely as being synonymous with educational change, educational innovation, educational planning or educational reform. Citing Onipede (2003) and Igbuzor (2006), Ijaduola (2011) argued that educational policy is the statement of intentions of the government and the envisaged means of achieving those aspects of the national objectives that have to rely on the use of education as a tool. Ijaduola (2011) states that educational policy

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denotes the determination of major objectives, the selection of methods of achieving these objectives and the continuous adaptation of existing policies to the problems that face a government. Educational policies ought to be formulated only after first identifying the overall philosophy and goals of the nation and this view of Ijaduola is echoed by other researchers such as Nieslanik (2007) and Brandenburger (2011). The present authors concur with Ijaduola's (2011) view that in a multi-ethnic, multi-religious and multi-linguistic nation like Nigeria, this identification is pertinent for successful implementation. South Africa is not different in these respects from the Nigerian context.

1.2. Mentoring

Despite the presence of several definitions for mentoring in the literature, some common factors emerge such as: dynamic, shared mentor-mentee relationship; a more experienced person acting as an advisor, guide and role model for the less experienced; ethically acceptable developmental relationship; mutual trust, respect, understanding and empathy; constructive interaction; a lifelong relationship in which a mentor helps a mentee (Schultze 2010; Chweu and Schultz 2010; Mammen 2012). Chweu and Schultz (2010) by citing Hung (2003), point out that mentoring ought not to continue indefinitely, but the mentee ought to move forward without the assistance of the mentor, once the mentor-mentee relationship ends.

Mentoring programmes are theoretically grounded on several theories rather than just one. Theories on self-esteem, self-efficacy. social constructivism, motivation and on guidance and counseling amongst others are relevant for mentoring. Geber and Nyanjom (2009) emphasize the transformation theory where mentoring adopts a broader than personal and professional development approach and moves to the transformation of the organization itself and its educational goals.

Mentoring is becoming popular in the field of education (Fagan and Walter 1982; Ballantyne et al. 1995; Wanzare and Ward 2000; Wasburn-Moses 2010; Mammen 2012). Mentoring in education differs from that in the corporate world and other civil services in that it can be both 'pre-service' and 'in-service'. In the past, mentoring in education tended to focus on pre-service and newly appointed educators where educators were expected to undergo a probationary period (Stephens and Crawley 1994; Ballantyne et al.1995). The need for improved and high levels of learning and teaching outcomes achievement led to an emphasis on in-service mentoring as a quality assurance strategy in education.

When democracy became a reality in South Africa in 1994, all government departments had to undergo changes in order to reflect the constitutional basis on which the country was to be governed. The education system too had to undergo changes in order for it to fit in with the new democratic order (Wilibald 2006; Karlsson 2007). In order to manage the system of education efficiently, management innovations were put in place. The Integrated Quality Management System (IQMS) was introduced as a comprehensive and integrated system (IQMS Training Manual for Educators 2003). Mentoring was made an inseparable component of IQMS.

Countries such as Britain and Ireland have already used aspects of the IQMS (Dhlamini 2009). It has also been used in medical schools such as those in the USA (Ramanan et al. 2002). In both USA and UK, in-service teacher mentoring has grown in response to the problem of teacher turnover and shortage (Fagan and Walter 1982; Brandenburger 2006; Nieslanik 2007). In both countries, the rate of teacher loss within the first five years of appointment dropped significantly with the effective use of mentoring (Miclette 2004; Brandenberger 2006; Nieslanik 2007). Within the Eastern Cape of South Africa, there has been a mentoring programme in the Faculty of Health Sciences at the former University of Transkei which is now part of Walter Sisulu University (Mammen 2005) and the programme continues successfully (Mammen 2012).

1.3. Mentoring as an Integral Part of the Personal Growth Plan in IQMS

IQMS aimed to integrate three complimentary components of quality management namely: Developmental Appraisal (DA), Performance Measurement (PM) and Whole School Evaluation (WSE). DA was the first level and formed the basis of educator professional growth. The focus on the educators' professional growth was to address various aspects of the educators' development including lesson preparation and presentation. Mentoring as an integral part of

IQMS was intended to enhance the professional growth of educators in line with the IQMS system.

