

CHAPTER 9

SETTLERS LEARNERS' PERSPECTIVES ABOUT THE EVERYDAY LESSONS

The central aim of this thesis is to explore and discuss learners' views and perspectives about the incorporation of the everyday in mathematical tasks. The basis of this exploration is that views about tasks which incorporate the everyday are not drawn from learners' 'vacant minds' (Martin, 1997:24); they are influenced by, amongst others, their classroom experiences. Chapter 7 argued that Mr. Smith foregrounded the mathematical goals of his lessons even though he had incorporated the everyday. In Chapter 8 I suggested that whilst learners were aware of this mathematics focus, the use of the everyday appeared to hinder access to mathematics content for some learners. With the benefit of this background, this chapter discusses learners' views about the first five lessons, the lessons which incorporate the everyday. Like Chapter 6, this chapter addresses research questions 2 and 4: Learners' descriptions of lessons which incorporate the everyday and the value that learners attach to the incorporation of the everyday in mathematics. It draws mainly on views espoused by learners during the post-lesson interviews. Two questions, in response to which learners expressed their thoughts were based on

- What learners thought the lessons were about and
- What learners thought about the inclusion of the everyday in mathematical tasks.

The first question provides insights, from the learners' viewpoint, of what was considered to be the central aim of the lesson. This will enable some knowledge of the extent to which the everyday was visible for learners. The second question will explore the learners' notion of the role of the everyday in mathematics tasks. The premise of this question is that, irrespective of whether it was visible to learners or not, the everyday was drawn on either through the worksheet or teacher's own examples in the first five lessons. The question seeks to address the significance of such an inclusion amongst learners.

Learners' responses to these questions comprise the first two sections of this chapter. The third section is a reflection on and an explanation of learners' responses. In this regard, I draw mainly from Bernstein's notion of specialized recognition rules which offers some framework on how learners engage tasks incorporating the everyday. I will also draw on Skovsmose's critique about word problems being used as platforms to engage the everyday. The fourth section of this chapter will try to explain learners' responses by drawing in the context in which learners responded to the tasks.

9.1 WHAT THE LESSONS WERE ABOUT: LEARNERS' VIEWS

In all the interviews conducted, learners were asked to describe what they thought the lessons were about. In this section I highlight the way in which each set of learners responded to this question.

9.1.1 Lesson 1 and Lesson 2 interviews

All the three members of the focus group in Lesson 1, Jerry, Justice and Jacob, participated in the post-lesson interview. For Lesson 2, Nomalanga and Ntombi also participated in the post-lesson interview. In both cases, learners describe the lessons in terms of the mathematics content: exposure to some mathematical procedure. Below, I provide excerpts of this part of the interview for both lessons. Renuka (R), the senior researcher, asked learners what they thought the lesson was about.

Post-lesson interview 1 with Jerry, Justice and Jacob

R: What do you think you learned in today's lesson?

Jerry: We learned how to use equations and word problems.

At this stage, the interview process was paused so that the learners' details and personal information could be confirmed. Thereafter, the interview proceeded.

R: So tell us what you learnt in today's lesson? We have already heard from Jerry ...What about you, Jacob? What do you think you learnt in the lesson today? What was important in the lesson?

Jacob: That you must use...like there's only one way that you can solve it and stuff. And then I learnt how to do it differently than my way.

R: You had a different way?

Jacob : Yes, I did.

[Post -lesson 1 interview, Settlers, 8 – 13]

Post-lesson interview 2 with Nomalanga and Thoko

R : So... what did you think today's lesson was about ?

Nomalanga: It was like any lesson .We learnt how... to make equations.
Because we were like battling with it, some of us.

[Post-lesson 2 interviews, lines 1-2, Settlers]

In both set of interviews, learners reflect their awareness of the mathematical intentions of the Lessons 1 and 2. Learners also showed some awareness of what a 'legitimate text' (Bernstein, 1996:34) should look like. For example, in Lesson 1, as highlighted in the previous chapter, Justice produced a correct answer for Kelly's age with the use of an incorrect procedure: $28 - 2 \div 2 = 13$. With regard to Lesson 2, Thoko and Nomalanga produced what looked like a correct procedure and answer for tasks that were dealt with in Lesson 2. However, these solutions were actually copied from the chalkboard. In this regard, it is not very clear how Thoko and Nomalanga thought the tasks should be tackled themselves. Nonetheless, during the lesson, Thoko admitted that she did not 'see a thing' (Settlers, Lesson 2:line 20).

