CHAPTER 6

LEARNERS’ PERSPECTIVES ON THE EVERYDAY: UMHLANGA HIGH SCHOOL

Chapter 4 provided the school and classroom context within which learners at Umhlanga engaged the everyday. In reflecting on the use of the everyday against their socio-economic background, I entertained the possibility that Umhlanga learners would select the “non-specialized recognition rules” (Bernstein, 1996). As elaborated in Chapter 2, Bernstein observed that working class children tended to produce texts which were “much more embedded in the context” (1990:56). In relation to a school setting, the logical but oversimplified implication of Bernstein’s assertion is that learners’ from low socio-economic families tend to focus more on the everyday recruited than the content for which it is recruited. However, as outlined in Chapter 5, learners seemed to choose appropriate recognition rules in spite of the transformed or untransformed nature of the context. If learners seem to understand ‘the game’ regarding activities which incorporate the everyday, what did they make of the presence of the everyday in these lessons?

In this chapter I explore learners’ perspectives on the inclusion of the everyday in their lessons. These perspectives are drawn from learners’ views espoused during the post lesson interviews. As highlighted in Chapter 3, this research was a collaborative effort and therefore the questions explored in this chapter were part of a whole range of questions asked of learners during the post-lesson, video-stimulated interviews with a focus group for that particular day. My interest was on learners’ reflections regarding the following two aspects:

- What learners thought the lessons were about and
- The learners’ opinion about inclusion of the everyday in these lessons.

The first aspect enabled an understanding of what was visible to learners’ themselves. It thus addresses the concerns of key question 2. The analysis in Chapter 4 described how the teacher straddled the everyday and mathematics in her lessons. There is no reason to assume that learners were aware of this movement. It is for this reason that their thoughts
about what the lesson entailed were sought. The second aspect was based on the premise that all these lessons incorporated the everyday. It sought to explore learners’ perspectives about the value of the everyday in the learning of mathematics. It thus addresses concerns of key question 4.

As highlighted in Chapter 1, there are various reasons for which the teacher may incorporate the everyday in a mathematics lesson. I will relate the learners’ perspectives on the everyday to Bulelwa’s rationale for its recruitment.

6.1 WHAT THE LESSONS WERE ABOUT: THE LEARNERS’ PERSPECTIVES

In all the interviews conducted, learners in particular focus groups were asked to describe what they thought the particular lessons were about. This question was often the first one posed to learners. During the interview, it was possible to encourage learners to reflect further by either asking the question again or seeking clarity on their responses with regard to the question.

Lesson 1 and Lesson 2
Lesson 1 and Lesson 2 were based on the same worksheet and theme: Number systems in ancient societies. However, these lessons were enacted differently in the classroom. As highlighted in Chapter 4, Lesson 1 saw the teacher introduce the theme and offer learners an opportunity to present. In Lesson 2, she allowed more presentations, summed up the lesson and introduced a new number patterns worksheet. In these two lessons, the everyday context of Ancient Societies was recruited. This context was categorized, in Chapter 5, as authentic and far. In other words, it drew from an authentic context regarding the practices of ancient societies. However, it was a context that most learners would not resonate with as it referred to events that took place long ago and in places far from South Africa.

For Lesson 1, all the six group members were interviewed. The six learners were Linda Masondo (LM), Xolile (X), Thulile (T), Mpumi (M), Leah (L) and Linda Zondi (LZ).
Post-lesson 1 interview

Having re-introduced themselves, learners were asked what they thought Lesson 1 was about. The learners’ response regarding this context was that it was about the Egyptians and how they wrote numbers.

R: Now we are going to ask you about the lesson. We want to know what you think. You can tell us anything…anything you tell us we will not tell your teacher about it…ok? Ok. So did you like the lesson today? What was it about? What did you learn in today’s lesson? [noise] Anyone can speak. Lorraine?
M: Ok, we learned something about Egyptians, how they know their numbers…how they wrote their numbers.
R: Ok. Did you do this work before?
Ls: No.

[Post lesson 1 interview, Umhlanga, lines 42 – 45]

Xolile also reiterated the point that the lesson was about the Egyptians and how they wrote numbers. She said:

R: What did you think the teacher wanted you to learn in today’s lesson? [noise] Xolile? What do you think she had in mind for you today? [inaudible]
X: Yes. I think maybe she wanted us to learn more about…the…how they use numbers in other countries. Like we learn how they…how they write…how they wrote numbers in Egypt.
R: Ok. That’s what she wanted you to learn?
X: Yes
R: Anybody answering? Any other opinion?

