Exploring the use of Technology textbooks in medium- and well-resourced school contexts in South Africa

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ABSTRACT

This study explored how Technology teachers in medium- and well-resourced schools use commercially prepared textbooks in their classrooms. A qualitative-interpretive design was used, with a purposively selected sample of four schools from a city in the Gauteng province, South Africa. Data were analysed according to the conceptual framework of didactical transposition, focusing on textbook content, activities, context and teaching strategies. It was found that teachers in well-resourced schools adapt textbooks by adding content, expecting a higher standard from textbook content, and preferring learners to work individually, while teachers in medium resourced schools follow textbooks without adapting them, accepting the standard set by the textbooks. It is recommended that teachers in both contexts be assisted by specialists to interpret the curriculum so as to be sure how they are expected to use textbooks to improve their classroom practices.

Key words: Technology Education, textbook use, adapting textbooks.

TECHNOLOGY EDUCATION IN SOUTH AFRICA

Technology Education was introduced for the first time in 1998 in South Africa as a separate learning area in a new curriculum named Curriculum 2005 (Department of Education (DoE), 1997). Curriculum 2005 (C2005) introduced Outcomes Based Education (OBE) to South Africa as a replacement for the previous content-heavy curriculum established during the apartheid era (Jansen, 2001; Pudi, 2006). C2005 was accompanied by serious challenges that were identified in the literature, including different understandings of the OBE pedagogy, unspecified content to support the outcomes, inadequate training for teachers to implement the new curriculum, and inadequate resources (Adler, Reed, Lelliot & Setati, 2002; Jansen, 2001; Potenza & Monyokolo, 1999). In addition, the introduction of C2005 led to questioning of many traditional practices in teaching and learning, including the use of textbooks (Ensor, Dunne, Galant, Gumedze, Jaffer, Reeves, & Tawodzera, 2002). Jansen (1999) argued that these problems surrounding C2005 were worse in disadvantaged schools.

Technology teachers experienced additional problems because Technology was a new learning area for which the teachers were poorly trained and unsure of what the curriculum expected of them in terms of educator roles (Ankiewicz, 2003; Potgieter, 2004; Pudi, 2005). Although there were many new textbooks available, their approach and content varied considerably, complicating their selection and classroom utilisation.

The challenges surrounding C2005 led to its revision and the introduction of the Revised National Curriculum Statement (RNCS) in 2002 (DoE, 2000). The lack of adequate resources such as textbooks was not resolved as the introduction of the

RNCS was followed by the development of even more textbooks (Stoffels, 2004). For Technology teachers the RNCS did clarify some of the uncertainty about appropriate content to be taught, however the problems regarding inadequate professional development and poor understanding of the OBE approach were not resolved (Engelbrecht, Ankiewicz & De Swardt, 2007; Pudi, 2006). In 2010, new revisions to the curriculum were announced in the Curriculum and Assessment Policy Statement (CAPS) (DoE, 2010), according to which, textbooks play an important part in teaching and learning of content and should allow adaptation of the content for learners who experience barriers to learning (DoE, 2010).

The DoE (1997) expects teachers to be creative and innovative curriculum developers, able to redesign and develop their own learning materials according to learners' contexts. However, this did not become a reality for many South African teachers as they were generally unprepared to implement the new curriculum and NCS training had not follow an outcome-based approach to prepare them to teach (Schudel, Le Roux, Lotz-Sisitka, Loubser, O'Donoghue & Shallcross, 2008). Rather, they simply reproduced what they saw in training sessions as they did not have a sound understanding of the philosophical and pedagogical underpinnings of OBE (Pudi, 2006; Stoffels, 2004). For Technology Education, the challenge may be intensified, as it is a new learning area in which teachers have not accumulated experience of the subject-specific content knowledge and the use of the technological process that would enable them to adapt textbooks confidently. However, this paper does not aim specifically to explore the exposition of the technological process in textbooks, preferring a broader focus to understand the pedagogical use of textbooks.
The situation raises questions about how Technology teachers deal with the availability of a variety of textbooks in order to teach the latest curriculum. This paper reports a sub-section of a larger study on 'how Technology teachers evaluate, select and use technology textbooks'. Therefore, this paper focused on how technology teachers use textbooks in middle- and well-resourced schools. The study was motivated by authors experience as an educator, cluster leader and trainer in teacher development programme. From discussion with other educators at curriculum workshops and cluster meetings, it was evident that there was a great uncertainty on how to use new NCS textbooks. NCS textbooks are structured in OBE approach with is a learner-centred approach. Therefore, teachers where afraid to move from old approach which is teacher-centred approach to new approach which is learner-centred approach. Based on this uncertainty, how do technology teacher use technology textbook in their classroom practice?