Thus, learners show an awareness that a legitimate text entails formulating equations and using the mathematical symbols (e.g. numbers. equal signs) but they actually fail to produce it as the teacher expects them to. I use the term 'legitimate text' (Bernstein, 1996:32), to refer to a student product, either in written form or orally, that is considered to be correct by the teacher during evaluation. In this regard, learners can be said to be clear about the *form* or appearance of a legitimate text but not the text itself. They know what it should look like, but not necessarily what it is. They possessed the recognition rules but not the realization rules.

9.1.2 Lessons 3 and 4 interviews

The three focus group learners, Bill (B), Jamwell (J) and Daniel (D) participated in the post-lesson 3 interview whilst Sue-Ann, Emsy and Megan participated in the post-lesson 4 interview. During the post-lesson 3 interview, Bill suggested that he saw Lesson 3 as a continuation or consolidation of Lesson 2 whose focus was on 'addition'. Emsy, during post lesson interview 4, also felt that Lesson 4 was a continuation of the mathematics they have been doing from the beginning of the week. The following are interview excerpts during which learners' views on what the **lessons** entailed were discussed.

Post-lesson interview 3 with Bill, Jamwell and Daniel on what the lesson was about

Renuka posed the question on what the learners thought the lesson was about. She directed the question to Bill who in turn responded:

B: I didn't learn much because yesterday it was sort of like the same.

The following exchange then ensued:

- J:** It was the basic thing of adding the thing It was the sort of stuff that we've already learn't. We're just putting it [writing and solving equations] to use sort of putting it to use .
- R:** O.K. How do you think that you were putting it to use.
- B :** We were getting used to it.
- R:** You were getting used to it.O.K. Would you prefer doing something else. Do you think you knew it or you know it already?
- B:** I'm getting used to it
- R:** So what, what would be the main thing that you learned, you think, or what was the lesson about?
- B:** Well I learned how to do those diagrams or graphs. That was pretty much the main things that I learned today.
- R:** Sorry can you repeat yourself.
- B:** The diagrams, graphs.

[Post-lesson 3 interview, lines 2 -13, Settlers]

Post-lesson interview 4 with Emsy, Sue-Ann and Millicent on what the lesson was about

R: What did you learn from the **lesson** today?

- E: Nothing much cause we have been doing maths for the past 3 or 4 days.
So I understand how to do most of the things. Except one thing, I got stuck in...
- R: Which one is it?
- E: The egg one

[Post-lesson 4 interviews, lines 153 – 156,

Settlers]

Lessons 3 and 4 were described in terms of ‘diagrams or graphs’ (Bill, it turned out was referring to the tables used by the teacher to illustrate the solution of a task). Though Emsy did not explicitly say what the lesson entailed, she acknowledged it was similar to lesson content of the previous ‘3 or 4 days’. From their descriptions, learners suggest that there is nothing distinctively new or different about Lessons 3 and 4. They are just a continuation of other lessons. These views should be seen against the background that Mr. Smith used one worksheet for all these lessons, perhaps unintentionally announcing their oneness. Neither Lesson 3 nor Lesson 4 was expressed in terms of the everyday or the context engaged on these particular lessons. The views expressed suggest that the lesson was about mathematics.

From classroom observations, there is an extent to which the focus group, particularly Daniel, seemed to know the type of mathematics procedures to follow. For example, in dealing with task 2.3, *Michael spent 7 hours on the beach. If he relaxed in the shade for 3 hours more than he surfed; for how long did he surf?*; with little hesitation, Daniel tackled the task (Settlers, Lesson 3, line 239), “So surf equals x and reading equals $x + 3$ ”. He formulated $2x + 3 = 7$ and finally concluded, “So he surfs for 2 hours and reads for 5 hours”. On the other hand, Emsy, Sue and Megan found it difficult to tease out the mathematical procedure to solve a context-laden task 2.1 (which Emsy referred to as the egg one). Even though she says she did not follow the procedure, she wrote it down correctly as follows.