[Post lesson 1 interview, Umhlanga, lines 219 – 223]

Post-lesson interview 2

For Lesson 2, learners were split into two groups of four and three. I (Godfrey), together with Renuka (R) interviewed four learners in English. The four learners interviewed were Khanyisile, Patience, Hamlet and Kenneth. Another researcher (Herbert) interviewed the other three learners in isizulu.

With regard to Lesson 2, Renuka asked the four learners what the lesson was about. Their response suggested that it was about showing that mathematics was discovered long ago.

32 R: OK. So I’m going to ask you some questions about what happened in your lesson today and…and something about what do you think about maths. Just you tell me any…anything. And
whatever you tell me only…only we are going to know about it. I don’t discuss anything about this with your teacher. So em… What did you think your teacher was discussing with you today? What was the …what was the…em…what do you think she was trying to teach you today?

33 K I think she was trying to …to show us that the mathematics was discovered a long time ago.

34 R Hmm…

35 K And that there are many different ways to…to count.

[Post lesson 2 interview, Umhlanga, lines 32 -35]

The learners’ accounts on what the two lessons entailed suggest that the historical aspects of mathematics were visible. In their descriptions, learners suggest that the lessons were about how Egyptians wrote numbers and that mathematics was discovered long ago. Their descriptions of the lessons are more in accord with what came through during presentations (during which discussions were more on non-mathematical ancient practices). In contrast, Bulelwa’s summary and overview of the lessons emphasized mathematical aspects. Learners’ views on what the lessons were about can be explained in terms of the openness of the criteria by which the presentations were to be evaluated. The criteria did not encourage attention to particular aspects of ancient societies, making it difficult to identify what was more legitimate between mathematics and the everyday.

Lesson 7 and Lesson 8

Similar to Lessons 1 and 2, the learners’ perspectives on Lessons 7 and 8 were accessed through the post-lesson interviews. As with Lesson 2, for Lessons 7 and 8 post-lesson interviews, learners were split into two groups which were interviewed separately and simultaneously by different researchers. My account in this section draws only from the interviews in which I either conducted the interview myself or I was part of the interviewing team. The Learners’ Perspective Study, as pointed out in Chapter 2, had a scope of focus and interest wider than mine. I felt that the interest of my study would be better served by my presence and participation in the interviewing process.

For the post-lesson interviews in relation to Lesson 7, learners were split into two groups of three learners and four learners. I interviewed a group of three learners, Nkunzi (Nku), Lungile (L) and Senzo (S) in a video-stimulated post-lesson interview. The interviews
were conducted in a mixture of English and IsiZulu. My colleagues, Hebert and Renuka, interviewed the other four learners.

**Post lesson 7 interview**

The first question I asked learners, after introducing myself concerned their thought on what lesson 7 was about. The conversation proceeded as follows.

G: OK. Senzo and Nkunzi and Lungile, what did you think the lesson was about?

L: It was mainly on HIV.

G: Hmm!

L: It was on HIV, how it is spread and…

B: How people get infected.

G: How people get infected with HIV?

Nku: And how it spreads.

G: OK. Did you enjoy it?

L: We enjoyed it.

Nku: It was about what we are used to…

L: It was about what we are used to and what we see everyday

G: OK. It was about what you see almost everyday.

[Post lesson 7 interview, lines 9 – 20]

The AIDS that learners are referring to is the AIDS they “see everyday”. In other words, it is the AIDS categorized as untransformed. In this case, AIDS is referenced as an object of reflection and not a vehicle to access the mathematics. I was, interested in whether they saw any mathematics and (if they did) whether they were able to relate it to the everyday.

G Tell me, what maths did you learn in your lesson today?

L (Murmurs something)

S What we learnt about today? (Repeats the question)

G Yes?

N [inaudible]

G Ja! What you learnt about today in mathematics?

S It’s the year in which the virus was discovered, when it started, how many people die of AIDS every year and the rate at which it spreads…

N People with AIDS.

L Things like that.

[ Post lesson 7 interview, Umhlanga, lines 21 – 29]

Senzo’s response suggests that the false data relating AIDS with particular years (as shown in the table) was genuine. He argues that data in the table informs them about “when the virus was discovered” and “how many people die of AIDS every year”. This view suggests that transformed AIDS is viewed as if it were untransformed. Learners do
not show any awareness that AIDS is also used as a platform towards number patterns. They are thus selecting non-specialized recognition rules to describe the role of AIDS. Their selection of these rules, however, does not prevent them from describing the patterns in the tables correctly, as pointed out in Chapter 5.