The first step in implementing DA was a baseline assessment, which involved self-evaluation by the educator in order to identify areas of strengths and weaknesses while simultaneously setting time-frames to attend to the areas of weaknesses. In this self-evaluation, the educators were required to complete a form, keep one copy and give the original to the Department of Education (DoE). In the second step, the educators were required to draw up a personal growth plan (PGP) and select a mentor (peer educator). The peer educator was preferably to be one within the same school and had the "Phase/Learning Area/Subject experience/expertise and be able to provide the necessary guidance and support" (IQMS 2003: 22). The Head of Department (HoD) in the specific learning area and the mentor comprised the educator's Developmental Support Group (DSG), which was to be responsible for the baseline assessment of the educators in practice. The DSG was expected to maintain regular contacts with the educators to provide developmental support. As part of PGP, an educator was expected to select a personal mentor who would mentor her/him. The IQMS guidelines were intended to assist the educators to select their mentors. One of the requirements was that the mentor must have been teaching the particular subject/learning area (IQMS Training Manual for Educators 2003).

Educators were work-shopped on the initial implementation of IQMS, which according to the manual is described as "the initial advocacy and training" (IQMS 2003: 21). Our observation has been that in some schools the first and second steps of DA had been completed, these being baseline self-evaluation (assessment) and DSG baseline evaluation. In some cases, Science and Mathematics educators were assigned nominated peer mentors in line with IQMS guidelines. All the schools were supposed to implement and monitor the use of mentoring in order to ensure good performance in science teaching.

1.4. Research Questions

This study focussed on the period from the official launching of IQMS. The main research question was, 'Did mentoring take place among science educators in the selected schools to empower them on the science learning area as part of IQMS? The following sub-research questions were formulated in order to answer the main research question:

- What programmes were put in place to mentor science educators?
- Who was mentoring these educators?
- How have the mentoring programmes been implemented in the selected schools?
- How was the mentoring process monitored?
- Was there or was there not a mismatch between the practice on the ground and the envisaged policy?
- If there was a mismatch, what were the possible causes of the mismatch between the practice on the ground and the envisaged policy?

METHODOLOGY

This was a descriptive and exploratory case study in order to address the questions "how" and "what" of the research topic in compliance with suggestions by Robinson and Lai (2006). The population of the study consisted of all 38 science educators of Physical Science, Biological (Life) Science and Agricultural Science from six high schools in one education district in the Eastern Cape Province of South Africa, the science subject advisor and the district IQMS coordinator. The sample was the same as the population. The required permissions and the ethical clearance for the research were obtained from the relevant authorities. Respondents signed informed consent forms. Fairness, sensitivity and honesty were adhered to in order not to violate the sample subjects' rights. In order to improve the reliability of the data, two complimentary techniques were employed by using questionnaires to collect quantitative data and interviews to collect qualitative data, as suggested by McMillan and Schumacher (2001). Additional data were gathered through document analysis of circulars on IQMS, mentoring workshops and records of mentoring work in the schools and district office of the DoE.

The questionnaires focused on gathering quantitative survey data, for example, those on biographical details and on training, whether educators had mentors, frequency of meetings with mentors and positive or negative perceptions. The interview schedule focussed on in-depth details of the mentoring training and *men-*

tor-mentee interactions in order to gauge their usefulness and effectiveness.

All the 38 science educators were sent questionnaires designed by the three researchers. The District Subject Advisor, the District IQMS Coordinator and at least one science educator per school were interviewed. The subject advisor was interviewed because all the science educators were under the supervision of the same subject advisor and hence, the advisor ought to have been knowledgeable about the district initiatives to mentor the science educators selected for the sample. The documents analysed were circulars sent to the schools notifying them about workshops on mentoring, information to the schools about mentoring and records of mentoring work in the schools. They were gathered from the district DoE office, school principals and science educators.

The responses from the pilot study informed the improvements that were made on the questionnaire and interview questions used. The individual responses and comments from the pilot respondents assisted in facilitating validation of the instrument items. The different subjects gave similar responses that influenced the retention or rejection of instrument items. In order to check the items' reliability, a wide sample (educators and subject advisors) and the 'testing' at different times, were made use of. The interviews were not all conducted at the same time and in some cases the sample subjects were from the same schools as had been used for the questionnaires, providing the opportunity to establish reliability. The raw data from the questionnaires, interview schedules and checklists were recorded, analyzed and interpreted. The data were categorized and then grouped. Frequencies and themes were sought and identified from the data.