RESEARCH ON THE USE OF TEXTBOOKS

While textbook use in classrooms has been discussed widely in the literature with respect to other subject, there is a dearth of literature on how technology teachers use textbooks. This literature discussion will therefore focus on results reported across many subjects.

According to Ball and Cohen (1995), learners do not engage with textbooks on their own in a classroom, but rather experience the textbook as a support to their learning as mediated by the teacher. Even in the OBE era, learners are not expected to be independent textbook users (Blachowicz, 2008, Pudi, 2005). Teachers' use of textbooks has been classified in various ways (Jaffer, 2001; Johnson, 1993, cited in Haggarty & Pepin, 2002; Zahorik, 1991), based on their adaptation of them. Johnson

distinguished between those teachers who follow and mirror without deviating from the content and sequence, and those who break away or work selectively from textbooks. The latter category may use sections selectively, change sequencing, decide how learners should make use of the text, choose teaching strategies and control the way in which text is made accessible to learners (Haggarty & Pepin, 2002).

Although 'teaching by the book' has been regarded as poor practice (Doyle, 1992, cited in Haggarty & Pepin, 2002), teachers frequently teach the textbook, for which there may be various reasons. They may lack content knowledge and confidence in their learning areas (Ben-Peretz, 1990; Harniss, Dickson, Kinder & Hollenbeck, 2001; Lam & Lidstone, 2007) or have little or no grasp of the conceptual framework of the subject (Sutherland, Winter & Harries, 2001). In a similar vein, Islam and Mares (2003) found that most of the teachers using published materials in the classroom are not involved in creating materials and thus have little knowledge of how to adapt materials for their classrooms. Nor do teachers have adequate time to modify materials as they are often immersed in burdensome paperwork (Harniss et al., 2001, Haggerty & Pepin, 2002). Nevertheless, it may also be that teachers believe that curriculum developers or authors of commercial textbooks possess valid knowledge and expertise which is reflected in their choice of the topics, themes and principles included in the materials (Ben-Peretz, 1990).

Content adaptations serve to facilitate student learning of important contents (Harniss et al., 2001), one important adaption being the selection of only the most important information from a text and arrangement of it within one's own organizational structure or context (Kameenui & Carnine, 1998). Additional sources (Haggarty & Pepin, 2002; Lambert, 1999) or personal aspects (Julie, 2006) may also be included to enrich existing content. However, when teachers adapt textbooks it may actually disadvantage the learners. Ben-Peretz (1990), Ensor et al. (2002), Jaffer (2001), Roehrig, Kruse and Kern (2005) argued that teachers who introduce many changes interrupt the narrative and progression, disconnect links between activities and the coherence of content, which can destroy the purpose of learning the content.

Textbooks should present enough activities to accommodate different abilities and learning styles (Lemmer, Edwards & Rapule, 2008), however, as with learning support materials they are frequently used to copy and complete activities instead of being utilized in knowledge construction (Milne, Gough, & Loving, 2002; Stoffels, 2004). For example, Mathematics teachers in England, and Science teachers in South Africa (Stoffels, 2004) and Namibia (Lubben, Campbell, Kasanda, Kapenda, Gaoseb, & Kandjeo-Marenga, 2003) depend heavily on the textbooks, making learners copy and complete activities from them. Nonetheless, it is to be expected that teachers would use textbooks in different ways in their different classroom context (Ensor et al., 2002).