**Post-lesson 8 interview**

For the post-lesson interviews regarding Lesson 8, learners were split into three groups of two learners each. Renuka and I interviewed Hellen (H) and Nomduze (N) in a video-stimulated interview.

The two also shared the view that the lesson was about AIDS. These views were elicited when Renuka (R) asked learners on how they thought about the lesson for that particular day. The interview proceeded as follows.

R Nomduze. OK Emm…Hellen and Nomduze, how was you lesson today? What did you think about the lesson today?
N Me, I think it was very easy.
R It was very easy?
N Yeh.
H Why?
N Because some things I understand.
R What did you understand?
N Er…like…er…this one…like how AIDS .. AIDS is transmitted. This thing I read more; now I know it.
R What you didn’t know? Tell me what you didn’t know?
N I didn’t know how the virus… you can get the virus.
R You didn’t know before?
N Yes.
R How to get…how you get the virus.
N Yes.
R So how do you think you get the virus?
N I think you can. [inaudible]
R Hmm. And what did you learn in today’s lesson? (looking at Hellen)
H I learn about this [noise]
[INTERUPTION]
R Emm…sorry about that (Noise and interruption). I was asking you about what you thought you learnt in today’s lesson?
H I learn about this…how chi…how children spread AIDS to another people.

[Post lesson 8 interview, Umhlanga, lines 8 – 28]
What was most visible for Hellen and Nomduze, about Lesson 8 is that it was about “the transmission of AIDS” or ‘how children spread AIDS to other people’. The AIDS referred to by these learners is untransformed and therefore falls in the authentic and close category. They also regarded data contained in the table (about the number of AIDS sufferers or world population size per given years) as genuine. This point can be observed from the following part of the interview.

R OK. So if you look at the table it tells you about the number of people who will be infected.
H Yes.
R But do you think in class you discuss about how many will die and how many will be infected?
N We just learn about how many will be infected.
R Hmm. Not how many will die.
H No
N We say how many will die because we don’t know how many people get…we…we know how many…we don’t know what time people gonna die er…how people gonna stay [inaudible]
R OK. So…so if you look at this…if…if you…if you…make …if you carry on with the pattern and there will be…will there be a time when all the people in the world will have HIV/AIDS?
N I think so. I think it’s two…two thousand…er…two thousand and ten. I think so. Every people will get the AIDS
R Everybody will have AIDS?
N Yes
R According…if you carry on with the pattern here. Isn’t?
N Yes.

[Post lesson 8 interview, Umhlanga, lines 150 – 162]

So genuine was the data, believed Hellen and Nomduze, that there will be a period during which “everybody will get AIDS” as the logic of following the given data implies.

In both post-lesson interviews, learners did not highlight the inauthentic nature of AIDS used in the tables (worksheet). Perhaps the selection of non-specialized rules does not also adequately explain learners’ perspectives about the AIDS incorporated in the worksheet. Logically, the selection of non-specialized rules by learners should lead to the possibility that the spread of AIDS will be disturbed by efforts to combat it. The learners themselves did suggest, in response to item (g) of the worksheet, that there were ways in which the transmission of AIDS could be reduced. The selection of non-specialized rules should have, ideally, served as the basis for learners to question the pattern suggested in the worksheet.
Strictly speaking, the AIDS referred to in items (a) of Bulelwa’s worksheet is transformed. However, viewing it as such would have rendered items \( f \) and \( g \) in the worksheet senseless. There is no point in taking questions about the transmission and prevention of AIDS seriously if that AIDS is a ‘play reality’ whose sole inclusion is to enable access to mathematics.

In describing Lessons 7 and 8 in terms of untransformed AIDS, learners are not simply selecting non-specialized recognition rules, they are also implying that viewing AIDS as authentic during these lessons was legitimized.

**Lesson 9**

For Lesson 9 the teacher recruited tangible real flowers as the context. Learners participating in this interview were already familiar with the interview set-up because they had been interviewed before after Lesson 1. For this interview though, the group was one learner short. So only five learners participated in the interview: Linda Zondi (LZ), Leah (L), Thulani (T); Mpumi (M) and Xolani (X). Renuka (R) Hebert (H) and I (G) conducted the interview.

**Post-lesson 9 interview**

What was particularly interesting about these learners is that having engaged the exercise they were tasked to attempt, they carried on with the discussion about the previous day’s lesson. We enquired about what motivated the ‘switch’.