Emsy's written solution

1. Let x be the number of eggs each box can hold.

Eggs in each box	x		
In total	$4x + 8$		
Combined	$4x + 8$		

$$4x + 8 = 200$$

$$4x = 200 - 8$$

$$\frac{4x}{4} = \frac{192}{4}$$

$$X = 48$$

There are 48 eggs in each box

In this regard, Daniel not only knew that the lesson was about mathematics; he also knew the form the written text ought to take and he could actually produce it. Emsy, Sue and Millicent knew that the lesson was about mathematics, and what form it should take but they could not produce an acceptable legitimized text. Emsy's written work (above) illustrates that she copied a correct solution from the chalkboard. Therefore, in this class, a learner's written solution did not always reflect his/her thought process.

9.1.3 Lesson 5 interviews

The two learners, Lucy (L) and Nirmala (N) participated in post lesson 5 interview. The view they expressed was that the lesson was about problem-solving. The following is part of the interview during which I (G) discussed this issue with the two learners.

Post-lesson 5 interview with Lucy and Nirmala on what the lesson was about

- G: Okay you can have you meal that's okay. Tell me what do you think the **lesson** was about and I will ask the same thing of you Nirmala.
- L: Well it was about all the problems we had for homework, with solving for x and solving those things.
- N: And all the ones that we didn't understand he would do on the bad for us.
- G: ja

[Post lesson 5 interview, lines 33 – 36, Settlers]

During these interviews, learners hardly made reference to any of the context(s) as the main aspect of what the lessons entailed. Nirmala, as highlighted, in the previous chapter, seemed confident and she even wrote her own solution for task 2.7 that Emsy, Sue (in Lesson 4) and Lucy (her desk mate) found difficult to engage. Interestingly, she did not use one variable x (as was commonly done in class). She used x = litre of milk and y = amount of money and set up $5x + 2.50 = y$ and $2x + 7 = y$. Lucy, on the other hand, found the task confusing. In an attempt to solve the task, she only went as far as writing $x = 1$ litre of milk.

So in this case, both Nirmala and Lucy were aware that the lesson was about mathematics and were aware of the form the legitimate text is supposed to take. But Nirmala, and not Lucy, was able to produce a legitimate text.

All learners interviewed were aware that these lessons were not about context but were about mathematics. They thus possess the 'classificatory principle' which orientates learners to what is expected (Bernstein, 2000:17). However, these learners were not able to produce an acceptable text. A legitimate text in this class was characterized by the ability to produce the required equations from a given context and then successfully solve the equations. Learners, like Daniel and Nirmala, who could write out equations and solve them successfully, possess realization rules (Bernstein, 2000:18) which is necessary for the production of a legitimate text.

There is some resonance between learners' descriptions of lessons and the degree to which Bulelwa and Mr. Smith framed the lessons in their respective classes. Bulelwa weakened the framing value by emphasizing and foregrounding the everyday. In their descriptions of the lessons, Umhlanga learners also foregrounded the everyday. Mr. Smith, on the other hand, emphasized mathematical procedures and his learners offered a description of lessons in terms of these mathematical procedures.

With particular reference to Settlers, a question that arises from having reflected on learners' descriptions of lessons is: What is the point or value of including the everyday if learners seem to view these lessons as mathematical? In other words, of what value is the incorporation of the everyday in mathematics if it does not shape learners' view about mathematics lessons? The following section gives a reflection of the learners' responses to this question. In other words, it explores learners' opinions about the inclusion of the everyday in mathematics.

9.2 LEARNERS' VIEWS ON THE INCLUSION OF THE EVERYDAY

In Chapter 6, Umhlanga learners' overall impression was that a mathematics classroom could be regarded as a relevant platform for engaging and discussing social aspects of the everyday. The everyday was thus not to be seen as a vehicle towards the mathematics. This section explores Settlers learners' views on the value of incorporating the everyday in mathematics. Having analysed and reflected on views expressed by Umhlanga learners, I was particularly keen to find out whether learners at Settlers regard the everyday as a way to dress up the mathematics or whether it provides genuine opportunities to engage issues beyond the mathematics classroom.

9.2.1 Lessons 1 and 2

The view expressed by learners Jerry, Jacob and Justice with respect to Lesson 1 is that the everyday helps them 'understand' mathematics. Nomalanga and Ntombi

considered the everyday as having the potential to ‘catch attention’. Learners also acknowledge the everyday practices and the mathematical tasks that draw on these practices as different domains requiring different strategies. The following are excerpts for this part of the interview.