RESULTS

Out of the 38 science educators, 26 returned the fully completed questionnaires with a return rate of 72%. Hence the analysed data are for 26 educators from six schools. The gender distribution of the respondents were 16 (61.5%) males and 10 (38.5%) females indicating that either there were more male educators than females who are science teachers or that more male educators responded to questionnaires. The majority (15 or 58%) were in the 31-45 year old range. All educators had a qualification at least at the level of Grade 12 plus 3 years at minimum to complete. Out of them, 4 had Master's degrees and a teacher qualification. Their teaching experiences varied between 1-40 years with only 4 (15%) with 1-5 years experience. All were science teachers (14 or 54% teaching Physical science and the remainder 12 or 46% teaching mainly Biology).

Only 8 (31%) had a mentor and 18 (69%) did not. About 77% of the educators did not know the mentors' teaching subject. Most IQMS workshops occurred at school sites (62% for the 1st, 65% for the 2nd and 54% for the 3rd). The sites for the remaining workshops were those arranged by DoE. According to IQMS, educators ought to have chosen mentors after the 1st workshop, but only 7 (27%) did so. After the 2nd workshop, 5 (19%) chose theirs. Finally, there were 16 (62%) with mentors when the study was concluded. The remainder 10 (38%) had not chosen mentors. Out of the 16, the majority (9 or 56%) preferred to meet mentors only when the need arose (they also actually met mentors at least once), 1 preferred a casual meeting over a cup of tea, and the remainder responded 'Not Applicable'. Only 5 (19%) attended mentee training. Although school authorities were obliged to ask for mentoring reports, none did so. However, the DoE office asked for reports once but only 1 educator had a written report on file.

Interviews were held with 6 educators, one from each school, with the science subject advisor and the district IQMS coordinator. Table 1 displays the analysed summarised data from the interviews with the six educators, one from each of the six schools.

In most cases, the facilitators were from the School Management Team (SMT), mainly peers. The interviewees considered mentoring as helpful to less experienced educators and as an activity to improve teaching and for professional growth. They heard of mentoring in schools mainly from IQMS documents or workshops. The interviewees were able to formulate the definition of mentoring highlighting its characteristics although the emphases varied. The enhanced knowledge was attributed to the influences from IQMS documents, workshops or experiences of being mentored. Stated verbatim, the responses were: Not sure, (after some explanation), then sees it as helpful; experienced guide for a period, sharing experience, parents on children; sharing in your subject, role model to look to; for professional support anyone can be a mentor -changed

Table 1: Interview data analysis with 6 science educators

S. No	*Theme (category)*	*Interview # 1*	*Interview # 2*	*Interview #3*	*Interview # 4*	*Interview # 5*	*Interview 6*
1	*IQMS Workshops Attended*	2	2	2	Yes	2	2
2	*Facilitators*	SMT	SMT	DoE	SMT	SMT	SMT
3	*Benefits of Mentoring*	Mentoring Great support	Help to lessexperience deducators	Helpful	Can improve teachers a lot	Professional growth and motivation	Help a lot
4	*Mention of Mentoring*	IQMS	IQMS	DoE	IQMS Coordinator	IQMS	IQMS workshop
5	*Definitionof Mentoring*	Not sure, (after some explanation) Then sees it ashelpful	Experienced Guide for a Period, sharing experience, parents on children	Sharing in your Subject, rolemodel to look to.	ForProfessi-onalsupport anyone can be a mentor. Changed view after a work-shop to an experienced guide.	Good example-leading by example, lessexperi-enced by the experienced	More experi-enced helping the new.
6	*Mentor*	No	No	Not here but other school I was in	Yes, same school and subject	Yes, maths same school	Yes same subject (hesita-tingly)
7	*Monitors*	DoE-SES	HoD, DoE-SES and Parents-Children	HoD, DoE-SES, Teachers are negative see it as way of monitor-ingthem.	SMT, DoE-Curriculum People	SMT. All teachers should mentor and be mentored too	SMT and DoE
8	*Documentson Mentoring*	None	None	None	None	None expect some on Christian leadership at home	None
9	*Future of Mentoring*	A good support system	Help teachers to what they should do (teaching)	Can help, 95% of Physical Science teachers don't know the new topics in NCS. Men-toring can help here.	Can improve teachers. Teachers don't ask among themselves at school.	(Relationship problems-conflicts) Good, how you guide in teaching can help moti-vate teachers. It will take off a lot of young staff and princi-pal too.	Especially the new teachers, SMT must monitor and help us, involve us.
10	*Overall Impressions*	Little knowledge of mentoring	Limited understanding of mentoring	Some understan-ding of Some under-standingof mentoring	A balanced understanding of mentoring mentoring	Some under-standing of mentoring	

Notes: IQMS: Integrated Quality Management System; SMT: School Management Team; HoD: Head of Dept.; SES: Senior Education Specialist; DoE: Department. of Education

view after a workshop to an experienced guide; Good example-leading by example, less experienced by the experienced; more experienced helping the new. The verbatim responses on definition of mentoring are indicated in Table 1 and as they were from different schools, one may assume that across the schools, there is enhanced understanding.