RS: …….Then I noticed something in the group, you were discussing about… you started discussing about yesterday’s topic about Aids.
L’s: Yes.
RS: What made you start discussing about that?
Phumzile: Because I saw that now we have finished the activity, and we have to discuss about something else, not just to sit.

[Post lesson 9 interview, lines 219 – 221]

In this regard, learners considered the mathematics classroom to be an appropriate platform to discuss the everyday context of AIDS. However, it was still our interest to
find out what they thought this particular lesson was about. In responding to this question, learners also highlighted their surprise that flower petals formed a pattern. This view was captured in this part of the interview:

R: Xolile… So tell me what you think today’s lesson was about, what did you learn from today’s lesson? Let me… (inaudible)… and you can refer to it and show me anything that you want from there, if you wanna talk about anything that happened on the tape, you can do that ok. I am interested to know what …(inaudible)…you were thinking or doing. I am interested to know about that. Would you like to tell me what you think you learned in today’s … (inaudible)… Xolile, you were very quiet, you tell me… what did you learn today?
X: I learnt about… I learnt about different… different flowers, to… to what can you get the pattern.
R: Ok…(inaudible)…
M: We learnt about different flowers, with different number of petals.
R: Petals?
M: Petals.
R: …Mmh… what you saw about the pattern, did you figure out now what the pattern was?
L’s: … Yes we did.
R: You did work out before the teacher told you?
L’s: Yes we did.
R: What you thought about that, were you surprised?
M: It was interesting, because at first we never thought that the number of flower petals did make the pattern.
R: Ok.
M: But the time Mam explained we saw and understand that the flowers do… the flower petals do make a pattern.
R: Ok, and how did you find counting the petals? Did you like the task, to count the petals?
M: Sometimes actually, we had to count to see what amount of petals, but when we had to count the pink rose, eh it was difficult because some of the leaves were stuck to… some of the petals were stuck together.

[Post-lesson 9 interview, lines 24 – 39]

Because of the switch from the context of flowers to AIDS, a question about the authenticity of data in relation to the AIDS context was asked.

R: Where do you believe your mam (teacher) got the numbers from? Because today you counted the numbers from the petals, right, yourselves you counted, but yesterday, the HIV/AIDS example… Mam gave you the numbers, where did she get the numbers from you think?
LZ: … In the… newspapers.
M: (interrupts) Like pamphlets, they do explain about how many …they do.. eh… include how many people are infected.
R: Ok, you wanted to say something Thulani?
X: Ya, I think she got it from the newspapers, or from the books.
R: Why didn’t’ anybody ask about that? You know Thabo Mbeki, he doesn’t believe the numbers. You listen to the news about our president? What he, he was challenging the people who made the statistics.
M: I think is right on both sides, that you don’t believe because it has a good explanation of why he don’t believe it, and he has a good explanation why he believe it.
RS: So what’s your position then, what do you think? because your teacher gave you the numbers, what do you think? Who do you believe? …
X: I think we have to believe… because there are many who have been dying.
R: You know of people around who died?
T: Not only around me, but I watch the news on TV, and from the magazines and the radios. Ya.
RS: OK, so you do believe it that there are many people infected, and they are dying?
T: Yes, I believe it.
RS: … And so you think it is a good thing, it must be discussed in a maths class?
M: Ya, is good.

[Post-lesson 9 interview, lines 280 – 294]

Learners described the lesson in terms of the ‘flowers’ context. The actual counting of flower petals was cumbersome and the Fibonacci sequence did not emerge. The pattern became clear, as Mpumi suggested when ‘Mam explained’ (line 37, post-lesson 9 interview) . This explanation was based on the assumption that Bulelwa made with regard to flowers. She suggested that if the flowers were fresh, then the Fibonacci sequence would have emerged. In this regard, the Fibonacci sequence was only obtained after a shift from the authentic and close (characterized by the use of untransformed flowers) context to an inauthentic and far context (characterized by reference to transformed flowers).

In sum, what was most visible for learners and in terms of which they described the lessons was the everyday. None of the learners interviewed described the lessons in terms of the mathematics content or focus of number patterns. Of interest though, is that learners did not distinguish between AIDS or flowers as authentic contexts (as in the case untransformed AIDS or untransformed flowers) or as inauthentic (as in the case of transformed AIDS or flowers).