It is recommended that textbooks should be grounded in practical contexts (McIntyre, 2008; Taylor, 2001). Contextualizing textbook information is the basis of constructivist learning, meaning that knowledge develops during social interactions or day-to-day experiences with others in a particular cultural context (Meacham, 2001; Vygotsky, 1986). Although it is suggested that using everyday examples is challenging for many teachers (Stears, Malcolm and Kowlas, 2003), the need for

modification to suit learners' contexts has become crucial component and need to be adressed (Shudel et al. 2008). Similarly, it can be expected that Technology teachers in South Africa may also find contextualizing difficult, despite the learning area being essential in preparing learners to interact with society and environment (DoE, 2002). In addition, increasing availability of internationally published materials also makes it difficult for teachers to relate everyday knowledge to science knowledge (Nugrahenny, 2005). Therefore, Schudel, Le Roux, Lotz-Sisitka, Loubser, O'Donoghue & Shallcross (2008) emphasised the need to train teachers in situated contextualising process as a way of help teachers to find and used relevant information.

Regarding teaching strategies, it was found that teachers sometimes change proposed strategies to such an extent that it denatures the pedagogic intentions (Candela, 1997; Ensor et al., 2002). Haggarty & Pepin (2002) conducted a study on "an investigation of mathematics textbooks and their use in Germany, France and England". The study looked at popular selling textbooks in each country and their treatment of 'angle', and examines teachers' mediation of those books based on observation and interview of a small sample of teachers in those countries (ibid, p567). The authors found that experienced teachers were inclined to use their own preferred strategies, as they had a 'bank of ideas' to support their lesson plans (ibid, p584). In South Africa, Ensor et al., (2002), found that some teachers use the teaching strategies presented in the textbook while others use their own preferred methods for teaching and learning. Nevertheless, many teachers do not concern themselves with deciding how the material they are teaching should be presented, but rely upon textbooks to make those decisions for them (Ben-Peretz, 1990). In Namibia, Lubben et al. (2003) reported that science teachers used a drill, practice and rote learning approach, and depended heavily on the text. These varying findings indicate that teaching strategies may be a personal preference, sometimes related to experience.

From this literature it is evident that teachers' use of textbooks can be broadly grouped into two practices, namely adaption (Haggarty & Pepin, 2002) or non-adaption (Lubben et al., 2003), with four emergent categories of textbook adaption, namely content (Ensor et al., 2002;Harniss et al., 2001), context (Ensor et al., 2002; Nugrahenny, 2005), activities (Lubben et al., 2003; Lemmer et al., 2008) and teaching strategies (Ensor et al., 2002; Lubben et al., 2003). The reasons for many teachers to prefer to remain faithful to textbooks are not so clear, although author like Harniss et al. (2001) indicated lack of confidence and insufficient content knowledge; Hagarty and pepi (2002) indicated insufficient time-on-task; and Potgieter (2004) indicated inadequate training as a contributory factors. For Technology Education in South Africa, intensified challenges around textbook adaption is expected because it is a new learning area operating within a new OBE pedagogy, with poorly trained teachers (Ankiewicz, 2003; Potgieter, 2004; Pudi, 2005).

The framework of didactical transposition of curriculum materials (Candela, 1997) underpinned the investigation, focussing on the four categories of textbook use emerging from the literature i.e. content, context, activities, and teaching strategies. According to Candela (1997, p499) didactical transposition refers to the process of transforming an 'object of knowledge to an object of teaching' in the classroom. Didactical transposition can therefore be regarded as an input-output process, by which the content knowledge covered by the textbook is transformed to produce

school knowledge, as shown in Figure 1. Candela (1997, p.499) described school knowledge as the 'product of a collective construct process expressed through everyday school practices in the classroom'. This construction of school knowledge occurs when learners assimilate content knowledge with individual knowledge through discourse and classroom interaction, as in the socio-constructivist view of learning (Vygotsky, 1986). Effective teachers should therefore have different kinds of knowledge, which include that of the subject matter to be taught (content knowledge) as well as of specific strategies to teach that specific content (pedagogical content knowledge) (Van der Sandt & Nieuwoudt, 2005). Teachers are therefore 'considered as active participants that contribute with their capacity, experience, knowledge, affectivity and psychological, social and cultural history to the construction of school knowledge' (Candela, 1997, p.499).