The interviews with the subject advisor and IQMS coordinator corroborated with the data supplied by the educators by admitting that the mentoring component within IQMS has not taken off as was stipulated and expected. However, the IQMS coordinators conceded that school IQMS coordinations are only beginning to happen and hoped that there will be a steady flow of information and that mentoring activities will take place at school level. The subject advisor focussed the responses on educators' requests for mentoring on content-knowledge.

DISCUSSION

The biographical data indicated that the sample of science educators had the relevant qualifications and were experienced. IQMS was introduced in the schools and started. The initial stages of IQMS have been implemented. Data showing that only 31% of science educators had a mentor and 69% did not and that about 77% educators did not know the mentors' teaching subject despite IQMS requirements alluded to earlier are far from what were planned.

Peer mentoring should have started among educators in line with IQMS, but it appears that this has not been the case. Some forms of peer mentoring have been conducted, but not so much in line with IQMS guidelines. Monitoring of the mentoring process was not undertaken. The policy expectations in relation to mentoring were incongruent with what has been observed on the ground. These findings are supported by Jansen's (1999), Wilibald's (2006) and Karlsson's (2007) assertions that policy changes are not often influenced or informed by the reality and input from the ground. Wilibald (2006) states that ineffective implementation of educational policies limited the achievements of the goals of the transformation agenda in South African education. The study by Wasburn-Moses (2010) found that uneven implementation of policy is common and that some stated policies were not adhered to consistently.

Educators are going through a difficult phase in their professional development and growth, and as such, they need guidance, support and encouragement. The successful implementation of IQMS has implications for mentoring. Rolfe (2006) describes mentoring as being supportive. Many educators struggle to deal with the reality of change. Bartlett and Fletcher (2003) point out that educators need help to cope with change. Educators need a lot of support and monitoring from DoE as they venture to implement mentoring as part of their professional development. This view is supported by Phurutse (2005) and the National Policy Framework for Teacher Education and Development in South Africa (2006). Educators' perception of mentoring takes a narrow view such as the one expressed by Shaw (1995: 73), which puts it as "supporting a colleague professionally who is less experienced than the mentor".

In essence, the study revealed that there were mismatches between the substantive and procedural components of the policy and the reality in terms of implementation on the ground. These findings confirm observations by other researchers such as Aitchison (2003), Wilibald (2006), Karlsson (2007), Wasburn-Moses (2010), and Ijaduola (2011). In an era where science learning and teaching in schools is focused upon as an important factor in developing countries, the results of this research have revealed ineffectiveness. Wilibald (2006) too shares a similar view in terms of the ineffectiveness of policy implementation in the Eastern Cape Province of South Africa.

Some identified challenges derived from the study and recommended solutions are given in Table 2. The challenges can be summarised as: inadequate motivation and unwiilingness of mentors and mentees to provide support to each other which negatively impact on mutual rapport; inadequate facilities and facilitation; ignoring individual differences; fear of change that may to lead to resistance; mentors' work overload and, irregular monitoring. Specific recommendations are presented in Table 2, in order to overcome the challenges.

Figure 1 depicts a mismatch remedy model at macrolevel. At the very outset, four pertinent factors need to be considered together: policy imperatives, the stakeholders involved, implementation strategy and finally, a consensus on implementation. Since stakeholders and the cir-