6.2 LEARNERS’ VIEWS ON THE INCLUSION OF THE EVERYDAY IN MATHEMATICS

Lack of uniformity amongst researchers on the value of the everyday in mathematics is well documented (see review of studies in Chapter 1). Some researchers question the value of drawing in everyday contexts (e.g. Floden et al, 1987) whilst others encourage the use of context (e.g Freudenthal, 1973). This section explores these learners’ views on the role of the everyday.
Learners opinions about the inclusion of context in Lesson 1 and Lesson 2

With respect to Lesson 1, learners seem to welcome and acknowledge the significance of including history in mathematics lesson. Leah, a member of the group, was vocal in this respect, as evidenced in the following part of the interview.

R: OK, OK. Was it interesting? Did you think this [what you did today in class] was interesting?
L: Yes it was interesting.
R: Do you think it’s…it’s maths this? Do you think you were studying maths?
L: I think it’s a little bit of maths and a little bit of…of history.
R: And what do you think about that? Do you think that it’s a good thing?
L: Yes …It’s a good thing to mix maths with history
R: Why is it a good thing?
L: Because we have to know when and where they invented the numbers.
R: Why do you think we need to know that?
L: Because… er you can’t just sit and know that you only know the numbers… the numbers…the number that we had now 1, 2, 3 and 4s like that but you have to know when did they develop them and how did they develop them.

[Post-lesson interview 1, Umhlanga, lines134 – 143]

With respect to Lesson 2, learners, also seemed to welcome the incorporation of the context or the everyday in the mathematics lesson. Renuka pursued this point with the learners during the interview.

R: Do you…do you think it’s a good idea to talk about history in maths class?
P: Yes.
R: You think so? Why do you think so?
P: Because now we know er…what the other countries do the last time when we do the maths.
R: Why is it important to know about what other countries do? Yes (looking at Khanyisile).
K: Because its important to know about what other countries do because er…you must know about all other countries and compare it with our country. You must know how maths was first developed in other…other countries, and you also has to know how maths was developed.

[Post-lesson interview 2, Umhlanga, lines 153 – 158]

According to these learners, the historical aspects of mathematics were not misplaced in the mathematics classroom. Engaging these aspects enabled them to have knowledge of how mathematics “was developed elsewhere” and how the current number system was
developed or “invented”. Implicit in these learners’ comments are suggestions that the information (handed out to them by the teacher) regarding development of number systems in other countries was genuine and worth knowing. Learners did not explain how the knowledge of practices in ancient societies adds value to their understanding of number patterns.

The value of this lesson is that it revealed, ‘new’ information about the ancient societies to the learners but did not go beyond that. It was thus not made explicit how relevant or useful this information would be for engaging the mathematics content to which learners were exposed.

**Learners opinions about the inclusion of context in Lesson 7 and Lesson 8**

With regard to Lesson 7, learners (Nkunzi, Lungile and Senzo) alluded to their preference of a mathematics lesson which incorporates AIDS, as implied in the following part of the interview:

G: OK. Tell me, do you think it is important to discuss AIDS in mathematics lesson?
L: Yes, because we would know how many people have died of AIDS in many areas and in other areas outside South Africa. How many people have died of the disease.
Nku: [inaudible]
L: Even those who did not know how dangerous the disease is would become aware.
G: OK.
Nku: And that the younger people should be taught, and facts about AIDS should not be hidden to young people.
G: OK. So you think we should learn about AIDS in mathematics?
Learners: Yes.

[Post lesson 7 interview, Umhlanga, lines 41 – 48]

Nothando and Hellen, interviewed after Lesson 8, also felt that there was a place for AIDS discussions in a mathematics classroom. In other words, their perspective on the inclusion of context in mathematics was a positive one.

R You think its right thing to learn about in maths class? Do you think maybe you wasting you time learning about it in a maths class. Maybe you have to learn maths in a maths class? Not AIDS. What do you think about it?
N I think we make…we will learn…
H …Oh we need to learn it, we need to learn about maths. Also we need to learn about AIDS.
R So you feel it’s okay to learn about AIDS in maths…?
Ls Yes.
R Hmm. You don’t feel it’s wasting your time?
Ls No.
R Not wasting your time?
Ls No.
G Some students say that we should only learn maths in maths class not about AIDS. We can learn…learn about AIDS in natural science and life skills and all that. What do you think?
H I think…me, I think it’s right because in others…in other subjects they didn’t tell us about how AIDS spreads.

[Post-lesson 8 interviews, Umhlanga, lines 191 – 201]

Both groups of learners interviewed suggested that discussing a context such as AIDS in the mathematics classroom was appropriate. The value of such a discussion was justified in terms of providing information regarding the number of people who have died of AIDS. Hellen and Nothando did not clearly highlight what the value of incorporating the context of AIDS in a mathematics classroom would be. However, they do acknowledge that it is an aspect worthy of a discussion in a mathematics classroom.