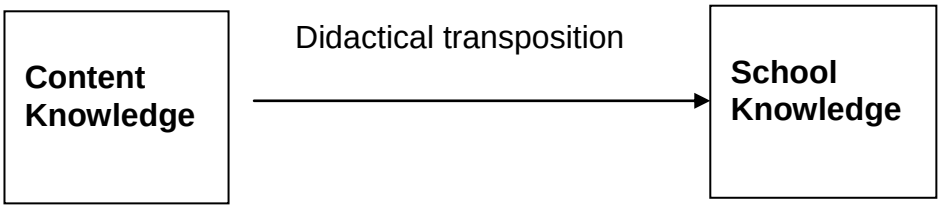

Figure 1: Didactical transposition as an input-output process.

Candela (1997) found that transformations made by the teachers often change a textbook's intended teaching strategies. In a study in Mexican science classrooms, he found that most teachers did not replicate the learner-centred or problem-solving approach suggested in the textbooks for practical work, but rather transposed it into 'teacher demonstration' in order to avoid learners talking which disrupt the class.

METHODOLOGY

A qualitative-interpretative study was undertaken to explore the way Technology teachers from two medium- and two well-resourced school contexts in the Gauteng province of South Africa use textbooks. The medium-resourced school where in township area whereas well-resourced where schools in suburban area. Schools were chosen from suburban as well as township areas through purposive sampling, (Creswell, 2008; De Vos, 2002). Two instruments, semi-structured interviews and classroom observation were used to collect data on how Technology teachers use textbooks. Since research ethics protect the public and research community against scientific misconduct (Wassenaar, 2006), ethical clearance was approved by the Ethics Committee from the University of Pretoria prior to data collection. In a process of data collection that took two months, the interview questions and observation schedule were based on the four categories of textbook-use extracted from the literature. Interviews were conducted privately after school hours and were audio-recorded with the consent of the teachers so that the sessions could be replayed for detailed and accurate transcription. The dates and times for lesson observations were agreed on in advance, so teachers would be prepared and at ease. Each teacher was observed four times in different days, for at least 30 minutes per lesson on how they used the textbooks during lessons. Field notes were written during the observations and observation schedules completed immediately afterwards.

Data analysis began with transcribing the recorded interviews and writing narratives of the lesson observations, which in turn were checked by the participating teachers for a true reflection of their intended meanings. Next, data were coded in terms of the categories, including some quotations to present the perspectives of the participants (Terre Blanche, Durrheim & Kelly, 2006).

Credible research produces findings that are convincing and believable (Kelly, 2006). In qualitative research, credibility of results depends on rich data and skilful analysis of the data rather than a large sample (Libarkin & Kurdziel, 2002; Patton, 1990), as well as on accurate description of the way research was conducted (De Vos, 2002). In this study, credibility was enhanced by prolonged engagement of two months in the research field, building relationships of trust with the teachers so that they were at ease during interviews and observations. Open and specific questions were used to enhance credibility of the interviews. Confirmability involves neutrality of the research interpretations, which requires confirming findings or data with other people (De Vos, 2002). According to Creswell (2008) confirmability can be done through triangulation, 'the three points to the triangle are the two data sources and the phenomenon'. By triangulation, the qualitative researcher checks for corroborating evidence from different individuals and different data types or methods of data collection. Therefore, in this study the interpretations of the interviews and observations were checked by the participants, as well as two qualitative research colleagues in the field. Finally, the credibility was supported by emphasis on triangulating the data from observations and interviews.

SAMPLE

The sampled schools were all secondary schools, accommodating learners from grade 8-12 from the same school district in the Gauteng province. All names for teachers are pseudonymous, reflecting the school contexts where these teachers work. For well-resourced schools, names are prefixed by 'W' and for middle-resourced schools by 'M'.