Post-lesson 1 interview on the significance of the everyday

Renuka, during the course of the interview, asked learners whether they thought having references to things is helpful or not. Following this question, the following exchange took place.

- Justice: I think it [reference to the everyday] helps.
R : References to real life things...do you think it helps?
Jerry : It helps you in understanding.
Justice : Ja (yes).
R : Ok, you don't think you get confused because you think that 'but in the tuckshop we do it like that.'?
Justice : No...it could be different
Jerry : In a tuckshop I could do it in my head but...I know in the real maths if you do it in your head and you get the answer wrong and you leave your answer there then you not gonna get any marks. But if you do all the work instead of just the answer then you get the marks.

[Post-lesson 1 interviews, Settlers, lines 52 – 58]

Post-lesson 2 interview on the significance of the everyday

Renuka (R) and I asked learners on what they felt was the significance of the everyday in mathematics. The exchange continued as follows.

- G: I was going through your book and I see that you were doing these word problem and the difference is that here you solve problems straight away and here you have to read and understand the concept about Sue, the chocolate bars [everyday names in the worksheet] and so on what do you feel about this sort of problems?
Ntombi : I think they are good because they use things like chocolate bars so everybody loves chocolate so it catches your attention ...you would not like advertise shoes, with old tatty shoes...
R: Do you like to have things about real life in the problems
Nomalanga: Yes, you can understand it easier...
R: But could it be a bit confusing I mean like, Do you really when you go to the tuck shop do the calculation like the problem suggests

- Nomalanga: I sort of do because , I have to count how much money I gave this person ...
- R: What about if this is three times the price of ...Do you do that sort thing ?
- Ntombi: When I am going shopping with my granny we round off everything it makes counting easier.

[Post lesson 1 interview, Settlers, lines 213 -220]

In viewing the everyday as ‘attention catching’ and helping learners to ‘understand’; these learners position the everyday as providing a smooth or seductive entry into the mathematics. Used either as a vehicle towards the mathematics or as an object of reflection, the everyday lends itself to different treatments. As learners suggest, in real life settings strategies like ‘rounding off’ or doing sums in the heads are legitimate and easy. In contrast, a mathematics classroom situation will require ‘doing all the work’ and performing more accurate calculations. Learners show their possession of recognition rules and, particularly, the classificatory principles appropriate for different settings.

9.2.2 Lessons 3 and 4

During the post interview 3 with Bill (B), Jamwell (J) and Daniel (D) the view expressed was that the everyday makes mathematics ‘interesting’. There was also an acceptance that real life situations will not require or call for the use of ‘equations’. This part of the interview was conducted by Renuka (R) and myself.

Post lesson 3 interview on the value of the everyday

- G: Okay, what’s interesting is that in real life, do you, i mean this team has played 20 games and has lost 6.Do you use an equation to solve this?
- J: Not really, becuae it is simple because $20 - 14 = 6$.
- R: Do you think people actually use maths when they are working in real life.
- J: Yes, I think they are using it but they don’t know it.
- R: Okay and you think that it is a good idea to do it like that.do you think that sometimes it can be a little distracting?
- J: No.
- R: Okay,so having the real life problem for you makes it interesting.
- J: Easier and interesting.
- R: Easier as well, how does it make it easier?
- J: Its just giving you the basic thing like the dodgers basketball team which you then can say its X or something like that .

[Post- lesson 3 interview, Settlers, lines 82 – 91]

9.2.2.2 Post lesson 4 interview on the value of the everyday

I asked learners, during the post lesson interview 4, whether the everyday makes dealing with mathematics better. However, this question was not responded to as Millicent was at the time more concerned with explaining her concerns regarding the lesson. Meanwhile, the following exchange provides some insights into what learners thought of the inclusion of the everyday.

- R: So you were going to show us something about this number 7.
S: Ja we didn't know how to put it.
R: So you haven't yet done it?
S: No but we know how to. We found out a way to do it, but we can't put in form of x and stuff. We said between the 5 litres and 2 litres she bought, there's 3 litres difference.