Learners opinions about the inclusion of context in Lesson 9

The question relating to the place of flowers in the mathematics classroom was not pursued. The researcher and the learners’ attention were drawn towards the television monitor on which the video of the lesson was played. The course of discussion changed at this point and focused on what the learner and researchers were viewing. The following part of the interview relates to the situation in question.

R: OK tell me what else did you learn in today’s lesson? (pause) What did you feel about the lesson about the flowers (learners concentrate on a TV screen where they see themselves)… interesting… you wanna hear… you wanna hear? (increasing the volume, learners watch and begin to laugh). What were you discussing …(inaudible, referring to the video)… today? … family tree?
L’s: Yes.
R: Are you expecting another pattern in the family tree?
M: Ya.
R: Do you know what you have to do from here… about the family tree?

[Post-lesson 9 interview, Umhlanga, lines 101 – 105]
The learners’ views on the place of flowers as context in mathematics were ‘lost’. Their discussion shifted to AIDS. Their views about the place of AIDS in the mathematics classroom were mixed. In particular, the reasons for learners’ approval of AIDS in a mathematics classroom are social. AIDS is not viewed as a vehicle towards the mathematics. I provide below a lengthy discussion between Renuka and the learners. What I wish to highlight is the different ways in which learners respond to the questions relating to the place of context in mathematics.

R: So do you think that you should be discussing this in a maths class?
Mpumi: No.
Other L’s: Not in a maths class (telephone rings again)

[Post lesson 8 interview, Umhlanga, lines 250 – 252]

This part of the interview suggests that AIDS was irrelevant for a mathematics class. But as the interview continued, learners’ views on the irrelevance of AIDS in the classroom changed.

R: Are you discussing it in other classes?
M: Yes, like NS (Natural Sciences).
R: Ok, what did you discuss in NS about it?
M: We discussed about how is trans… how it is transmitted and how can… and how can one infected person… eh… spread the AIDS.
R: Don’t you think it was too much repetition to discuss that in a maths class?
L’s: (No response)
R: Do you think that if you discussing about Aids then you are not spending enough time in learning about Maths… or do you think it’s ok?
M: It’s ok.
R: It’s ok.
M: Ja (Yes).
R: Why? Why is it ok to discuss it during the maths class?
M: … eh… because I think, because as we learn about the population here, so they must know as I said, like I wanted to explain it to the rest of the class. They must know that if they carry on spreading Aids and getting infected, not abstaining or not being faithful, or not condomising, so getting spread the disease, and thus the population will decrease, and it will not decrease like in the right level, it will decrease less than that.
R: More than that…
M: (interrupts)…yes it will decrease more.
R: But do you think it is… in Grade 8, is important to discuss it? Maybe Grade 8 …(inaudible)… are a little bit young.
LZ: It’s ok.
L: So that we can know it before we can do something.
R: Ok, so you think it is ok to discuss it in Grade 8? All of you think that or there is someone who think you are a little bit young and you should discuss it later. So it is the first time for any of you to learn about Aids in class, in a maths class.
M: Ja, is the first time.
R: Is the first time?
M: Ja, to learn about Aids in a maths class.
R: To learn about Aids in a maths class? And you think it should be learnt in a maths class? You… did it help you to know about the Maths when you talk about Aids?

L’s: Ja.

R: How, how?

L: When we were counted, the population and the people who have been infected with AIDS, how many people are infected?

[Post-lesson 9 interview, Umhlanga, lines 253 – 277]

It is not quite clear why learners switched from considering AIDS to be irrelevant in mathematics to considering it as relevant. Chapter 5 outlined how this group of learners switched from discussing about the flower petals to discussing about AIDS. It would be interesting to find out the way in which learners would reconcile this switch to discussing about AIDS (during the lesson) in spite of it being irrelevant (as they claimed at the beginning of the interview). Based on the learners’ responses during the interviews, it seems that the everyday was valued for its own sake.

Working from a broader perspective than mathematics, Bernstein associates the way in which learners treat the everyday incorporated in tasks with their selection of a recognition rule. In particular, the selection of a non-specialised recognition rule regulates the selection of non-specialized contexts and the selection of specialized recognition rule regulates the selection of specialised context. In this regard, Bernstein (2000:19) outlines, “One classification [based on selecting non-specialized recognition rules] refers to a principle which had a direct relation to a specific material base. The reason is embedded in a local context, in a local experience. The other type of reason [based on selecting non-specialized recognition rules] references an indirect relation to a specific material base.”