Well-resourced schools

Winnie is a black teacher in a class that has black, white and coloured learners, the majority of whom come from affluent homes. Winnie is a qualified teacher, who has been teaching Technology education subject for 7 years but she was not trained as a specialist. School fees are between R5,500 and R8,000 per year, and many parents are professionals or government workers. The school is situated in a suburb and the classroom is well set-up. The class has enough chairs and desks for all learners to sit individually. The desks can easily be arranged for group work. Winnie is a post-level one teacher with seven years' experience of teaching Technology, at this particular school. She uses three different textbooks for lesson preparations which are *Sport-On Technology grade 9* (Bell, Marchant, Pretorius & Smith, 2007), *Technology Today grade 9* (Johnstone, Nkosi, Schreuder, Sherwood & Ter-Morshuizen, 2006) and *Shuters Technology grade 9* (Franken, Kellerman, Lehlakane, Ngetu, Sadeck & Truter, 2003). Each learner has a copy of *Spot-On Technology grade 9*, as well as a Technology workbook developed by the former Rand Afrikaans University (RAU) by Engelbrecht, Ankiewicz and de Swardt (2004). This workbook is convenient as learners can do their portfolio work individually, with activities structured in terms of questions and spaces provided for learners to write their answers. The learners use the

textbook as a reference, but the workbooks also explain some of the information required for engaging in the activities.

Wilma is a qualified teacher, who has been teaching technology education subject for the past 5 years. Wilma was not trained as a Technology education specialist but she learned this during teaching. She is a white teacher in a class with white and black learners, the majority of whom come from wealthy homes. The school is situated in a suburban area, with fees between R5,000 and R8,000 per year. Each learner has a table and chair. The teacher has a laptop, projector and a chalkboard for class presentation. Wilma is a post-level one teacher, having five years' experience in teaching Technology. She uses three different textbooks i.e *Sport-On Technology grade 9* (Bell, Marchant, Pretorius & Smith, 2007), *Technology Today grade 9* (Johnstone, Nkosi, Schreuder, Sherwood & Ter-Morshuizen, 2006) and *Shuters Technology grade 9* (Franken, Kellerman, Lehlakane, Ngetu, Sadeck & Truter, 2003). In addition she is also using internet to help her with preparations. Each learner has a copy of *Technology Today grade 9* (Johnstone, Nkosi, Schreuder, Sherwood & Ter-Morshuizen, 2006).

Middle-resourced schools

Mike is a qualified teacher with 20 years of experience in teaching but he is having 7 years of experience in teaching Technology education subject. Mike was not trained as a specialist is Technology education but he learned while teaching. He is a black teacher in a class that has only black learners, the majority of whom come from very poor homes. The school is situated in a township area where learners pay fees of R350 per year, and many of the parents are unemployed. In this context, Mike reported that some learners cannot pay school fees and usually do not eat during break. The classroom is moderately set up, other chairs where broken and old desks with a chalkboard and learners where sitting in pairs or three. Some windows are broken and the paint is flaking off. Mike is a post-level one teacher with 20 years' experience of teaching, seven of them, teaching Technology. The teacher and learners use *Spot-on Technology grade 9* (Bell et al., 2007) textbooks. Mike explained that he takes the textbooks from one class to another because the school does not have enough for all the classes.

Moses is a qualified teacher with 10 years experience as well as teaching Technology education subject. However, he is not trained as a Technology education subject. He is a black teacher with a class of only black learners, the majority of whom come from disadvantaged backgrounds. The school is situated in a township area with school fees of R300 per year. Most parents are unskilled workers and others are unemployed. Many learners do not eat during break. The classroom is small with many learners, few desks and a chalkboard. Moses is a post-level one teacher with ten years' experience in teaching Technology. He uses three different textbooks for lesson preparations. Learners use *Spot-On Technology grade 9* (Bell et al., 2007), but they have to return the textbooks after lessons for use by other classes.

RESULTS

Results are presented in terms of the four categories of textbook-use extracted from the literature. The categories were reflected in specific interview questions, but open-ended questions could relate to any category, depending on teachers' responses.

Content
During the interviews, three of the teachers said they consult different textbooks to prepare for lessons. Both teachers from the well-resourced schools said that they actually compiled notes to provide additional information. Wilma said '*The book I am using is not the best in terms of comprehension. There are still a lot of information that I have to add in*'. Mike also used different textbooks, saying '*Sometimes you need to use what the learners see, that's why I'm using different textbooks'*.