[Post lesson 4 interview, Settlers, line 360 – 363]

In this instance, Sue outlined what she found difficult with exercise 2.7 in which was embedded in the context of shopping for milk and bread by Debbie. Sue suggested here that the group could not write appropriate equations to enable a calculation on the basis of the context. So whilst the context is understood as a premise from which to tease out the everyday, it did not, in this case assist such access. At a general level, though, Millicent was quite explicit about her confusion over the expectation that they were to tease out equations from the everyday.

- M: I'm still confused, I'm still gonna ask sir tomorrow if we can...
G: What is the cause of the confusion, Millicent?
R: Millicent.
G: Millicent.
M: I don't know, I'm just confused.
G: Is it today's lesson only or...
M: I think since we started.
G: Or so the use of...?
M: (interrupts) I think it's the way we have to set it out. I just get confused.
G: Ok have you tried your own method or are you trying to follow sir's method.
M: I'm trying to follow sir's method.
R: Do you prefer to use sir's method or do you prefer to use your own?
M: No I understand sirs method but I just can't memorise it.

[Post -lesson 4 interview, Settlers, lines 263 – 275]

Learners mainly view the everyday as a vehicle towards mathematics. They are however divided on whether the everyday succeeds in assisting access to mathematics or not. Learners like Jamwell argue that the everyday makes mathematics ‘easier and interesting’. In other words, the everyday makes accessing of mathematics an easily manageable exercise. Learners such as Millicent found the use of the everyday as means to access the mathematics confusing.

9.2.3 Lesson 5

Even though I had planned to ask Lucy (L) and Nirmala (N) what they thought the value of the everyday was, Lucy somehow gave an indication of her response towards this question. Her response suggests that she viewed the everyday as a platform to engage the mathematics, she also found such use of the everyday confusing. The following is part of the interview during which this aspect cropped up.

Post-lesson 5 interview on the value of the everyday

- G: So you say that the problem is setting up equations?
L: Ja.
G: And what's the difficulty there?
L: Setting up the equation?
G: Hmm
L: Well it's not difficult it's actually very easy. It's just that I get confused when they say like, five litres and three litres and four litres and I don't know which one I am supposed to use to get the equation.
G: Okay. Because I mean that would lead me to the next question, whether you find this useful. Whether you can link it to the world/
L: Well, it is, I can see this helping me if I have problems, but right now need to know how to do it before it can help me.
G: Is that an (...) I mean you say right now you need to know how to do it?
L: Well, I am starting to learn how to do it now because with my extra maths teacher and ja.

[Post-lesson interview 5, Settlers, lines 146

– 155]

Lucy welcomes the incorporation of the everyday in mathematics; she even suggests that she sees it ‘helping me if I have problems’. I could not establish whether Lucy was referring to school mathematics problems or social problems. However, she does admit that there is some value in the use of the everyday. She

admits that ‘right now I need to know how to do it before it can help me’. The incorporation of the everyday seems to be a hindrance because she admits to being confused. She said “They say like, five litres and three litres and four litres and I don’t know which one I am supposed to use to get the equation”.

In all the interviews regarding the value or significance of the everyday in mathematics, the following two points can be distilled. Firstly, learners do not view the everyday as an aspect to be engaged for its own sake. Instead, they suggest that the everyday acts as a seductive tool or bait to attract them towards the mathematics. Phrases like ‘attention catching’ and ‘interesting’ are used to describe the value of the everyday in mathematics. However, learners are divided on whether the use of the everyday as a seductive tool towards the mathematics is helpful or not. Some learners find it confusing whilst others seem to cope in spite of its presence. None of the learners viewed the incorporation of the everyday as an attempt to elicit realistic considerations. For learners, the crux of the matter was mastering procedures of writing out equations. In Bernsteinian terms, these learners possess specialized recognition rules, they are aware of the speciality of the context.

This provides an interesting contrast with learners at Umhlanga for whom the everyday was valued for its social or out-of-mathematics-classroom significance. However, such a consideration (valuing the everyday for its social significance) did not hinder access to mathematics content.

9.3 RELECTING ON THE LEARNERS’ VIEWS

In introducing these lessons, Mr. Smith highlighted that his aim was to illustrate a relationship between mathematics and the everyday. He wanted learners to see the relevance and the value of mathematics beyond the classroom. This is the reason which motivated the inclusion of word problems which incorporated the everyday.