Table 2: Some identified challenges and recommended solutions

S.No.	*Factor*	*Identified challenges*	*Recommended solutions*
1	Publicity/Advocacy: Argue for and publicise the purpose and intended outcomes of implementing peer mentoring	Lack of will to accept/implement	- strive to get buy in by showing possible benefits. - compare own situation will international trends
2	Training: the theoretical and practical demonstrations of how the process of peer mentoring is conducted. Some literature on implementation would be an advantage	Venue, Attendance Facilitators	- As suitable to all as possible - Sanctions and rewards , - To make the workshops worthwhile
3	Baseline assessment: establish the level at which the educator is at on the selected professional competencies in line with IQMS.	Providing training in an 'one size fits all' approach	- Use questionnaires to assess mentees' levels of knowledge in the specific areas
4	Mentee acceptance	Unwilling mentees get in	- Prefer those willing to be trained and get mentee acceptance form signed
5	Formalise the terms of reference	Inadequate structuring	- include frequency of meetings, venue, reports, feedback, communication and length of relationship
6	Negative perceptions, attitude and inadequate commitment	Suspicion and fear of changeUnfavourable attitude, inadequate commitment and not seeing benefits	- Show possible benefits and global trends - Use the early adopters as showcases of success and benefits and Department of Education (DoE) to show visible support
7	Work overload pressure	Feeling the pressure of extra work	Motivation by indicators to specific benefits attached to compliance
8	Motivation	Low or lacking	- Showcase success stories in particular within the country- Use incentives at school or DoE level for achieved outcomes
9	Monitoring	Poor or none	- DoE to take the lead- The model has enough detail to require input at each stage as a way to ensure monitoring
10	Documentation	Often not available at most stages	- Provide literature to support the initiative at advocacy stage - Provide user friendly literature at training stage-Provide clear guidelines and templates for implementation at each stage
11	Resources Inadequate or lacking	Ineffective delivery	- DoE to step in where necessary with training resources - School too to support where possible e.g. time for meetings to be set aside especially at the inception stage

cumstances in which the implementation has to take place, a 'one size fits all' slogan cannot work effectively and hence consensus is significant. This consensus must cascade down to formulate both mentor and mentee training which will facilitate effective implementation of mentoring as planned. Furthermore, the consensus will enhance 'buying in' of the implementation by the stakeholders in order to commit themselves wholeheartedly to the implementation strategy. Monitoring and evaluation must follow implementation and will lead to identification of the

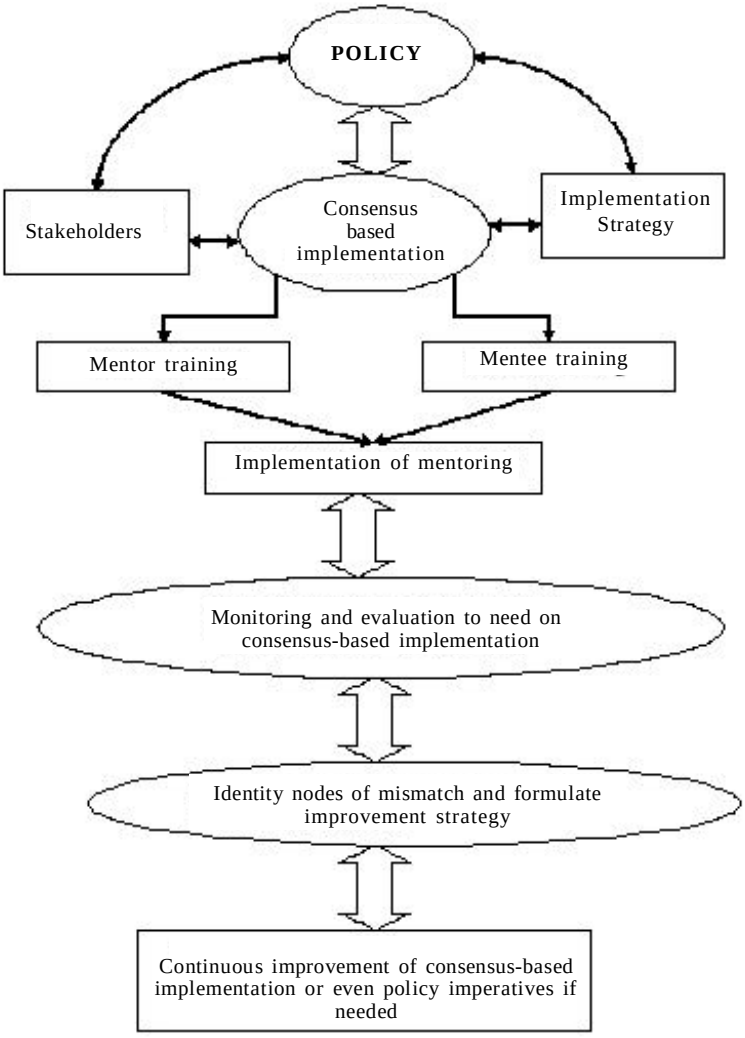

Fig 1. Mismatch remedy model: Macrolevel

various possible nodes of mismatch, which in turn, will lead to formulate the improvement strategies. Repeating the monitoring and evaluation in regular cycles ought to promote continuous improvement.