During the lesson observations, in well-resourced schools, both teachers indeed supplemented the textbook by giving additional notes, in agreement with the interviews. In middle-resourced schools, Moses and Mike used only the information presented in the textbook and discussed it with the learners. Moses asked one learner to read the content information from the textbook. While the learner was busy reading, Moses often stopped her and asked questions to the whole class to stimulate discussion. Mike read the information himself and then discussed it with the learners. In both contexts, teachers explained the relevant content and involved learners in discussions.

Activities
During interviews, the teachers indicated that they regarded activities as a crucial aspect of textbooks. Moses said that he needed ''*... activities that can guide me*'. He further commented that '*it* [the textbook] *helps a lot, because it has got many activities that you can give learners to do'*. Mike added '*I use them* [activities] *sometimes as an informal assessment... You just have to change and look at Learning Outcome 2, it will tell you what to do and you find suitable questions that you can use'*.

In both contexts it was observed that all teachers used activities provided in the textbook unchanged and some teachers like Wilma developed additional activities. Mike only used activities from the textbooks, without any change or modification. Winnie said '*It is very simple, you know the school that you are teaching, also you know if they are having resources or not. If you don't have time and resources rather remove some of the things that are there'*. Winnie believes that if there is other information that is not familiar to learners in the activity, the teacher must remove that information as a way of adapting the textbook. Moses said that there were enough activities and that they were mostly clear, but if not, '*then I try to change them to be clear*'. During lesson observation, Moses used textbook activities as well as a self-developed activity. This was a simple activity, requiring learners to find definitions for some terms from the textbook. Wilma asked learners to copy activities from the textbook without modifying them during two of the lessons observed, but she used non-textbook related activities during the remaining two lessons. These activities were on a higher cognitive level, for example, learners had to use the internet to find circuit diagrams of different household and commercial devices and had to identify the components.

Context
During interviews all the teachers indicated that information and activities should be relevant to learners' daily situations. During interviews, Moses explained that he needs a textbook *'...that guide the child how technology is being compared with the real life situation.'* In both contexts it was observed that teachers used real-life

examples when explaining or discussing the content knowledge. Wilma was the only exception, as she did not relate any content with real-life contexts during explanations in the lessons observed. However, the internet activity she designed shows where she actually made use of information communication technologies, a familiar context for learners in this well-resourced school. Mike remarked '*...we design questions that suit learners who are in urban area. The textbook doesn't matter because most of the questions are coming from the rural area and learners here they don't know anything about rural area things.*

Teaching strategy

For activities, the teachers indicated that the textbooks used various teaching strategies, depending on the activity. Three of the teachers indicated that they seldom used the strategy proposed in the textbooks, but preferred to use their own strategies. Winnie was the exception, saying she preferred the strategy used in the textbook because '*they use simple approach .... They start from design and they finish by making ...*' hence not deviating from the SA curriculum's interpretation of the technology process. It seems like Winnie had a little light about the approach that is used to teach technology. According to NCS (DoE, 1997) technology education subject must be taught using technological process as a methodology. Technological process includes investigation, design, make, evaluation and communication. During observations, Moses was the only one actually using the strategy proposed in the textbook. The strategies used for activities differed within and across the two contexts. In the well-resourced schools, both teachers preferred learners to do their work individually, but learners were encouraged to discuss the activities in groups or pairs. Wilma said that the textbook used various strategies, but '*I prefer individual work, because it makes learners to do things themselves, others make them not to think themselves'*. It seems that most of the participating teachers have more experience in teaching which gave them confidents to decide for themselves on a suitable strategy.

The results are summarized in Table 1 to highlight similarities and differences found in the two different school contexts.

Table 1: Summary of findings on textbook use by teachers in medium and well-resourced schools.

Didactical transposition found for the four categories of textbook use	Schools contexts
Content	
Develop notes with additional content	Well-resourced
Read the textbook to the class	Middle-resourced
Explain or discuss with learners	Both contexts
Context	
Discuss content in real life context.	Both contexts
Activities	
Textbook activities used unchanged	Both contexts
Develop new activities	Both contexts
Teaching strategies	
Own preferred approaches used for textbook activities	Both contexts
Prefer individual work	Well-resourced

DISCUSSION

The two divergent ways of textbook usage found in the literature were also observed in the current study and, importantly, the phenomenon was related to school context. Teachers in well-resourced schools can be regarded as independent textbook users, while teachers from middle-resourced schools can be described as typical textbook followers.