Interviews with learners suggest that they regarded these lessons as some form of exercises in setting up equations. They did not regard the everyday context

summoned as having implications or having a bearing on their actual lived experiences. Therefore, learners may be seen to have applied what Bernstein refers to as a specialized recognition rule. In other words, their view was that ‘this context is a specialized context and must be treated in a particular way’ (1996:35). Reference to ‘basketball team’ was not expected to provoke debates on learners’ experiences of the sport. Even though some learners found the use of context confusing, they did not attribute such confusion to their lack of knowledge about the context. The rationale for including the context was to make the tasks ‘interesting’ or ‘attention-catching’. The everyday was thus considered by learners as ‘special’ for purposes of mathematics and not ‘real’.

Bernstein associates selection of specialized recognition rule with learners’ privileged or middle class background. Taylor believes that such an explanation could hold for a South African setting: “While unequal distribution of material resources and quality teachers make an enormous difference to student learning, the greatest obstacle to equity in any schooling system is the differential access to formal knowledge open to children of different social classes”. Learners at Settlers, given the school fees and the school’s location (as highlighted in Chapter 7) are mainly drawn from middle class families. Therefore it seems reasonable to regard Bernstein’s explanation cited above as adequate.

In explaining learners’ treatment and views of the everyday context in mathematics, Bernstein theory tends to be premised on the learners’ background. Skovsmose, on the other hand, shifts the focus towards the tasks themselves. His view, in particular, is that standard word problems lack the potential to evoke a realistic consideration or question of relevance. He argues that

Standard word problems do not establish the conditions for reflection because reflections are immediately reduced to: have we done the calculation right? Is the result presented in a way that will satisfy the teacher? The problem itself has no importance for the children and the actual solution of the problem becomes irrelevant. The only thing important is the instrumentalist value of having solved the exercise in a satisfactory way.

Skovsmose, 1994:116.

Thus, a learner like Daniel, who managed to set up correct mathematical equations from these word problems can be seen to have acquired ‘instrumentalist’ knowledge. In this regard, learners who found the incorporation of context confusing and who thus failed to set up equations from the word problems are disadvantaged at two levels. First, at the level of the mathematics content, they fail to tease out the required mathematical equation from the everyday because the everyday does not facilitate access to this mathematical skill. Second, at the level of a context, because of its unrealistic or pseudo-realistic nature, they do not see the practical value of the everyday.

Bernstein and Skovsmose offer different interpretations regarding learners’ views on what the lessons entailed and what the value of the everyday was. What would shed more light on the learners’ perspectives towards the everyday in mathematics is a consideration of the context. These learners were responding to tasks within a classroom context. As a result, they were responding to a range of demands by the teacher, assessment requirements etc. In the following section I try to provide an explanation of the learners’ views on the basis of the classroom context.

9.4 TAKING THE CONTEXT INTO CONSIDERATION

Even though the school and the classroom contexts of Umhlanga and Settlers are different, the settings under which learners engage tasks are similar: The incorporation of the everyday is mediated by the teacher. The teacher communicates the role of the everyday through the nature or type of the everyday he or she recruits and how these are presented in the worksheet.

The teacher’s justification for including the everyday: Like Bulelwa, Mr. Smith was to complete a questionnaire after each lesson. The first part of the questionnaire was phrased as follows: *What was the main thing you wanted students to learn today* and the second part of the questionnaire was *why do you think it is important for*

students to learn this. For Lessons 1 to 3 he wrote : *Conversion of English to maths.* For Lessons 4 and 5 he gave a similar response: *Problem solving and translation of English into mathematics.* Thus word problems, which incorporated the everyday, constituted part of a collection of tasks he used towards teaching learners to convert English to mathematics.

Unlike Bulelwa, who justified the incorporation of the everyday on the basis of social aspects, Mr. Smith's aim was to enable access to mathematics. He implied this as well, during the interviews.

G: In the design of problems, those word problems; you drew quite interestingly from learner's experiences, for example the use of CD's-does it matter what kind of answer is produced if the calculation leads to something like the cost of one CD is R2-30*? Would that be a problem?