Figure 2 was crafted from an overall experience derived from this research, displays the sequence of actions that would improve the effectiveness and efficiency of the implementation of the mentoring programme at microlevel. As can be seen from Figure 2, publicising and advocating for the need for mentoring is important. Focussed training and mentor selection based on specific pre-set criteria are needed. Furthermore, regular support group meetings and monitoring at ground level are essential. Finally, mentoring reports followed by an end of the year ceremony to highlight both strengths and weaknesses and to present lessons learned should conclude the activities. All stakeholders must be part of the microlevel activities.

CONCLUSION

In terms of research sub-questions: the programmes that were put in place to mentor sci-

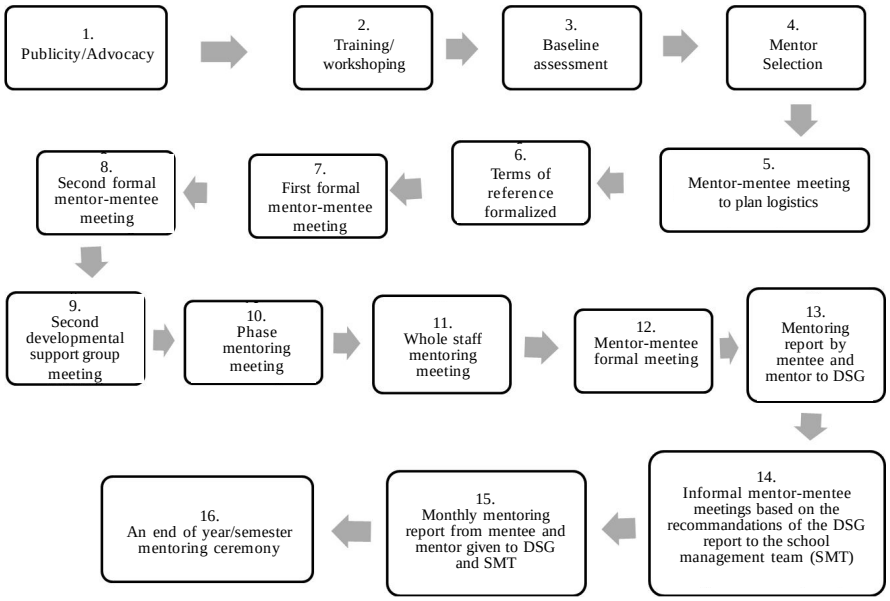

Fig. 2. Microlevel action plan

ence educators included School IQMS coordinator trainings; senior colleagues were to serve as mentors but this was not happening; the mentoring programmes have not been effectively implemented in the selected schools; the mentoring programme was to be monitored through recording the mentor-mentee interaction in the form of written reports but the results indicated that this too has not been happening; the monitoring ought to have happened first at the school level and escalated to the district level of DoE and this too was not happening. The mismatch is on non-implementation of the policy beginning with lack of initiatives at school level, despite IQMS training. The answer to the main research question then is that mentoring as envisaged in the policy did not and does not take place among science educators in the selected schools. The cumulative data indicate that: educators had some knowledge of mentoring but it was very limited; educators saw mentoring as a good idea to support them in their professional growth, but they needed to be helped to understand and implement it; mentoring was dependent on the successful implementation of IQMS and it had not yet been effectively implemented; this had a negative impact on the implementation of mentoring; educators sounded positive about mentoring, except for a few expressions of fear of change and a lack of readiness to embrace change. In essence, there were mismatches between the substantive and procedural components of the policy and the reality in terms of implementation on the ground.

This research investigated the effectiveness of implementation of a rolled out mentoring initiative in terms of science educators' experiences of reaping benefits and found that there is surely room for improvement on many fronts. Similar research in other districts and provinces within South Africa on implementation of mentoring of educators and the effectiveness of implementation of policy-driven mentoring of educators in general and of science educators in particular internationally will add to the wealth of research-based information.

RECOMMENDATIONS

The recommendations include a multifaceted approach involving several stakeholders to enhance success in mentoring as part of IQMS. If mentoring can be effectively implemented, it will not only provide educators with support but it will also develop in them the confidence to undergo assessment with confidence and encourage a culture of reflective practice, peer support and peer collaboration. Mentoring being a catalyst for professional development, it needs to be encouraged not only from policy-driven initiatives from the DoE, but also from initiatives

at school level itself. Regular reviews of the mentoring programmes and revision of implementation strategies based on feedback from reviews are essential for the development of educators in general and science educators in particular. This is especially so in developing countries in general and in Africa in particular which is in dire need of emerging scientists from its younger generation

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