6.3 REFLECTING ON THE LEARNERS’ PERSPECTIVES

Bernstein explains application of non-specialized and specialized recognition rules on the basis of learners’ socio-economic background. In particular, he suggests that working class children were much more likely to offer reasons which had an indirect relation to a specific material base (2000:19). On the basis of their school fees and the school location,
as highlighted in Chapter 4, most of the learners at Umhlanga are drawn from low to middle socio-income groups. As a result, Bernstein’s explanation would seem adequate. I have already suggested that accepting this Bernstenian explanation comes at a cost of ignoring its logical conclusion. If learners selected the non-specialized recognition rules, why did they, for example, not challenge the Fibonacci sequence? (it was not supported by the pattern emerging from flower petals).

That mathematics may be concealed by the everyday is not uncommon. Skovsmose also learned from one of the teachers who participated in a mathematics project wherein the everyday was recruited, that the mathematics seemed to be dwarfed by the everyday context. Sharing his observations, the teacher said,

> When I discussed the outcome of the projects with the children in my class they did not see mathematics in the project. Then we discussed the different situations when they had to use the calculator and computer. Well, perhaps some maths, but mostly Biology. (Skovsmose, 1994: 90)

As a result, Skovsmose acknowledged that sometimes mathematics may be integrated to such a degree that it disappears for both the teacher and learners. He thus suggests mathematical archaeology as a process by which mathematics may be recognized and named. He writes: “It is important that a project which contains mathematics as an implicit element does not end when most projects do, i.e. when most visible parts of the project are produced and results are exhibited” (1994: 94).

The substance of Skovsmose’s argument is that the visibility of mathematics in a task that incorporates the everyday is the extent to which this task is reflected upon in order to tease out the mathematics.

Irrespective of their different explanations, the underlying message by Skovsmose and Bernstein is that the use of context in mathematics requires some level of movement from the context itself either through application of specialized recognition rules or mathematical archaeology. Thus, at one stage, the everyday has to serve as a see-through. The one constraint, though, of appealing to Bernstein and Skovsmose’s theories to
explain learners’ perspectives on these particular lessons is that the broader context within which these lessons took place is not accounted for. In other words, learners are not just reflecting on a task; their reflection on the task is located within a particular classroom setting. The next section pays attention to this context.

6.4 TAKING ACCOUNT OF THE BROADER CONTEXT

The views espoused by learners in relation to the everyday are informed not only by their experience in engaging the activities but by the way in which the teacher rationalized and therefore introduced the activities in class, how the activities were presented in the worksheet and the nature of the everyday incorporated. These three aspects provide a context by which learners’ perspectives on the incorporation of the everyday in mathematics can be understood.

*Teachers’ rationale for activities:* In revoicing activities in the worksheet, Bulelwa offered some direction as to what was to be considered as legitimate. It was thus crucial to understand her motivation for the inclusion of the everyday: whether she viewed the everyday as a means to mathematics or an aspect to be reflected on for its own sake. In a written teacher questionnaire, Bulelwa responded to the following:

1. The main thing she wanted learners to learn from the lesson
2. Why she thinks it is important for learners to learn this (what she would have stated in 1)

She offered the following written responses for Lessons 2, 7 and 8:

**For Lessons 1 and 2:** *To learn about number system developed in different parts of the world and be able to present in class what they have researched. Begin to investigate number pattern in the number system that we use.*

**For Lessons 7 and 8:** *To learn about AIDS patterns in the world, population growth and AIDS epidemic. To use mathematics to solve problems that face our societies today. It is*
important so that they can see that mathematics is useful. It helps us solve problems in our societies.

Bulelwa’s mathematics lessons were planned with an eye on the society, beyond the mathematics classroom.

That the mathematics lesson was meant to address aspects beyond the mathematics classroom was echoed by Bulelwa when asked, during an interview, why she incorporated a context such as AIDS. She responded:

B: Well, actually it was still number patterns. I wanted to choose something connected to real life. Isn’t that we don’t learn mathematics in isolation?..(pauses). Just like when we started, we had an outbreak of cholera. I brought some statistics from the department; you know…the actual statistics from the department. So I taught them at the time how to get a table….a statistical table, and analyse information. So it was learning mathematics, but with something that was happening at the time.