Having clarified what the question was after he responded

T: I will probably want it to be more accurate. I want them to pick up that if 3 CDs cost R9 one CD cost R3. For me the procedure is important not the actual problem. It's just that I know these kids buy CD's or they buy shoes with exorbitant price. I want to relate to an everyday experience to bring it... (He doesn't finish the sentence) What I am actually saying: " this is where you are using maths in real life without saying this is maths in real life". To me it's the procedure that's more important. I would prefer them to sit there and say I am realistic (We all laugh). I know this weekend I bought a CD and it cost me R130 and you are telling me it costs R9! I prefer them to do that but if it helps them to know if 3 CDs cost R9 to get one it costs R3, I need to divide by 3-for me that is the key issue.

[Teacher interview, Settlers, lines 77 and 80]

For Mr. Smith, the 'procedure is more important' and yet he also preferred that learners should consider him 'realistic'. In spite of its murky nature, it is reasonable to tease out that the substance of Mr. Smith's response is that, for assessment purposes, he considers the mathematics procedure to be more legitimate.

* R2.30 is an unrealistic cost for a CD. The price of one CD would be about R100. The question assumed that the teacher understood this consideration.

The phrasing of the tasks in the worksheet: In the worksheet, tasks which drew from the everyday were not separated from those which drew from the mathematics. The tasks were presented as part and parcel of the same worksheet. For example, a word problem, drawing on the mathematics context of ‘consecutive numbers’ served the same purpose as a task which recruited the everyday context of ‘surfing and reading a book’. These tasks were seen as resources from which mathematical experiences of formulating equations could be drawn.

Unlike Bulelwa’s worksheet, Mr. Smith’s worksheet was not accessible to the non-native speakers of mathematics. The mathematical intentions were announced through the worksheet was characterized by extensive use of mathematical symbols, particularly alphabetic symbols. In this regard, mathematics or everyday context had a ‘symbolic function’, they were pointing towards or representing something else (Pimm, 1995: 14).

The nature of the everyday recruited: Even though Mr. Smith acknowledged the importance of paying attention to realistic considerations. He also suggested that for assessment purposes, the content or procedure for solving a task was more important than these realistic considerations. This showed up during one classroom discussion when he expressed his disbelief that omitting a mention of the everyday (e.g. 14 equals Kelley’s age) would warrant losing marks. For him, the procedure on how the numerical answer was obtained (e.g. 14) was more important.

Therefore, the nature of the everyday Mr. Smith recruited was meant to enable access to mathematics. Such everyday was mainly inauthentic, characterized, as highlighted above, by the presence of alphabetic symbols.

In engaging the tasks, learners viewed the everyday as special and thus did not draw in the everyday considerations. For some of the tasks, such considerations would not be possible, for example in exercise 1 task 1: *John’s age is p years. Write down in terms of p , Sue’s age if she is 16 years older than John*, the context does not lend

itself to reflections which draw on the everyday. The use of letter symbol p disables such reflections.

Even for tasks whose context had the potential to provoke real life discussions, no space was afforded in class for such discussions to take place. One such task was exercise 2 number 2; *Michael spent 7 hours at the beach. If he relaxed in the shade reading for 3 hours more than he surfed, for how long did he surf?* The solution produced for this task was that he relaxed and read for 5 hours and he surfed for 2 hours. Mathematically, the answers are correct, however, realistic considerations suggest that Michael should spent more than 7 hours at the beach. More time would need to be added for walking towards a shade, looking for a book, paging through it and taking a comfortable reading position. This response should however be viewed against the selection of specialized recognition rules by Settlers learners. Selection of these rules lead to the ignorance of ‘noise’, that is, information that has no bearing on the correctness of a mathematical answer.

SUMMING UP

In this chapter I have described and analysed learners’ perspectives regarding the incorporation of the everyday in mathematics. Learners welcomed the use of the everyday in mathematics and viewed it as a vehicle towards the mathematics content. Some learners were able to use the everyday as vehicles towards the mathematics whilst others found the everyday inhibiting. Failure to access the desired mathematics content was therefore not due to inappropriately inviting the everyday considerations. Thus, in spite of acknowledging the special context in which the everyday was used, some learners regarded the everyday as a source of confusion and delaying access to mathematics content. Like Umhlanga learners, Settlers learners’ views are in accord with the way the teacher intended to use the everyday.

Having explored the learners’ experiences and views about the incorporation of the everyday in Settlers and Umhlanga, the next chapter steps back and interrogates the

theoretical position of the study, the methodological assumptions and the claims made on the basis of the empirical.