In well-resourced schools, teachers were not completely satisfied with the content offered in textbooks, so they added content which they deemed necessary, while in medium resourced schools teachers read the relevant sections to the class, giving the textbook a position of authority. The reasons for this difference are unclear. It may be that teachers in well-resourced schools are better trained or perhaps more confident, and that the well-resourced schools maintained a traditional culture that valued content in spite of a sharper focus on skills rather than content in OBE.

Similarities between the two school contexts were found in terms of a preference for using ready-made activities from the textbook, but teachers in both contexts also developed additional activities. There was a remarkable difference between the cognitive demands of activities developed by teachers across the two contexts, suggesting that teachers in well-resourced schools have higher level cognitive expectations from learners.

In terms of contextualizing the textbook, all the teachers verbalised the value thereof for meaningful learning, however they did not act on these ideas during lessons or attempt to contextualise textbook activities. Therefore, while they were aware of the importance of contextualizing, it was not clearly reflected in activities. This may indicate that they did not know how to contextualise activities.

In terms of teaching strategies, in both contexts teachers seldom used strategies proposed in the textbook, but mostly used their own preferred strategies. Group work and working in pairs were observed in both contexts, but teachers in well-resourced schools preferred that learners worked individually. This once again suggested that well-resourced schools value the traditional emphasis on individual effort as opposed to grouping learners to work together.

Finally, there are indications that some teachers in well-resourced schools valued traditional teaching approaches, by expecting more of their learners than presented by the textbooks and preferring individual work. However, the reason for this traditional orientation is not clear. In fact, both the teachers in the well-resourced schools began teaching in schools after the introduction of Technology Education and OBE, so it can be argued that their practices were not influenced by their own personal experiences of teaching the old curriculum. We argue that this practice of adding content may be an indication that they believe that the textbooks do not meet the curriculum requirements. On the other hand, in medium-resourced schools teachers followed the textbook rather than rely on their own judgement for adaptation of the text. Paradoxically, it therefore seems that teachers in both contexts are actually unsure of curriculum expectations.

LIMITATIONS AND RECOMMENDATIONS

While results obtained from a case study cannot be generalized, the value of this study lies in understanding how these four teachers from two school contexts used textbooks during the early years following the introduction of Technology in South Africa. This study opened up the question of why some teachers adapt and others follow textbooks. While following textbooks uncritically may be regarded as poor practice, it has also been pointed out that adaptations, especially by under-prepared teachers, may disconnect the coherence, losing an author's intentions. It is therefore recommended that teachers from both contexts be assisted by curriculum specialists to interpret the curriculum so as to be sure of how they are expected to use textbooks effectively, along with other resource materials, to improve their classroom practices.

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APPENDIX

A comparative study on how Technology teachers evaluate, select and use commercially prepared textbooks.

M.S. Ramaligela

Observation Schedule: Grade 9 Technology Teacher

School (pseudonym): ... ...
Interviewee (pseudonym): ... ...
Number of years at the school: ... ...
Position/ Responsibility: ... ...
Date: ... ...

Thank you for your willingness to be a participant in this qualitative research study. My interest during this observation is on how teachers' use commercially prepared textbooks.

1. Does the teacher use content proposed in the textbook? If not how does he add/omit/change it?

_____
_____

2. Does the teacher use activities proposed in the textbook? If not how did he/she design the activities?

_____
_____

3. Does the teacher use the approach suggested in the textbook to mediate teaching and learning activities? If not, how does the approach differ?

_____
_____

4. How did the teacher explain difficult concepts?

_____
_____

5. Are the activities suitable so that learners can do it independently?

_____
_____

6. Does the teacher link the content/ activities with real-life situations?

_____
_____

7. Does the teacher change the language level used in the textbook to link with that of learners?

8. Does the teacher allow the learners creativity?

9. To what extent does the teacher's intentions match the textbook's demands?