[Teacher interview, Umhlanga, line 23]

Though not directly responding to the question asked, Bulelwa provides information on how she views the value of the everyday in mathematics. Firstly, for her, the lesson was not about AIDS but “it was still number patterns”. Her own view though is that mathematics should not be learnt “in isolation”. Secondly, she suggests that the everyday recruited in the classroom should be related to or sparked by the learners’ experiences (like the outbreak of cholera). So, even though the everyday might be used to access mathematics, Bulelwa argues that it must be close and authentic. Therefore it was a conscious decision by Bulelwa to set a mathematics classroom as a platform to discuss social aspects associated with the everyday incorporated or to weakly frame the lessons by not restricting them to mathematical discussions. That mathematics was not to be studied in isolation and that mathematics lessons should not be restricted to content is reflected in the way themes were introduced and questions were phrased. I reflect on this aspect below.

The phrasing of questions: In Chapter 4, an analysis of the worksheet suggested that activities were phrased in such a way that even “non-native speakers” of mathematics
could follow. The worksheets were characterized by an absence of what Pimm refers to as “symbols conventionally employed in mathematics” (1987: 140). Some of the activities required minimal knowledge of numeracy (for example, counting of petal) or no mathematics at all (Why the Egyptians used the papyrus for writing). The activities in the worksheet did not always require specific mathematical knowledge.

*The nature of the everyday incorporated:* Bulelwa declared her interest in activities which reference authentic and close contexts. However, such activities which reference far contexts seem to have less potential of eliciting or inviting everyday responses. For example, learners’ discussions and views about ancient number systems (in Lessons 1 and 2) did not invite learners’ common experiences. However, in dealing with a task that incorporated AIDS, it was difficult for learners to bracket out their common experiences. Even though close, the context of flower petals did not seem to evoke any significant discussions from the learners’ experiences. Relative to the AIDS context, flower petals may be considered ‘innocent’ or benign.

It seems fair to suggest that Bulelwa set up her mathematics lessons to provide a platform for engaging the mathematics and the everyday and not the mathematics through the everyday. She separated between questions that she considered to be mathematical in nature and those which were not. She expressed this view when asked whether she felt she was prioritizing either mathematics or the everyday. She responded:

B: I felt I was prioritizing mathematics because most of the questions I asked were of a mathematics nature except the last two questions... “How it was transmitted and” and “what can we do” [referring to items f and g]. Because obviously if doing a lesson in class in the OBE (Outcomes-Based Education) context it need not just end up in the classroom situation. If you are dealing with a situation like this you need also to go into the communities. So what I found is that they could handle most of the questions. That’s why it was difficult for them to handle a question that was too long.

[Teacher interview, Umhlanga, line 36]

So Bulelwa distinguished between activities which were mathematical (driven by mathematical interests) and those which were not. Of interest, though, is that activities which are mathematical according to Bulelwa are the ones in which the context of AIDS
was categorized as inauthentic and far. In other words, for these activities, it is the mathematics that mattered. She contrasts these with activities $f$ and $g$ in which AIDS was to be viewed as untransformed and whose discussion was not to end up in the classroom.

That the everyday is not a vehicle for mathematics may be regarded as a suggestion that the mathematics classroom is not a platform for learning mathematics through the everyday but a platform to learn mathematics and the everyday. This perhaps resolves the observation that in spite of their presumed selection of non-specialized recognition rules, learners do not contest the Fibonacci sequence or the fact that efforts to prevent AIDS will upset the pattern in the coming years.

**CONCLUSION**

The focus of this chapter was twofold. Firstly, it reflected on learners’ perspectives with respect to whether it was the mathematics or the everyday that was visible and what value the learners attached to the inclusion of the everyday in mathematics. The discussion above suggests that the everyday was visible and the everyday was valued for its social significance.

Secondly, I critically reflect on a Bernsteinian explanation to this observation. I highlight the inadequacy and limitations of explaining what was visible to learners and the value of the everyday in mathematics (as espoused by learners) on the basis of their socio-economic background. I argue that the choice of specialized or non-specialized rules is not an all-or-nothing aspect. In order to explain learners’ perspectives, the broader context of the classroom set-up needs to be considered. In particular, I base my explanation of the learners’ perspectives on the inclusion of the everyday on the basis of what Bulelwa legitimimized in the classroom. Even though learners do not necessarily present the everyday as a vehicle towards the everyday, they nevertheless consider a mathematics classroom as a platform to engage the everyday and the mathematics.

In the following chapter I zoom in on another school, Settlers. As I will highlight in the following chapter, the school and mathematics classroom of Settlers is quite different.
from Umhlanga’s. It will be interesting to observe what perspectives learners have on the incorporation of the everyday in mathematics and why.